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The Morphosyntax of Subjects in Macuiltianguis Zapotec

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Linguistics

by

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2006

Què' yhí'nitó'yà'ni.

Ríbeedáyà' què'ní ca ìttsìni gúúncanàlù' compa què' gúthèètè'lù' xtìisà' ca benné' cho'á.

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List of Abbreviations

1, 2, 3	first, second, third person
A	accusative
AFF	affirmative
AGRES	aggressive
ANAPH	anaphor
ANIM	animal
APPL	applicative
BAS	phonological BASe
C	completive
CAUS	causative
CHI	child
COMP	complementizer
D	dative
DEM	demonstrative
DIM	diminutive
DIMPL	diminutive plural
DIST	distal
EMBQ	embedded question
EMP	emphatic
EXCL	exclusive
F	formal
FOC	focus
G	genitive
H	habitual
HAB	habitual
I	indefinite potential
IMP	imperative
INCH	inchoative
INCL	inclusive
IND	independent
INDEF	indefinite
INF	informal
INT	intensifier
INTR	intransitive
INVIS	invisible
IRR	irrealis
MID	middle
N	nominative
N	non-finite
NEG	negative

NEGIMP	negative imperative
NEUT	neutral
NONFIN	non-finite
p	plural
P	potential
PERF	perfective
PL	plural
POSS	possessive
POT	potential
PREP	applicative PREPosition
PROG	progressive
PROX	proximate
PSSD	possessed
R	respectful
RE	repetitive/restorative
REL	relative pronoun
RESP	respectful
S	singular
S	stative
STAT	stative
TR	transitive
=	clitic boundary
-	affix boundary, bound root
.	separates complex gloss
/	fused morphemes

Acknowledgments

Who would have thought that compiling a linguistics department newsletter could be such a life-altering experience? When my advisor-to-be, Pamela Munro, sent me a blurb describing her NSF grant to work on San Lucas Quiaviní Zapotec, I never imagined that volunteering to be her research assistant would change my life, both professionally and personally. I will be forever grateful that she took a chance on a first-year student she didn't know, who didn't have any fieldwork experience, and who didn't really fit the job description all that well. I have benefited immensely from her generosity, encouragement, guidance and feedback. I hope that some day I can have as profound a mentoring relationship with someone as she has had with me.

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I hope this dissertation can be an adequate beginning for a record of the Zapotec of Macuiltianguis and that it can serve as a basis for revitalizing the language.

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ABSTRACT OF THE DISSERTATION

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By

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Several Zapotec languages (VSO Oto-Manguean languages of Oaxaca, Mexico) exhibit a typologically unusual backward binding construction in which a null subject is licensed when it is coreferential with a possessor embedded inside some following DP object argument (see Butler 1976, Black 2000, Avelino 2004, Avelino, et al. 2004, Foreman 2004, and Sonnenschein 2004). Within such a configuration, the possessor neither precedes nor c-commands the grammatical subject. Such structures pose a major challenge for Binding Theory (Chomsky 1981, 1986) and other theories of anaphora. Recent developments within the Minimalist framework (Chomsky 1995), however,

provide new insights into the structure of this construction, which I label Covert Subject Binding.

In this dissertation, I investigate CSB as it appears in Macuiltianguis Zapotec (MacZ). As the language has not been previously documented, I first present an overview of various aspects of the grammar that are useful in understanding CSB. I then explore the properties of canonical (overt) nominative subjects, developing diagnostics that can be applied to CSB. As a test case, I first apply the diagnostics to dative subjects, confirming their subject status. I then use the diagnostics to distinguish true genitive subjects, which are superficially similar to CSB, from actual instances of CSB.

I then pursue a covert movement account of CSB. Under my analysis, copies at Spell-Out occupy the possessor position, the thematic subject position, and the structural subject position in [Spec,TP]. In the case of CSB, PF resolves the movement chain in favor of the lowest link, the grammatical possessor. To accomplish this, I follow Polinsky and Potsdam (2002) in adopting Hornstein's (1999) treatment of theta-roles as features, which can trigger DP movement from one theta-position to another. I propose that the relative strength of a copy is determined by the strength of the features it satisfies. Weak features produce weak copies and strong features produce strong copies. The PF component is then able to evaluate a movement chain to determine which link should be pronounced. If theta-features along with nominative case features and D-features are weak then the movement will be covert, yielding a CSB structure.

1 Introduction

Macuiltianguis Zapotec (MacZ) has several different realizations of subject arguments. There is no consistent morphological mechanism that signals that these arguments are all subjects or that they share a common grammatical realization. Different mechanisms are also involved in licensing different subject types. Thus, the language has nominative subjects, which are directly licensed by the verb, dative subjects, which are licensed via an incorporated applicative preposition, and genitive subjects, which are licensed via an incorporated noun. These are exemplified below:

1. ***Nominative Subjects:***

   a. Begwiia' =ya' =nà
      C/see =1SN =3A
      I saw him.

   b. Begwiia' =nà =ntè'
      C/see =3N =1SA
      He saw me.

2. ***Dative Subjects:***

   a. Nabiia'=ni =ntè' =nà
      S/know=PREP =1SD =3A
      I know him.

   b. Nabiia'=ni =nà =ntè'
      S/know=PREP =3D =1SA
      He knows me.

3. ***Genitive Subjects:***

   a. Bettsa'- -nàá' =ya'
      C/join- -hand =1SG
      C/get.married
      I got married.

   b. Bettsa'- -nàá' =nì
      C/join- -hand =3G
      C/get.married
      He got married.

While these various subject types are well-attested in other languages (see Bhaskararao and Subbarao 2004 for a survey), it is still important to determine if these arguments are all correctly identified as subjects in MacZ.

It is the goal of this dissertation to determine what cluster of properties the underlined expressions in 1-3 have in common that indicates they should be treated as a

unified category of subject. I will also investigate how these various realizations come about and the syntactic structures involved. Lastly, I will consider some of the surprising results that obtain from the application of the subject diagnostics developed to establish the subject analysis of 1-3. In particular, while the genitive subject analysis is supported for verbs like *bettsa'nàá'* 'got married' in 3a-b, it turns out that many genitive expressions which provide the semantic subject do not occupy the surface subject position and do not exhibit any subject properties. This leads to the conclusion that MacZ has a typologically unusual backward binding construction in which a subject may be non-overt when coindexed with a lower DP, typically a genitive possessor. This construction has been observed in various other Zapotec languages including Yatzachi (Butler 1976), Quiegolani (Black 2000), Yalálag (Avelino 2004), Zoogocho (Sonnenschein 2004) and Colonial Valley Zapotec (Avelino, et al. 2004).

In this structure, the interpretation of a null subject is controlled via a coreferential possessor which follows the subject position and is structurally inferior to it. After establishing this syntactic structure, I will investigate an LF-movement account of this backward binding construction, following Polinsky and Potsdam's (2002) analysis of backward control.

1.1 General Background

San Pablo Macuiltianguis is located in the district of Ixtlán in the state of Oaxaca, Mexico at a latitude of 17°32' and longitude of 96°33' (García García et al. n.d. [1998]).

It is at the northern border of the Zapotec area in Oaxaca (see the map in Figure 1-1). The next towns to north, like Santiago Comaltepec seen in the map, are Chinantec.

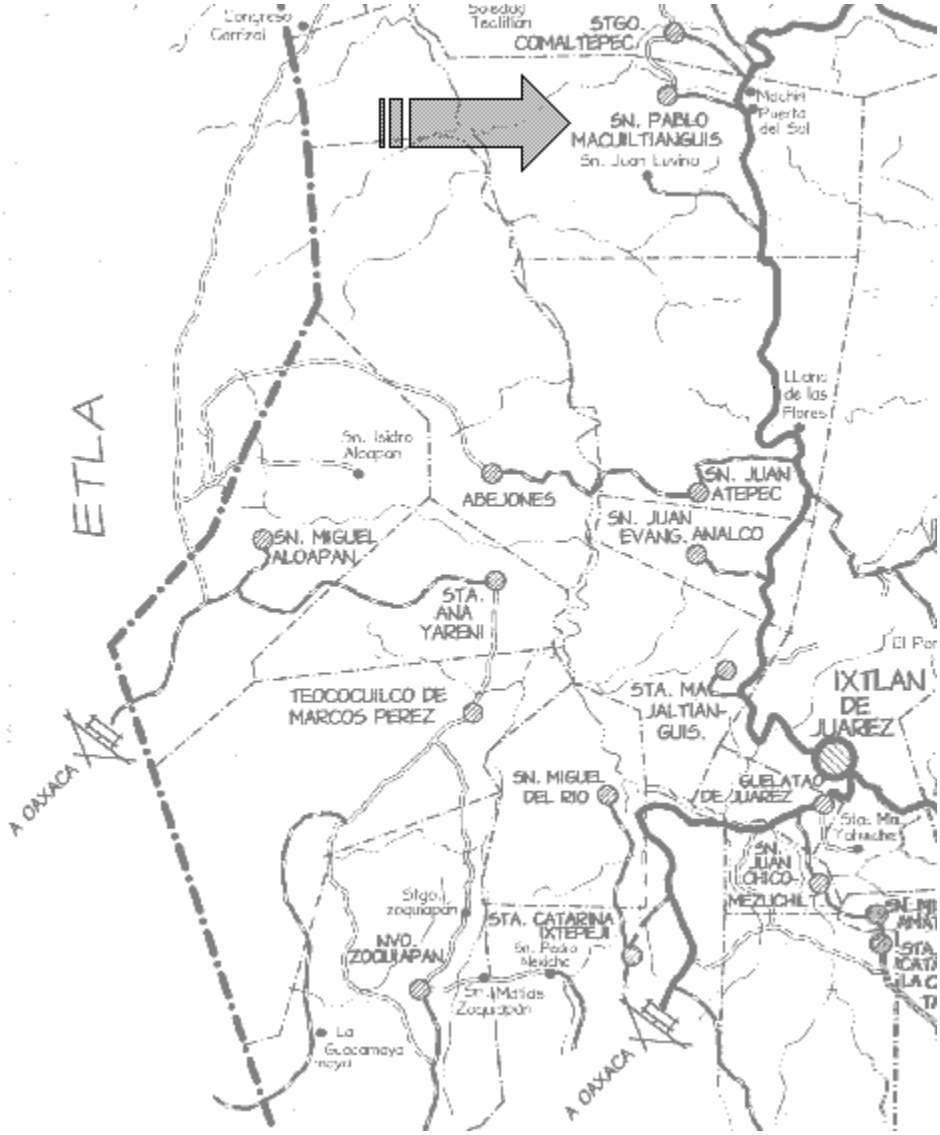


Figure 1-1: Map of Sierra Juárez Zapotec Region
(Adapted from García García et al. n.d. [1998])

San Pablo Macuiltianguis is a municipal town governing an area—indicated by the lighter dotted line on the map—called the municipio of San Pablo Macuiltianguis, an area of 162.03 km^2 (62.56 mi^2) (García García et al. n.d. [1998]). The municipio is

located within the Sierra Juárez Mountains and includes another sizeable town, San Juan Luvina, within its jurisdiction (Machín and Puerta del Sol, which are also marked on the map, are essentially outposts with at most one family living in each place). The town of Macuiltianguis itself is situated in a temperate zone about halfway up the mountains at an elevation of 6955 feet. Its territory ranges from about 5000 feet in elevation to at least 9000 feet (García García et al. n.d. [1998]), with a semi-arid climate at the lower elevations and pine and oak forests at the higher elevations.

1.1.1 The People

As of 2000, the population of the municipio—the towns of Macuiltianguis and Luvina plus the territory governed by Macuiltianguis—was recorded as 1135 (Instituto Nacional de Estadística Geografía e Informatica [INEGI] 2006). A 1995 census, the latest date for which I could find population statistics for the individual towns, reports 566 living in the town of Macuiltianguis and 691 living in Luvina (García García n.d. [1998]). Both towns have seen their populations decline sharply in recent years. In 1960, Macuiltianguis had a population of 1151 but less than half that population today (García García n.d. [1998]). Luvina's drop in population has been more recent, hitting a high population of 864 in 1980 before declining to its current numbers. This decline in population appears to be continuing, and the municipio as a whole has lost another 130 people in the five years between 1995 and 2000.

The decline in population is primarily due to emigration. Sizeable numbers of townspeople (one to two hundred people) are now living and raising their families in each of Oaxaca City, Mexico City and Los Angeles County in the United States. Various

others are scattered throughout Mexico and the United States, though not in such large concentrations.

These population shifts have had a significant impact not only on the town but on the number of MacZ speakers. To my knowledge, no one born and/or raised outside of the town has acquired the language, even in cases where both parents are from Macuiltianguis and speak MacZ. Instead, such heritage speakers are being raised as monolingual Spanish speakers in Mexico and as bilingual Spanish-English speakers in the United States.

Not only is the language being lost by those living outside of town, but the percentage of speakers living within the town is also declining steadily. Within the past 40 years or so, there has been a push to raise children to speak only Spanish and a resulting decline in Zapotec speakers.

The 2000 census (INEGI 2006) identified 693 Zapotec speakers within the municipio, about 67% of the 1037 inhabitants aged 5 or older (another 44 people were identified as speakers of other indigenous languages, mostly varieties of Chinantec). Of those inhabitants 40 years old or older at the time of the 2000 census, 96% were identified as speakers of an indigenous language.[1] For the 25 to 39 age group, the percentage falls to 73%. Only 64% of 15 to 24 year olds were identified as speaking an indigenous language while 48% of 10-14 year olds were and only 35% of 5-9 year olds were.

[1] Specific languages are only identified for the entire municipio and are not broken down by age, but presumably most of these people are Zapotec speakers since less than 6% of the indigenous language speakers speak something other than Zapotec.

4.	**Age Groups**	**% Speakers**	**Population**	**Speakers**	**Monolinguals**[2]
	5&up	71%	1037	737	18
	5 – 9	35%	127	44	0
	10 – 14	48%	183	87	0
	15 – 19	65%	102	66	1
	20 – 24	64%	72	46	1
	25 – 29	72%	46	33	0
	30 – 34	68%	60	41	1
	35 – 39	78%	55	43	0
	40 – 44	90%	41	37	1
	45 – 49	98%	47	46	3
	50&up	97%	304	294	11

I find these latter numbers rather interesting. My impression was that as of 2000 in the town of Macuiltianguis itself, no one under the age of 20 actively spoke the language. Younger people might have known some words and might have had varying degrees of passive understanding, but they did not actively speak the language even with their parents and older relatives, let alone with their peers. In contrast, Chinantec children who were in town to attend the secondaria (junior high) were observed speaking Chinantec among themselves. In fact, I would predict that the 39 people identified as speaking Chinantec might skew younger and be partially responsible for the surprising number of 5-14 year olds identified as speaking an indigenous language. Unfortunately, the breakdown by age does not identify the language spoken. Possibly the numbers are also artificially high because they rely on self-identification and do not test comprehension and production. I feel, however, older speakers are rather sensitive to the abilities of younger speakers and tend to judge them more harshly. Therefore, I would expect them to be less likely to identify a young child as a speaker and would expect

[2] These are people who are identified as speaking an indigenous language but not Spanish. Possibly some are fluent in more than one indigenous language and, therefore, not actually monolingual.

underreporting rather than overreporting. Another possibility, and the most exciting one, is that there are children within the municipio who are still learning Zapotec, if not in the town of Macuiltianguis, then perhaps in San Juan Luvina. An anthropological study has described Luvina as being more conservative (Ueli Trachsler, pc), so this might be a possibility. Further research is needed to identify young speakers, their degree of mastery, and the contexts in which they may use the language.

1.1.2 The Language

Macuiltianguis Zapotec (MacZ) belongs to the Zapotecan family of languages found in the state of Oaxaca, Mexico. In turn, Zapotecan is part of the larger Otomanguean stock that, according to the Ethnologue, consists of some 174 languages grouped into seven language families (Gordon 2005) as seen below in Figure 1-2:[3]

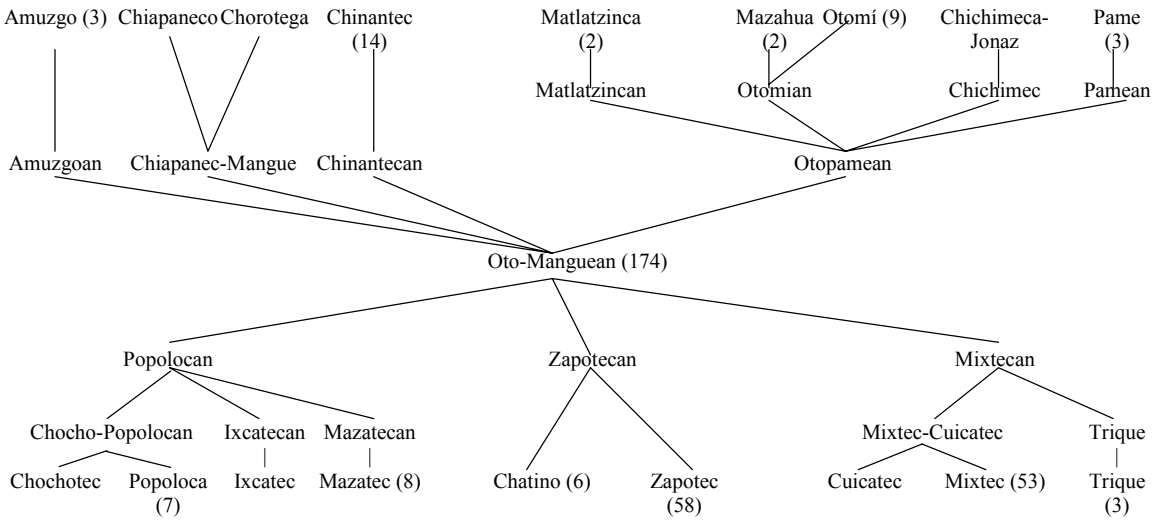


Figure 1-2: Oto-Manguean Stock

[3] The classification is taken from the Ethnologue (Gordon 2005). The numbers in parentheses indicate the number of individual languages in each group.

Zapotecan is further subdivided into the Chatino subfamily and the Zapotec subfamily, both of which consist of a number of mutually unintelligible languages that are each individually referred to as Chatino or Zapotec respectively. In turn, the Zapotec subfamily may be further subdivided into northern, eastern, western, southern and central branches. MacZ, spoken in the Sierra Juárez region, belongs to the northern branch of Zapotec.

The exact number of Zapotec languages is unknown with estimates ranging from as few as four (Encyclopedia Britannica) to as many as 58 distinct languages (Gordon 2005). Certainly, there is a lot of variation within the family. Within the area around Macuiltianguis, I have observed significant differences from town to town. MacZ is part of a dialect chain; the Zapotec of the region varies from town to town (and within towns) with decreasing intelligibility across greater distances.

Certainly there is a high level of mutual intelligibility between MacZ speakers and Zapotec speakers from the town of Luvina, which is in the same municipio and less than an hour's walk from Macuiltianguis. I have witnessed long conversations between my MacZ consultant and people from Luvina. However, I will restrict myself to a discussion of Zapotec in the town of Macuiltianguis. Despite more significant differences, MacZ speakers also report being able to understand the Zapotec of Abejones, Atepec, Analco and Jaltianguis.

Although these towns are not explicitly listed in the Ethnologue, they are all presumably grouped together as part of Sierra Juárez Zapotec (Gordon 2005).[4] This classification is mainly based on the Zapotec of Atepec documented in Nellis and Nellis 1983 and Bartholomew 1983 and elsewhere.

While MacZ and Atepec Zapotec (AZ) are certainly very closely related, there are surprising differences between the two, many of which are discussed in the body of the dissertation. For example, as discussed in Section 3.2, the two languages differ in the form, number and use of clitic pronouns, which occurs quite frequently in Zapotec (see Munro 2002 and references therein). MacZ also has an additional tense/aspect form not found in AZ (see Section 3.1.1.4).

In addition, the two languages have many individual vocabulary differences, as exemplified below in 5. Sometimes, the two languages have completely unrelated words, whereas other times the words are clearly related but with significant (non-systematic) pronunciation changes.

[4] The Ethnologue has recently distinguished Southeastern Ixtlán Zapotec [ZPD] from Sierra Juárez Zapotec [ZAA], considering them to be separate languages. Interestingly, the Atepec dictionary lists a few variant forms from towns, such as Guelatao de Juárez, now considered to be part of ZPD. In the dictionary, such variants are merely listed as though they represented dialectal variation, but now it seems these differences may reflect distinct languages. My feeling is that MacZ should also be considered a distinct language from Atepec, but further research on intelligibility is needed to confirm this suspicion.

5.

MacZ	**AZ**	**gloss**
untó'	huátsá	*child*
bíxcá	bíáníca, bíéccá	*why*
xcwaaná	tácuaná	*uncle*
ànúúdi	lanú nuỹa, núttu	*nobody*
làcunni	lacanùì	*this*
chò'	quì'lu'	*yours*
chincú'	(x)cuichutó', xcuinchu(tó')	*little*
xpiilá	bilá	*cockroach*
yhíírú'	xpírú'	*belly button*
ubiisa	bitsa	*sun*

Various regular sound correspondences also hold between the two languages. For example, non-geminate AZ *ts* has become *s* in MacZ (Section 2.1.2), and [(k)kiV] in AZ corresponds to [(t)tSV] in MacZ (Section 3.3.2). Unstressed *i* is frequently deleted in MacZ, particularly with a *ri-* habitual prefix (Section 2.5.1) and in certain morphemes of the shape *ni*. In addition, metathesis of *n*-vowel sequences in MacZ occurs both synchronically and diachronically (Section 2.6). In contrast, AZ has lost initial consonants in pronominal clitic morphemes, resulting in extensive morphophonological interactions between the resulting vowel-initial pronouns and the word to which they attach. AZ has also lost initial nasal consonants in demonstrative clitics again leading to phonological interactions with preceding words (Section 2.6).

Despite these differences, there seems to be a fairly high degree of intelligibility between MacZ and AZ, although I personally have mostly had the chance to observe MacZ speakers understanding of AZ rather than vice versa. Two short stories recorded in AZ were understood by my MacZ consultants and I did observe my MacZ consultant understand one brief conversation in AZ. I am not sure if this represents a certain amount of bilingualism (bidialectalism), or if it may be that content words are often enough the

same that context can make up for differences in functional areas. Additional research on this topic is needed.

1.2 Previous Work on Zapotec

Atepec Zapotec has been extensively studied. As noted, both a dictionary (Nellis and Nellis 1983) and a grammar (Bartholomew 1983) of the language have been produced. In addition, two master's theses have been written on the language: Marks (1976) looks at AZ verb morphology and tone, while Gibbs (1977) investigates AZ discourse elements. Articles concerning the language include Nellis 1947 and Bickmore and Broadwell 1998.

There are also a variety of materials, mostly descriptive in nature, about other, more distantly related Zapotec languages. Longer works on other Northern Zapotec languages, which are more closely related to MacZ, include a grammar (Butler 1980) and dictionary (Butler 1997) and various descriptive articles, including Butler 1976 of Yatzachi el Bajo Zapotec. Additionally, there is a dictionary (Long and Cruz 1999) and dissertation (Sonnenschein 2004) of Zoogocho Zapotec. On Yalálag Zapotec, there is a book on verbs (López and Newberg 1990) and a dissertation (Avelino 2004).

For more distantly related Zapotec languages, the following materials are available. The earliest documentation of a Zapotec involves Valley Zapotec languages which were recorded in Córdova's dictionary (1987 [1578b]) and grammar (1886 [1587a]). More recent materials include a dictionary (Stubblefield and Stubblefield 1991) and grammars (Briggs 1961, Stubblefield and Hollenbach 1991) of Mitla Zapotec,

and a dictionary of San Lucas Quiaviní Zapotec (Munro and Lopez et al. 1999). Two dissertations (Lee 1999, Galant 1998) have also been written on this language along with various articles. There is also a dissertation (Rosenbaum 1974) on San Francisco Lachigoló Zapotec.

The principal material available on Southern Zapotec languages is Black 2000, a generative approach to syntax in Quiegolani Zapotec, and a dissertation on Coatlán-Loxicha Zapotec (Beam de Azcona 2004). In the eastern group, Isthmus Zapotec has been extensively documented with various articles, a dictionary (Pickett et al. 1959) and a popular grammar (Pickett, Black and Marcial 1998).

1.3 The Data

At the end of 1997/beginning of 1998, a group of linguists at UCLA began studying MacZ. This group included Pamela Munro, Aaron Broadwell (visiting from SUNY Albany), Jie Zhang and, eventually, me. Occasionally, other linguists have also collaborated on documenting the language, including Brook Lillehaugen, Roger Billerey-Mosier, and Michael Galant. To my knowledge, there had been no previous documentation of the Zapotec of Macuiltianguis in particular. This work on MacZ has resulted in various papers including Foreman 1998a,b, 1999, Broadwell and Zhang 1999, Foreman 2000a,b, 2002, Avelino, Foreman, Munro and Sonnenschein 2004, Foreman 2004a,b, Foreman and Munro (to appear), and Foreman 2005a,b, (in preparation). Unless otherwise noted, all MacZ data provided are from my fieldwork.

The majority of my fieldwork has taken place with speakers living in Los Angeles. I have primarily worked with two native speakers, Ignacio Cano and Margarita Martínez, both together and separately. The data in this dissertation particularly reflects their idiolects. At times, we have been joined by other Zapotec speakers in Los Angeles including Joaquin Pérez, Jaime Pérez, and Gabriel Alavez Cano.

Typically, data was collected using standard linguistic elicitation. Usually, the language of elicitation in the United States is English or Zapotec. I asked my speakers how various things would be said in Zapotec and also manipulated sentences in Zapotec to have their grammaticality judged. In addition to simple elicitation, the data has also been supplemented by several recorded oral narratives and short written compositions produced for the newsletter of OPAM (Organización Para la Ayuda Macuiltianguense), a community group for townspeople living in the United States.

I have also made various field trips to Oaxaca City and Macuiltianguis to collect additional data and consult with other native speakers. These trips were made in the summer of 2000, November 2001, December-January 2004-5, and the summer of 2005. There, I collected data (both spontaneous and elicited) from numerous speakers, both male and female, across a wide age range: from those in their early 30's to those over 90. In addition, almost all of my recorded narratives were made in Oaxaca by speakers still living there.

Example sentences are generally given in the format seen in 6 and 7 below.

6. **Beyuuncanà.** {mm}
beyuuni =ca =nà
C/repair =PL =3A
Fix them!

7. **Ìntè' rtoottse'ntè' lagooni.** {ii286e}
ìntè' rtoo =ni =ttse' =ntè' lagoo =ni
IND/1s H/taste =PREP =well =1sD food =PROX
This food tastes good to me./I like the taste of the food.

The first line, in bold, represents the phonological output as given in the practical orthography discussed in Section 2.4. A space separates phonological words (and occasionally elements whose status as an independent word is uncertain). Additional information is sometimes indicated on this line, such as whether or not a word is optional or why the sentence is relevant to the point under discussion (so in 7, an underline is used to mark the dative subject fused with the dative applicative clitic *=ni*). Ungrammatical sentences are marked with an asterisk (*) at the beginning of this bold line.

The information in braces ({}) merely references the location of the sentence within my field notes so that I can trace the context in which the sentence was given, who provided it, and if related examples were considered. Some examples do not contain this information. Only the examples where I had the presence of mind to do this are so cross-referenced. Examples from other languages are given in the form presented in the cited source.

In the next two lines, the example is broken down into its component morphemes with the English gloss lined up underneath. Bound morphemes are separated by an = if they are clitics, by a – if they are affixes or bound roots. Fused morphemes, typically verbs and their aspectual prefixes (see Section 3.1.1 for discussion), are indicated by a /

in the gloss. When possible, morphemes are given in their citation form, which may undo some of the phonology present in the first line. In 6, for example, the interlinear gloss of the verb is given in its citation form *beyuuni* including the final vowel, which is lost under morpheme concatenation. In addition, the interlinear gloss may present morphemes in an underlying order, undoing phonological reorderings. This mainly occurs with the applicative morpheme *=ni* as discussed in Section 2.6.2.2 and 5.3.3. As seen in 7, in the morphosyntax, *=ni* forms a constituent with the verb to exclusion of the clitic adverb. Phonologically, however, *=ni* is attracted to the first following clitic pronoun and interacts with it (in this case, fusing with it).

The last line provides a free translation of the Zapotec or provides the English sentence that was used to elicit the Zapotec. Sometimes, this policy of giving the English elicitation sentence leads to slight mismatches between the interlinear gloss and the English sentence. For example, in 6, the best and most succinct gloss of the verb is probably 'repair'. However, the sentence was elicited with the more colloquial 'fix' and this is maintained in the provided English equivalent. Occasionally, more significant mismatches can occur. In 7, the Zapotec was elicited with the English 'this food tastes good to me'. In the MacZ equivalent, however, the taster appears as the grammatical subject instead of *this food* (see Section 5.1). As a result, the MacZ grammatical relations do not match those of the English equivalent, but it is difficult, if not impossible, to find a perfect match in such cases anyway. In such situations, an alternative English form may be given after a slash or such discrepancies may simply be noted. Finally, MacZ pronouns do not encode gender, but a gender must be chosen for the English translation.

Again, I have maintained the English sentence that was used to elicit the Zapotec, which has resulted in an overrepresentation of masculine pronominal forms.

1.4 Organization of the Dissertation

This dissertation is organized into two parts. The first part, consisting of Chapters 2 and 3, provide a grammatical sketch of various aspects of MacZ grammar. The work in the first section looks mostly to comparative (both historical and typological) accounts of the phenomena under discussion. The second part, Chapters 4-6, focuses on the grammatical realizations of subjects in MacZ. These chapters are concerned with a Minimalist account of various synchronic syntactic phenomena related to subjects in MacZ.

As MacZ has not been previously described, Chapters 2 and 3 provide a general descriptive overview of MacZ grammar, particularly focusing on those aspects of the grammar which will be useful in understanding the structure of subjects, which is the focus of the rest of the dissertation. This section also provides a comparison with other Zapotec languages, especially with Atepec Zapotec, a very close relative of MacZ with significant documentation. These languages present a study in microvariation. Although they are quite closely related, they differ in all aspects of grammar, from phonology to morphology and lexicon.

Chapter 2 focuses on the phonetics and phonology of the language. For those readers more interested in syntactic issues, it can probably be safely skipped, apart from the phonetic charts on pages 21-22 and perhaps the section discussing the

morphophonology of *=ni*, an incorporated prepositional clitic involved in the licensing of dative subjects, the topic of Chapter 5. Chapter 3 provides an overview of various relevant morphosyntactic features of MacZ. In particular, it focuses on the morphological structure of verbs (important for understanding subject realizations), pronouns (which show case distinctions and are important for non-nominative subjects), and noun phrases (whose structure is crucial in understanding Covert Subject Binding).

Chapter 4 begins the investigation of subjects in MacZ by looking at canonical nominative subjects in MacZ. It focuses on determining the surface postverbal subject position and various preverbal positions to which a subject may be moved or dislocated. The chapter then investigates which morphological and syntactic processes are associated with the grammatical subject. Some of these properties are of typological interest, including Covert Subject Binding and the distribution of resumptive pronouns. These subject properties can be used to evaluate the syntactic subjecthood of non-nominative subjects. The subject diagnostics center around word order, movement, imperatives, non-finite verb forms, and Covert Subject Binding.

In Chapter 5, the subject diagnostics are applied to dative subjects, like that in 2 above. This establishes that the language does in fact have dative subjects licensed by the incorporated applicative preposition *=ni*. After establishing the existence of dative subjects, I develop an account of when *=ni* licensed arguments appear as grammatical subjects and when they appear as objects. I then consider case assignment. It seems necessary to conclude that MacZ allows multiple case checking (or PF case-assignment). Here, I adopt the copy theory of movement (Chomsky 1993) with the particular

formulation that all copies are visible at PF, which then filters them for pronunciation (see Brody 1995, Bobaljik 1995, 2002, Pesetsky 1998 and Groat and O'Neil 1996 among others). In particular, I propose that information concerning the relative strength of features (weak versus strong) is present at PF, assisting in the determination of which copies to pronounce.

In the final chapter, the subject diagnostics are applied to genitive subjects. Again genitive subjects for MacZ are confirmed by these diagnostics. Interestingly, however, another construction, which is superficially similar to genitive subjects, is also revealted. This is the phenomenon of Covert Subject Binding (CSB) in which a phonetically null subject has its interpretation controlled by a following, structurally inferior possessive DP. While the true genitive subjects exhibit all of the subject properties discussed in Chapter 4, the CSB genitives do not. This is consistent with the syntactic constituency evidence which shows that the CSB controlling genitive argument remains a syntactic possessor embedded inside a non-subject DP. These subject diagnostic tests and constituency tests argue against alternative derivations of CSB such as incorporation and establish that there is no overt subject, but that the subject interpretation comes from the structurally inferior possessor. Establishing this, I then pursue an analysis of CSB along the lines of backward control developed by Polinsky and Potsdam (2001, 2002) for Malagasy and Tsez.

2 Phonetics and Phonology

In this chapter, I discuss the phonetics and phonology of MacZ, including a description of the segmental inventory, allophonic variation, supersegmentals (tone and stress), phonotactics and certain morphophonological interactions.

MacZ has a fairly sizeable phoneme inventory with 32 consonant and 5 vowel phonemes. An interesting feature of the inventory is the geminate segments. MacZ has a number of phonemic geminate consonants (and a few allophonically lengthened ones). This sets up a three-way contrast amongst the stops between the geminates and the singleton voiced and voiceless stops. Zapotec languages from other regions have for any given manner at most a two-way contrast, which is typically characterized as a fortis/lenis distinction.

In addition to the large segmental inventory, MacZ has tonal contrasts. The language has three level tones and two contours. It is also a stress accent language, and while stress is often predictable, in many instances it must be lexically encoded.

Although there is quite a bit of segmental and supersegmental complexity, the syllable and word structures of the language remain relatively simple. In part, this is due to the fact that the Sierra Zapotec languages, including MacZ, have retained the vast majority of their unstressed vowels, unlike many other Zapotec languages (cf. Zoogocho (Long and Cruz 1999) and San Lucas Quiaviní Zapotec (Munro and Lopez, et al. 1999)). As a result, almost all words end in either a glottal stop or vowel, there are no complex codas, and root onset clusters (of at most two consonants) are fairly restricted.

The only other word final consonant found in MacZ is *n*. As discussed in Section 2.6, *n*-vowel sequences both diachronically and synchronically show much interesting (morpho-)phonological behavior. Frequently in this context, the vowel is deleted resulting in the final *n* codas. Even more interesting are cases of metathesis in which the underlying (or historical) *n*-vowel sequence reorders to a vowel-*n* ordering.

2.1 Consonantal Phonology

As seen below in Table 2-1, MacZ has 32 consonant phonemes. Four of these, [f], [x], [ɲ] and [r], are borrowed from Spanish. The remaining 28 have the following places of articulation: bilabial, interdental, dental, alveopalatal, retroflex, palatal, velar, labiovelar and glottal. They can be grouped into the following manners: 13 stops, 3 affricates, 4 fricatives, 3 nasals and 5 approximants. Within these groupings, phonemes are distinguished not only by place of articulation but by voicing (among stops and fricatives) and by length (across all manners except fricatives which only show allophonic lengthening).

	BILABIAL	LABIODENTAL	INTERDENTAL	DENTAL	ALVEOLAR	POSTALVEOLAR	RETROFLEX	PALATAL	VELAR	LABIOVELAR	GLOTTAL
LONG VLS. PLOSIVE	p:			t̪:					k:	k^w:	
SHORT VLS. PLOSIVE	p			t̪					k	k^w	ʔ
VD. PLOSIVE	b			d̪					g	g^w	
LONG VLS. AFFRICATE				t̪s̪:		tʃ:					
SHORT VLS. AFFRICATE						tʃ					
SHORT VLS. FRICATIVE		f	θ	s̪			ʂ		x		
VOICED FRICATIVE							ʐ				
LONG VD. NASAL				n̪:							
SHORT VD. NASAL	m			n̪				ɲ			
VOICED TAP							ɽ				
VOICED TRILL					r						
LONG VD. LAT. APPROX.				l̪:							
SHORT VD. LAT. APPROX.				l̪							
LONG VD. APPROX.								j:			
SHORT VD. APPROX.								j			

Table 2-1 Macuiltianguis Zapotec Consonant Phonemes

	BILABIAL	LABIODENTAL	INTERDENTAL	DENTAL	ALVEOLAR	POSTALVEOLAR	RETROFLEX	PALATAL	VELAR	LABIOVELAR	GLOTTAL
LONG VLS. PLOSIVE	pp			tt					cc/qqu	ccw	
SHORT VLS. PLOSIVE	p			t					c/qu	cw	'
VD. PLOSIVE	b			d					g/gu	gw	
LONG VLS. AFFRICATE				tts		cch					
SHORT VLS. AFFRICATE						ch					
LONG VLS. FRICATIVE			tth				xx				
SHORT VLS. FRICATIVE		f	th	s			x		j		
VOICED FRICATIVE							yh				
LONG VD. NASAL	mm			nn							
SHORT VD. NASAL	m			n				ñ			
VOICED TAP							r				
VOICED TRILL					rr						
LONG VD. LAT. APPROX.				ll							
SHORT VD. LAT. APPROX.				l							
LONG VD. APPROX.								yy			
SHORT VD. APPROX.								y			

Table 2-2 Macuiltianguis Zapotec Consonant Orthography

In most Zapotec languages, a two-way phonemic distinction can be found in the various obstruent series. This is frequently characterized as a fortis/lenis contrast. The same distinction is also found among certain sonorant segments. For example, many Zapotec languages have fortis and lenis *l* and fortis and lenis *n*. Many varieties of Zapotec also extend this contrast to other sonorants, giving fortis and lenis *m* and [ŋ], for example. MacZ and the closely related Atepec Zapotec, then, are unusual among Zapotec languages in having a three-way contrast in the stop series, contrasting short voiced, short voiceless, and long voiceless stops.

2.1.1 Bilabials

Apart from /b/, bilabial stops (both oral and nasal) are less common than stops of other places of articulations. Since /b/ occurs in the most common completive aspect prefixes (1) and begins most animate nouns (2), in addition to occurring in other morphemes (3), it is quite common.

1. beeni bedibiisi' bèè' betappa' bideetè' billà bisàà' besaa'
   did *dried (tr.)* *gave* *wrecked* *learned* *sang* *got together* *got back together*

2. benné' beyùú' bia' béccú' beriida binní bèllà bàá' béllá bèrèé'
   person *man* *horse* *dog* *squirrel* *bird* *snake* *frog* *fish* *ant*

3. bíá beccwe' nábííá'ni guubá baaní ubiisa ribéési bèccá' bestee
   comb *fan* *knows* *broom* *alive* *sun* *cries* *earring* *dust*

Phonetically, /b/ is frequently realized as a fricative, either as [β] or [v], or sometimes as an approximant intervocalically.

The bilabials, *p* and *m*, exemplified below in 4-5, are much rarer, especially in word-initial position.

4. rpaa'yà' xpéèlá' xpiilá padíúyhí pappá'ní gweyhuppi' chúppá tappa
   I said *naked* *cockroach* *hello* *dense, thick* *smoking* *two* *four*

5. summí xámma miiyhí bembííá' marááyhá masqui'bá mácchi
   basket *fat* *cat* *met* *orange* *even though* *monkey*

Many of the examples in 4-5 either do not represent an underlying or historical instance of *p* or *m* or else they are the result of borrowing. For example, most instances of *p* and *m* in consonant sequences are the result of assimilation of *b* or *n* to a neighboring consonant. Thus, the *p* in *xpiilá* 'cockroach' derives from voicing assimilation to the

preceding voiceless sound (cf. Atepec *bi̲lá* 'cockroach')[1] while the *m* of *bembííá'* derives from place assimilation with the following bilabial (cf. Atepec *benibi̲á'* 'met').

Most instances of these sounds, particularly word-initially, are the result of borrowing. For example, the last three *m* words in 5 are borrowings and some of the most common *p*-initial words are the borrowings *para* 'for', *peru* 'but', and *porquè'ní* 'because'.[2] In fact, *p* is so rare word-initially that over 90 percent of the 31 main entries under the letter *p* in the Atepec dictionary (Nellis and Nellis 1983) are of clear Spanish origin. For comparison, of the 99 main entries for *d,* only 10 words (just over ten percent) are apparent loans.[3]

The status of *pp* and *mm* is difficult to determine. The relative rarity of the bilabials (apart from *b*) makes it difficult to determine if they have phonemic status or are merely allophones of *p* and *m*. The other geminate stops, affricates and sonorants clearly have phonemic status, even occurring in syllable initial position. As discussed below in 2.1.3, however, the geminate fricatives appear to be allophonically conditioned, being lengthened after a stressed vowel. The limited instances *pp* and *mm* make it difficult to determine if they are merely allophones, like the long fricatives. Like the geminate

[1] In Nellis and Nellis 1983, an underline is used to mark the stressed vowel in certain words. In the MacZ orthography, stressed is not marked on closed syllables and is indicated by a double vowel for a stressed open syllable. See Section 2.3.2 for a full discussion.

[2] It is interesting, however, that *marááyhá* 'orange' from Spansih *naranja* does substitute a less common *m* instead of retaining the initial *n*, which is much more robustly attested in MacZ.

[3] *D* was chosen for comparison because after *p* it is the stop with the smallest number of dictionary entries and there are relatively few *d*-initial verb forms which might be included only under some other form of the verb (usually the potential form in the dictionary). Some *d*-initial verb forms do exist and are only recorded under other verb forms, which may slightly underrepresent the total number of *d*-initial words in the language. Apart from the one verb form already listed under *p* in the dictionary, there are no other *p*-initial verb forms and therefore, no underrepresentation with respect to *p*-initial words.

fricatives, *pp* and *mm* do not occur in syllable initial position and their low frequency makes it difficult to find word-medial (near) minimal pairs. I have found one near minimal pair for *p/pp* given in 6 (the double vowel indicates the lengthening of a stressed vowel in an open syllable):

6. chúppá Cheepa
   two *Josefa*

Of course, *Cheepa* represents a borrowing, and maybe the retention of the short *p* merely indicates it is non-native word rather than indicating that *p* and *pp* contrast word-medially.

Overall, since *b* is often realized as fricative or even as an approximant and since the other bilabials are relatively rare, it makes overt bilabial closures relatively rare in MacZ discourse.

2.1.2 Affricates

MacZ has three affricate phonemes, a long dental affricate, *tts*, and the short and long postalveolar affricates, *ch* and *cch*.

The expected short counterpart of *tts* has become the fricative *s* in MacZ. This is evident when comparing MacZ words to their Atepec Zapotec (AZ) cognates, where the short *ts* affricate has been retained:

7.

MacZ	AZ	gloss
síìla	tsíila	*comal*
sáá	tsá	*day*
summí	tsummí	*basket*
ubiisa	bitsa	*sun*
gwasàá'	huatsàa'	*witch*
loosé'	luetsé'	*tongue*
rsà'ánì	ritsà'ánì	*is angry*
uccwalaasi'	uccualatsi'	*wanted*

As suggested by the data in 7, the change from *[ts] to [s] in MacZ was an unconditioned sound change, occurring in both initial and medial environments.

Both **ts* and **tts* clearly had phonemic status, as do modern *s* and *tts*. Numerous (near) minimal pairs exist for *s* versus *tts*, some of which are given below:

8.

bèèsì	*lion*	laasi'	*self, being*	síttsì	*white*	summí	*basket*
bettsi'	*man's brother*	làttsì'	*flat*	ttsíttsí	*strong*	ttsúnná	*three*

For some speakers, *s* (<**ts*) is voiced in intervocalic position, particularly following a stressed vowel. Interestingly, voicing is not typically extended to *s* in borrowed words. Thus, *s* is likely to be voiced in native *beyhìisù'* 'tejón, coatimundi' and *ubiisa* 'sun' but not in borrowed *peesu* 'peso' and *meesa* 'table' from Spanish *peso* and *mesa.*

Although *tts* no longer contrasts with a simple short affricate in MacZ, it, itself, has not shortened. It remains both phonetically long and phonologically patterns with other long consonants. For example, it still serves to close preceding syllables, preventing a stressed vowel from lengthening (see Section 2.3.2), and does not appear in (non-derived) consonant clusters (see Section 2.5).

The deaffrication of *[ts] in MacZ helps provide some of the clearest evidence for the existence of initial geminate obstruents in the Sierra Zapotec languages. While it is relatively easy to detect long obstruent consonants in intervocalic positions, it can be much more difficult to detect them in initial position. As a result of the *[ts] to [s] sound change, there is no possibility of confusing a short *ts* with a long *tts*. As a result, in MacZ it is easy to recognize *tts* not only in medial positions as in 9 but also in initial position in words like those of 10:

9.	bèttsí'	gwáttsí'	uncattse'	íttsa'	bettsuttsià	quíttsá
	louse	*lizard*	*devil*	*hair*	*squished*	*will break (tr.)*

10.	ttsií	ttsíá	ttsì'ì	ttsèè'	ttsáppì	ttsa'aya'	ttsúnná
	ten	*chin*	*voice*	*good*	*will climb*	*I will go*	*three*

This provides clear evidence of a somewhat rare phonological pattern: geminate consonants occurring word initially.

Understandably, Nellis and Nellis (1983) seem to have missed many of the initial long *tts* affricates, recording almost all of them as simple *ts*. This is true of the AZ cognates for the words in 10 for example. They list only two words with initial *tts*, *ttsá'* 'gathering' and *ttsé'é*, an existential verb.[4] As a result, although there is almost a perfect correlation between AZ *ts* and MacZ *s* and AZ and MacZ *tts* in intervocalic positions, in initial positions AZ *ts* frequently corresponds to both MacZ *s* and *tts*.

This discrepancy cannot be accounted for with a potential condition on the **ts* to *s* sound change in initial position in MacZ due to minimal pairs like those in 8. Instead, we

[4] Another possibility is that AZ has undergone its own sound change with respect to *tts*, whereby it has shortened in initial positions, the two AZ examples in the text being notable exceptions.

must posit that **ts* and **tts* were contrastive in initial position and that this contrast has either been mostly lost in AZ or misrecorded in Nellis and Nellis.

The frequency of *tts* onsets (a number of verbs have a *tts* potential form, for example) demonstrates that not only are word-initial geminates possible, but they are robustly represented in the grammar. Indeed, this suggests the possibility that other initial geminates may have also been accidentally overlooked (both in MacZ and AZ), and that they may be even more common than is readily apparent. Additional instrumental work is needed to look for other, overlooked initial geminate consonants.

In contrast to the alveolar affricate, the phonemic status of *cch* is more marginal. Like other allophonic long consonants, it seems to be restricted to post-tonic positions, with *ch* occurring in all other positions. While this complementary distribution holds for native words, the introduction of various borrowed words has resulted in at least one pair of words in which the sounds contrast in medial position:[5]

11. mácchi *monkey*
Naachu *Nacho, Ignacio*

Interestingly, both *mácchi* and *Naachu* in 11 are borrowed from Spanish, yet their affricates are realized differently. Since no proposed phonological rule can account for this difference, the words must be represented differently in the mental lexicon. Either one word, *Naachu*, is marked as a borrowing as in the lexical entry in 12, or the phonemic forms of the affricates themselves are differentiated as in the lexical entry in 13

[5] Bartholomew (1983) also gives the pair *gwícchà* 'sunflower' and *bíichí* 'blue-eyed' for AZ, but this pair does not hold for MacZ.

(regardless of whether or not they are recognized as borrowings). In this latter case then, *ch* and *cch* would both have phonemic status.

12. /natʃu/ *Nacho, Ignacio* borrowing (no gemination)
    /mátʃi/ *monkey*

13. /natʃu/ *Nacho, Ignacio* (+/- borrowing)
    /mátʃ:i/ *monkey* (+/- borrowing)

Presently, it is difficult to differentiate between these two possibilities. Since certain borrowed words appear to resist consonant germination following a stressed vowel, the words either continue to be marked as borrowings or represent instances in which certain allophones are gaining phonemic status. Then, *ch* and *cch*, along with *p* and *pp* discussed above, may be acquiring a contrastive status in word-medial positions.

2.1.3 Fricatives

MacZ has four native phonemic fricatives: *th* /θ/, *s* /s/, *x* /ʂ/, and *yh* /zʐ/. There are two additional fricatives, *f* /f/ and *j* /x/, which occur in borrowed words. The phone *s* also appears in a number of more recent (re-)borrowings in addition to native words.

The dental and retroflex voiceless fricatives, *th* and *x*, both have lengthened allophones, *tth* and *xx* respectively, that appear after a stressed vowel. The short counterparts occur in all other positions, as shown below (stressed vowels have been underlined):

14.

bethííá'	*eagle*	bexuudi	*priest*
étthià	*black*	exxu	*avocado*
guthella'	*sent*	lixíína'	*shadow*
gutthiù'	*thunder*	libixxi	*other side of*
bèthaana	*dropped*	xpiilá	*cockroach*
étthá	*lightning*	xuunú'	*eight*
thééní	*will hold*	bixca	*why*

The restriction on geminate fricatives describes a purely distributional fact; there seems to be no surface alternation between the long and short pairs.

None of the other fricatives have long allophones. The lack of a long *yh* is expected due to the general absence of long voiced obstruents. This lengthening has also not extended to the non-native phonemes *f* and *j* or to borrowed instances of *s*. Native *s* also does not have a long allophone, presumably because it historically derives from the short affricate **ts*, as discussed above.

This latter change was presumably facilitated by the fact that MacZ had no other native *s*, earlier proto-*s* having become interdental *th*. The voiceless dental fricative is an innovation within the Zapotec languages of the Ixtlán district. As reconstructed by Fernández de Miranda (1995), *th* is the modern reflex of Proto-Zapotec **s*:

15. **s* > *th*

This is evidenced below in the cognate set in 16 (underlining marks the reflexes of **s*; NA indicates that the cognate form was not available in the source referenced):[6]

[6] The data are from Long and Cruz 1999 (Zoogocho), Munro and Lopez et al. 1999 (SLQZ—San Lucas Quiaviní Zapotec), Stubblefield and Stubblefield 1991 (Mitla), Córdova 1987 [1578b] (CVZ—Colonial Valley Zapotec) and Pickett 1959 (Isthmus).

16.	**MacZ**	**Zoogocho**	**SLQZ**	**Mitla**	**CVZ**	**Isthmus**
pot	étthú'	yeso'	guehs	guejs	queço	guisu
eagle	bethííá'	bsia	bsihah	bisij	picija	bisiá
black	étthìà	gasj	nga'as	NA	yàci, yàce	ya'se'
sleeps	ra'áthí	chtas	ra'ihsy	rejs	taaci	rasi
will walk	tháá'	sa'	saa	NA	NA	NA

The sound change in 15 appears to have been unconditioned, though it was possibly blocked when the segment appeared in pre-consonantal positions. This is not certain, but *s*C sequences, while rare, do occur in MacZ while *th*C sequences never do. This distributional difference can be accounted for if 15 was restricted to pre-vocalic environments. It is also possible, however, that the *s*C sequences are derived through some other process(es) and are more recent innovations than 15.

The retroflex fricatives represent the one class of sounds in MacZ where the labels fortis and lenis might be appropriate. This is due in part at least to the fact that other characterizations have not been wholly satisfactory. Presently, I, along with Bartholomew (1983) for the AZ counterparts, take the salient distinction between the two retroflex sibilant phonemes to be one of voicing, with *x* representing the voiceless fricative /ʂ/ and *yh* the voiced fricative /ʐ/. However, the voicing of *yh* is not consistently realized. In word-initial positions, it is usually unvoiced. Indeed, on the voicing criteria, it is not clear that *x* and *yh* are contrastive in initial positions. Nellis and Nellis do list a possible near-minimal pair in *xila* 'wing' and *ỹila* 'woman's sister,' but I have not found a solid voicing difference in these words in MacZ.

Even in intervocalic positions, there is a great deal of variation within and across individual speakers. Those who typically show intervocalic *s* voicing following a

stressed vowel also tend to voice *yh* in that environment. Conversely, speakers who do not voice *s* in that position tend not to voice *yh* either. The voicing contrast is redundant in this position since singleton *x* does not occur there but lengthens to *xx*. As a result, even if *yh* is voiceless in such positions, the length of the segments and their effects on the preceding vowel make it relatively easy to distinguish *yh* from *x*.

Speakers who do voice *s* and *yh* intervocalically never voice the short *x*. As a result, *yh* and *x* can be distinguished solely on the basis of voicing in certain environments for these speakers. In particular, these speakers may also voice *yh* following an unstressed vowel, in contrast to *x* which remains short and voiceless. Thus, *x* in 17 remains voiceless while *yh* in 18 is voiced for these speakers.

17. guxéé *tomorrow* bexuudi *priest*

18. iyhéé *many* Eyhu'ni *Abejones*

Speakers who do not typically have intervocalic *s* voicing, at best only sporadically voice *yh* in words like those in 18. No other voiced consonant exhibits this behavior. All other voiced consonants are consistently voiced in all positions.

Another possibility is that the phonemic distinction is based on length. Impressionistically, *yh* seems to always have a shorter duration than singleton *x*. If it is a length distinction underlyingly, then the voicing facts of *yh* are easily accounted for. In initial positions, it tends not to pick up voicing, while intervocalically it does so. A more detailed instrumental study is needed to see if these impressionistic observations can be verified.

2.1.4 Palatal Glides

MacZ has two palatal glide phonemes, *y* and *yy*. Although they are not contrastive in initial positions—only *y* occurs initially—there are near minimal pairs, such as the pair in 19, which show they are contrastive word-medially.

19. beeyi' *ice* beyya *knot*

There is no evidence that the vowel differences in 19 leads to a difference in consonant length. The distribution of *y* and *yy* is therefore unpredictable and must be considered a phonemic contrast.

2.1.5 Labiovelars

The labiovelar consonants, *ccw, cw* and *gw*, appear only before unrounded vowels.

20.

ccwà'	beccwe'	cwéésí	Sacwaa'	gwacca	Gáàgwi'
=2f	*fan*	*will cry*	*Jaltianguis*	*will be able*	*Calpulalpan de Méndez*

This is primarily a distributional observation, as clear surface alternations are very rare. The best candidate is found with the root *-oo*, 'eat'. It combines with the non-finite verb prefix, which is most frequently realized as *gw(è)-* to form *gòò*, 'eating.' The labialization of the prefix consonant is lost preceding the round vowel. This single example, however, may not represent a synchronic alternation, but rather a diachronic change. It does show, however, that the voiced labiovelar sound is a stop since loss of labialization results in a phonetic [g] rather than complete loss of the consonant.

The best characterization of the voiced labiovelar sound, whether stop or glide, in Atepec and MacZ is not agreed upon. Although not explicitly identified, the grapheme

hu- in Nellis and Nellis 1983 is most likely intended to represent the glide /w/. Bartholomew (1983) appears to support this, parenthetically equating the letters *hu-* and *w*. Fernández de Miranda (1995) explicitly labels the voiced labiovelar phoneme in Atepec as a glide, but her work utilizes much earlier Nellis and Nellis data.

Marks (1976), on the other hand, who also uses Nellis and Nellis's data in addition to her own, does not include /w/ among Atepec phonemes, but lists, without comment, /g^{w}/ instead. Based upon my data for MacZ, this seems the better characterization of the voiced labiovelar phoneme. Although [w] is a common allophone, so are [g^{w}] and [ɣ^{w}]. The glide pronunciation typically occurs in word initial positions, for example with the words in 21:

21.

gwéndi	gwèráá	gwáttsí'	gwasà'á	gwìttíá	gwètuppá	gwèyà'à
a lot	*rude*	*lizard*	*witch*	*playing*	*gathering*	*dancing*

The stop and fricative allophones are more commonly realized in word internal positions, with [ɣ^{w}] occurring in more rapid speech. Such pronunciations are found in the words in 22 below:

22.

laagwi'	begwìià'	langwá	Yògwee
middle of	*watched*	*also*	*San Miguel Aloapam*

The voiced velar stop *g* has a very similar distribution of allophones with a stop or fricative pronunciation found word-medially but with lenition (and even deletion before an unstressed *u*) in word-initial positions. This is the same environment in which [w] appears instead of [g^{w}]. Based on this similarity in distribution and behavior, then, it seems best to treat the voiced labiovelar as a stop underlyingly with [w] as an allophone.

Identifying *gw* as a voiced stop also explains another fact about its distribution. If *gw* were phonemically represented as an approximant, then a long variant would be expected to exist, as an allophone if not as a phoneme in its own right, since this pattern is exhibited by the palatal approximant phonemes, *y* and *yy*, and, for that matter, by all other native sonorant consonants.[7] However, there is no corresponding long allophonic or phonemic *ggw*.

The absence of a long *gw* is easily explained if it is treated as a voiced stop. No voiced obstruent shows a length contrast or phonetic lengthening.[8] They pattern with the other short consonants and have no shortening effects on preceding vowels. That no long counterpart exists for *gw* is readily accounted for by the fact that it is a voiced obstruent.

2.1.6 Non-Zapotec Phonemes

The segments *f, j, ñ* and *rr* are not native to Zapotec but were introduced through Spanish. Generally, they remain restricted to borrowed words, particularly more recent borrowings or reborrowings. In older, more assimilated loan words, these segments are lost or replaced with native phonemes. Almost all words containing *f, j, ñ* and *rr* can easily be recognized as loans and their source words readily determined. Very rarely,

[7] For *l/ll*, *n/nn* and *y/yy* pairs, this represents a phonemic contrast. For the *m/mm* pair this appears to only be an allophonic variation, though as discussed in 2.1.1, the rarity of bilabial nasals makes it difficult to ascertain their exact status.

[8] Nellis and Nellis (1983) and Bartholomew (1983) do claim the existence of a long /b/ phoneme in a few lexical items in AZ, but I have been unable to verify this in my data and remain doubtful. Bartholomew (1983) also claims that *rr* serves as the long counterpart to *r*. As I discuss in 2.1.6, however, *rr* does not have the same effect on the preceding vowel as other long consonants do. Although it may have a phonetically lengthened realization, it does not exhibit the same phonological behavior as other long consonants. Marks (1976) appears to support these conclusions. She does not list a long /b/ phoneme among Atepec phonemes and groups the trill with other lenis (short) voiced segments.

however, these segments appear in words which speakers do not recognize as loans. This may be the result of borrowings whose source words no longer exist or have been obscured due to semantic and phonological change. Or, more interestingly, certain of these words may represent instances where Zapotec words either acquired or were coined with these foreign phonemes. In either case, this raises interesting questions about the representation of these words in the mental lexicon. Are such words marked in the lexicon as being exceptions to the normal phonotactics of the language, and if so, why are these exceptions maintained when there is no external reinforcement from the original source? Or, do such words indicate that these segments are achieving native status?

A few of these words include *túntúrrèén* 'junebug', *joscu* 'beautiful', and *(e)sjaana* 'failing'. The first two are attested both in MacZ and AZ (though in AZ it is *tùnturrè̲é'* without the final nasal) while the latter is not listed for AZ. Nellis and Nellis (1983) state that *joscu* derives from the Spanish *josco, hosco*, referring to a brown color and suggest that the meaning in Zapotec expanded to any pretty color and then to anything pretty. Certainly the phonological form of *(e)sjaana* is suggestive of a Spanish form, but I have so far been unable to determine its potential source.

Likewise, I have not been able to find a Spanish source for *túntúrrèén* 'junebug' nor obvious cognates in any other Zapotec language for which materials are available. If this word was borrowed then its source appears to be lost to modern speakers. If coined as a Zapotec word, then either it was coined with the *rr* pronunciation or this was acquired at some point during the word's history, though not as part of any regular sound change. Either seems possible for *túntúrrèén* 'junebug' which likely exhibits an

onomatopoeic influence, and this word suggests that *rr* has become (partially) integrated into the native phoneme inventory.

Even if *rr* is becoming a native phoneme, it does not function as a long consonant. Bartholomew (1983) suggests that *rr* serves as the long counterpart of *r*, but *rr* does not pattern like the other long consonants and does not have the same shortening effect on preceding vowels (see Section 2.3.2). Rather I follow Marks (1976) who groups *rr* together with other short (lenis) voiced consonants.

2.2 Vowels

MacZ has five vowel phonemes: *i, e, a, o,* and *u*. These are exemplified below in 24:

23.
i u
e o
a

24.

yíí	yéè	yaa	yòó	yùú
carrizo	*jealous*	*tree*	*river*	*know*

Of the vowels, *o* has a restricted distribution, generally being confined to stressed syllables in native words.[9] In borrowings, there is an active process of raising *o* to *u* in stressless positions, particularly in post-tonic stressless syllables (there is variation with pre-tonic *o*). Thus, Spanish *conejo* 'rabbit' becomes *conééjú* and Spanish *carro* 'car' becomes *carru*.

MacZ also has five diphthongs, *ia, iu, ui, ue, ua*, exemplified below in 25:

[9] One exception might be the diminutive clitic *=tó'*. It cannot stand on its own suggesting it is stressless, yet it maintains the *o* vowel. Possibly, it is morphosyntactically dependent, but retains its own stress and along with this supports *o*. Further investigation is needed to tease these two possibilities apart.

25.	beelia	yhiusi	luita	luesi	yhithúá
	cave	*son-in-law*	*side*	*self*	*grandchild*

The diphthongs *ui* and *ue* seem to be relatively rare and *ui* is likely restricted to stressed positions (although this may be an accident of its low frequency). As can be seen, the diphthongs in MacZ are limited to having a high vowel, either *i* or *u*, as the first component of the diphthong. There are derived sequences of vowels resulting from *ni* metathesis which make *i* the second member of a vowel-vowel sequence. However, these derived sequences are not diphthongs and appear to remain vowel-vowel sequences with each vowel projecting its own syllable (see Section 2.6 below for discussion).

In some Zapotec languages, such as San Lucas Quiaviní Zapotec and Mitla, vowels may have several different phonations including modal (plain), breathy, creaky and checked (post-glottalized). MacZ does not exhibit these as contrastive features, though sometimes they occur as secondary features. For example, low tones may induce voicelessness and be accompanied by breathy voice. Breathy voicing may also be associated with contour tones.

MacZ does have a glottal stop, which for some languages is analyzed as being a phonation type—a checked phonation.

26.	yíí'	yè'è	ya'a	guyo'o	yú'ù	Eyhu'ni	beccwe'	ttsì'ì
	fire	*shit*	*green*	*bought*	*house*	*Abejones*	*fan*	*voice*

27.	yhí'ni	rú'a	i'ya	cho'à'	étthú'	untò'	be'yá
	child	*mouth*	*mountain*	*yours (distal)*	*pot*	*child*	*mushroom*

The checked phonation analysis, however, is not motivated for MacZ. Instead, the glottal stop seems to pattern as a consonant; for example, it counts as a consonant in consonant

clusters and may be deleted to avoid illicit sequences of consonants (no syllable can have more than a single consonant in the coda). The glottal stop does have a restricted distribution—it can only occur as a coda immediately following the vowel. But this makes it no different than consonants in other languages which have restricted distribution, such as English [ŋ], which has the same restriction to post-vocalic positions as the MacZ glottal stop.

2.3 Supersegmentals

Although MacZ lacks contrastive phonation, vowels do bear tone and stress. These are discussed below.

2.3.1 Tone

Tone has been relatively well documented and studied for the Sierra Juárez Zapotec languages—AZ and MacZ both—so I present only a basic description here. For more extensive documentation and discussion, the reader is referred to Nellis and Nellis 1983, Bartholomew 1983, Marks 1976 and Bickmore and Broadwell 1999 for AZ (much of which applies to MacZ as well) and Broadwell 1999 and Broadwell and Zhang 1999 for a discussion of MacZ tone in particular.

MacZ has three level tones, high (written with an acute accent *á*), mid (no accent *a*) and low (grave accent *à*). There are also two contour tones, a rising tone (*àá*) and a falling tone (*áà*). The various tones are exemplified below:

28. a.	íyyá	iyya	ìyyà[10]
	rock	*rain*	*flower*
b.	béllá	bèllà	
	fish	*snake*	
c.	beelia	béèlia	
	cave	*star*	
d.	be'yá	bé'yá	beyàá
	mushroom	*fly (insect)*	*prickly pear, nopal*
e.	dàá	dáà	
	bean	*lard*	

Within this chapter on phonetics and phonology, I have endeavored to mark all tones. In the rest of the dissertation, I have adopted a simplified orthography which generally does not indicate tones, especially on content words. Certain function words, particularly pronouns and demonstratives, are marked for tone to help distinguish elements with identical segmental sequences.

2.3.2 Stress

In addition to contrastive tones, MacZ also has phonemic stress, as indicated by the near minimal pair in 29, in which the first word has initial stress, indicated by the double *uu*, while the second word has stress on the final diphthong, indicated by the doubled *ii*.

29.	guudia	gúdìià
	C/bathe	P/write
	have bathed	*will write*

Although these words differ in tones, this difference does not condition the difference in stress. Instead, stress must be lexically specified.

[10] This triplet was originally identified in Bartholomew 1983 for AZ.

There is some interaction between stress and tones, but these are largely independent of one another. With tone removed from being an indication of stress, it is interesting to consider other phonetic cues for stress.

As we have already seen, several phonological processes are sensitive to stress. For example, in 2.1.3 we noted that voiceless fricatives (*th* and *x*) were lengthened following a stressed vowel. This is seen in the words *étthá* 'lightning' and *exxu* 'avocado' for instance.

In addition, as mentioned in 2.2, *o* is restricted to stressed syllables in native words and many *o*'s in non-stressed positions in borrowed words are raised to *u*. This is seen in *conééjú* from Spanish *conejo* 'rabbit' and *espééjú* from Sp. *espejo* 'mirror.'

There is another phonological process that is sensitive to stress. In MacZ, the first person singular subject clitic *=ya'* is associated with a floating high tone which is attracted to the stressed syllable of the verb to which it cliticizes, as shown in the following from Broadwell 1999 (the stressed vowel is again indicated by the double orthographic vowel):

30. rudààga=nà=nà rudáàgà=ya'=nà
H/run.into=3N=3A H/run.into=1SN=3A
He is running into him. *I am running into him.*

Furthermore, stress has played an important role in the historical development of various Zapotecan languages, including MacZ. Many Zapotec languages have deleted unstressed vowels as shown below in 31 (the stressed vowel in MacZ is underlined): [11]

[11] The data presented are from Long and Cruz 1999 for Zoogocho Zapotec, Butler 1997 for Yatzachi Zapotec, Munro and Lopez et al. 1999 for SLQZ (San Lucas Quiaviní Zapotec), Stubblefield and

31.	**MacZ**	**Zoogocho**	**Yatzachi**	**SLQZ**	**Mitla**	**Córdova**	**FdM PZ**
meat	beelá'	bela'	belə'	beèe'l	bääl	pèla, bèla	*'beʔelaʔ
snake	bèllà	bel	bel	bèèe'll	bäl	pèla, pèlla	*'beʔeLa
fish	béllá	bel	bel	behll	bäjl	pèla	*'beLa
foam	besiina'	bžina'	bžin'	btsehnny	bitzun	pichijna	*ʒíʔinaʔ
man's sister	dàànà	zan	zan	bzyaàa'n	bisiajn	záana	*'zaʔna
man's brother	bettsi'	biše'	bišə'	behts	bejtz	pèche	*'beȼiʔ
mushroom	be'yá	bi'a	bi'a	be'eh	be'	pèya	*'beʔya
nopal	beyàá	bia	bia	byàa[12]	biaa	--	*bi'ya
forehead	yhigáá	loxga[13]	l(a)oxga	lohcwah	locuaj	lòocuàa	--
knee	yhíibi	xib	xib	zhihihby	yecxhijb[14]	xijbi	*'žibi

Clearly, then stress has been phonologically important both historically and synchronically within MacZ and Zapotec languages in general. Determining the phonetic realizations of stress in MacZ, however, is not straightforward.

As noted, tones do not serve as a direct cue to stress.[15] In fact, there does not seem to be a consistent phonetic cue to stress. In Foreman 2000a,b, I found that amplitude (loudness) was not a consistent cue. Amplitude does not directly correlate with the stressed syllable, though stress is probably one factor affecting amplitude. Other factors include the vowel involved; *i* and *u* do not generally have as great an amplitude as the other vowels. High tone raises the amplitude, while low tones, especially in boundary

Stubblefield 1991 for Mitla Zapotec, Córdova 1987 [1578b] for Colonial Valley Zapotec and Fernandez de Miranda 1995 for Proto-Zapotec (FdM PZ).

[12] In SLQZ, this means *penca de nopal*

[13] The *l(a)o-* at the beginning of these words is from the word 'face'.

[14] *Yec-* in compounds means 'head, point'.

[15] Possibly stress does lead to tonal permutations which could serve as a cue to stress placement. Further study is needed to investigate this possibility.

positions, are often realized with devoicing, which of course dramatically cuts the amplitude of the signal.

In certain words, the lengthening of certain consonant segments, particularly *th* and *x*, marks a stressed syllable. So, in words like *étthià* 'black' and *bexxí* 'tomato,' the lengthening of the fricatives is the main cue indicating that the first syllable in each word is the stressed syllable.

For Atepec, Marks (1976:117) finds that "vowels are phonetically lengthened very slightly in stressed syllables and are lengthened to about two moras of length when occurring with a tone glide." As discussed in Foreman 2000a,b, MacZ does show a rather significant lengthening of vowels in open stressed syllables. This lengthening of a stressed vowel in an open syllable can be seen in the following representative measurements for two speakers (32-33) with accompanying spectrograms in Figure 2-1 and Figure 2-2) (the highlight marks the stressed vowel duration):

32.

speaker	**gloss**	**MacZ**	**duration (ms)**	**duration (ms)**
IC	*mushroom*	be'yá	93	80
IC	*nopal*	beyàá	100	210

33.

speaker	**gloss**	**MacZ**	**duration (ms)**	**duration (ms)**
MM	*mushroom*	be'yá	85	71
MM	*nopal*	beyàá	100	142

Figure 2-1 Spectrogram of ca be'yá què' *'mushrooms of' (IC)*

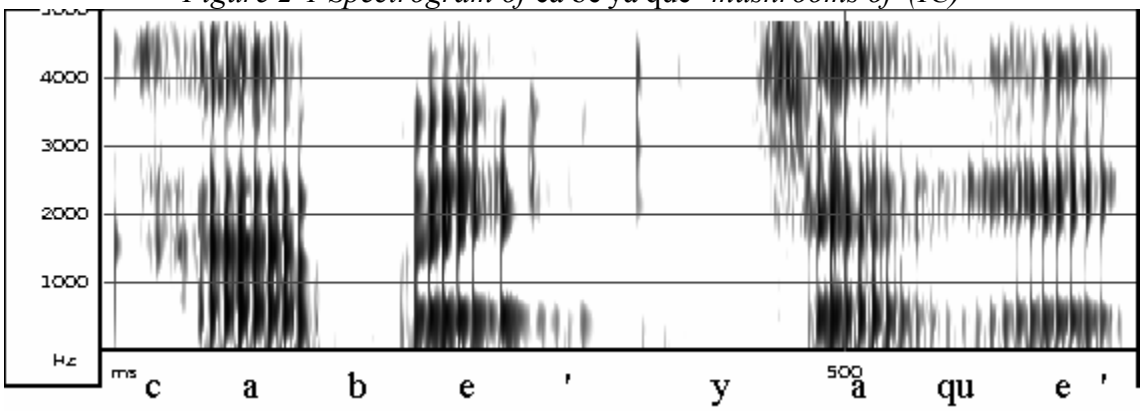
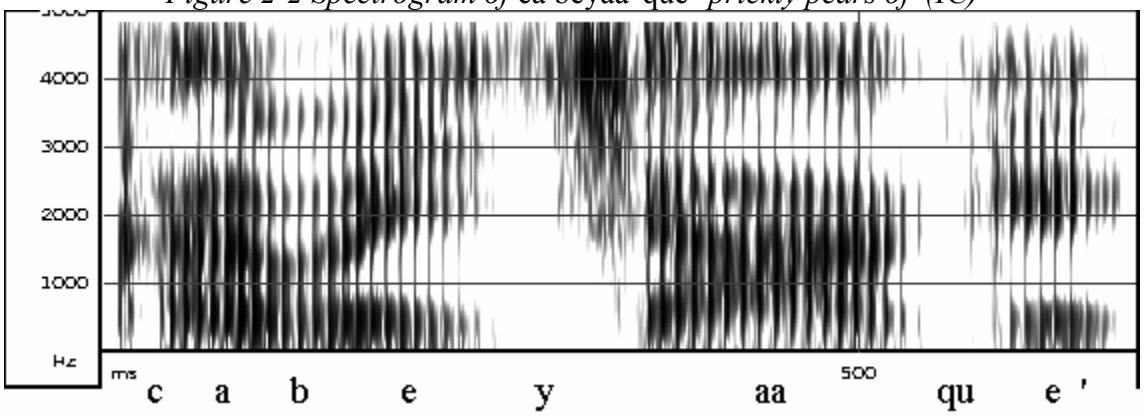


Figure 2-2 Spectrogram of ca beyàá' què' *'prickly pears of' (IC)*



As can be seen in the measurements, stressed *a* in *beyàá*, is more than twice as long in duration as the stressless *a* in *be'yá*. This is not merely an effect of the contour tone, and similar results can be observed with syllables having level tones.

These examples also illustrate that stressed vowels in closed syllables are not lengthened. There is not a significant difference in length between the stressed *e* in *be'yá* and the stressless *e* in the open syllable in *beyàá*'. This is further exemplified in the following measurements in 34-35 and accompanying spectrograms in Figure 2-3 and Figure 2-4. Again, stressed *e* in the open syllable in *beelá'* is significantly longer than stressed *e* in the closed syllable in *béllá*.

34.

speaker	gloss	MacZ	duration (ms)	duration (ms)
MM	*meat*	beelá'	135	60
MM	*fish*	béllá	98	62

35.

speaker	gloss	MacZ	duration (ms)	duration (ms)
IC	*meat*	beelá'	164	93
IC	*fish*	béllá	95	77

Figure 2-3 Spectrogram of ca beelá' *'meats' (MM)*

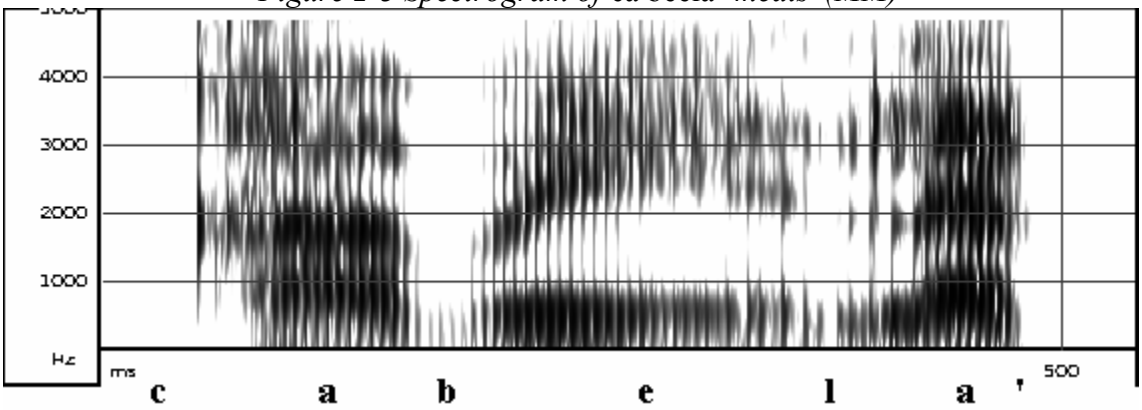
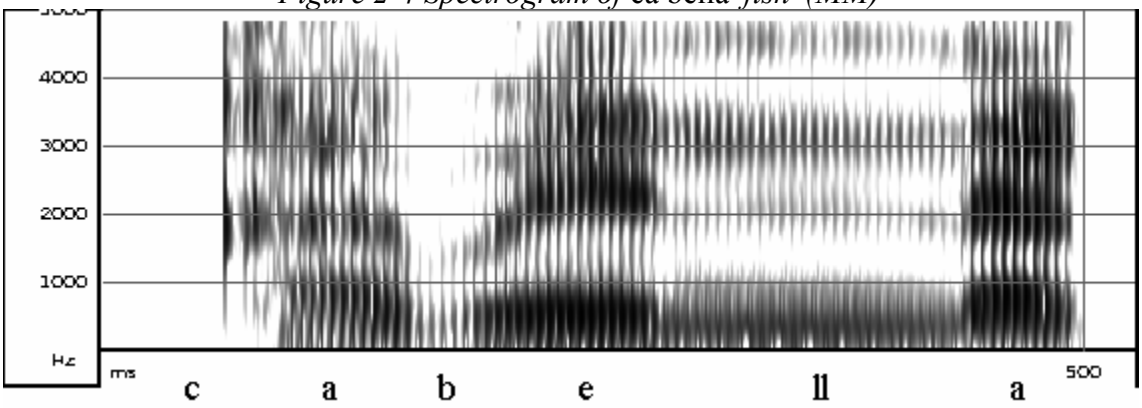


Figure 2-4 Spectrogram of ca béllá *'fish' (MM)*



As will be discussed in the next section, roots in MacZ are generally limited to two syllables and roots, not affixes, typically bear stress. In the unmarked case, stress is on the first syllable (of a two syllable root), though it can also occur on the second syllable. When the stressed syllable is open, for example in a word of the form (C)VCV('),the vowel is lengthened. When the stressed syllable is closed, for example in a (C)VCCV(') word, the vowel is not lengthened. And while stressed vowels are not always lengthened,

lengthening is limited to stressed vowels. Therefore, an orthographic double vowel is used in to signal a stressed open syllable. Otherwise, the stressed syllable can be recognized by phonetic lengthening of a following consonant or a closed syllable. If the stress occurs on the final syllable, it is written as a double vowel, even when followed by a glottal stop since even in these cases there does seem to be some slight phonetic lengthening. As long as phonetic lengthening in open (and final) stressed syllables is consistently indicated with an orthographic double vowel, it is redundant, and therefore unnecessary, to otherwise mark stress in MacZ. Occasionally, however, an underline may be used simply to assist the reader in locating the stressed vowel, when relevant.

2.4 Practical Orthography

Except where additional phonetic detail is needed, the MacZ data in this thesis are given in the practical orthography developed in collaboration between native speakers and linguists (including Ignacio Cano, Margarita Martínez, Pamela Munro, Aaron Broadwell, Jie Zhang and the author). The goal of the orthography is to provide a writing system that is as accessible as possible to native speakers while still representing all phonemic contrasts. Clearly, this requires a bit of a trade-off and can be adjusted depending on the needs and audience of any particular piece of writing. In this dissertation the full segmental orthography is used. Tones, however, are generally underrepresented (except in the words presented in this phonetics and phonology section). In non-linguistic writing among native speakers, however, certain features of

the system could be simplified (such as the *x*/*yh* distinction) without an undue amount of ambiguity being introduced.

2.4.1 Segmental Orthography

The orthography used for the Atepec dictionary (Nellis and Nellis 1983) served as the basis for the MacZ orthography. Ultimately, many of these orthographic choices are adoptions or adaptations of Spanish conventions. For example, following Spanish orthography, both Zapotec systems employ the digraph *ch* to represent the voiceless postalveolar affricate, /tʃ/, and the letters *j* and *ñ* for the voiceless velar fricative, /x/ and the palatal nasal, /ɲ/, respectively (these latter choices are especially sensible since these sounds are essentially restricted to borrowed words.) Similarly, the letters *c* and *g* represent velar stops before non-front vowels, while *qu* and *gu-* are used before front vowels. However, the *gu-* digraph represents a single velar segment only when followed by another vowel symbol. Otherwise, the *u* is pronounced as a vowel.

In certain instances, where Spanish has more than one possible representation for a single phoneme, only one has been adopted for the Zapotec systems. For instance, the letter *b* has been selected to represent all instances of the voiced bilabial stop phoneme, where Spanish has both *b* and *v*. This results in a more consistent phoneme-letter correspondence, but is a relatively minor regularization overall. It does not conflict with regular Spanish usage and if both *b* and *v* were used in Zapotec, no information on MacZ pronunciation would be lost.

Other modifications of the Spanish orthography were necessitated by differences in Spanish and Zapotec phonology and phonotactics. For example, in Atepec and MacZ, all instances of the alveolar trill are given by the digraph *rr*. In Spanish, the trill is only represented by *rr* in intervocalic positions. Word-initially, it is written as a single *r*. This is unambiguous since the trill is the only word initial *r*-sound in Spanish. In MacZ, however, the word-initial trill is limited to borrowed words. The native *r*-sound is a retroflex tap phoneme and it occurs in both word-initial and word-medial positions. This is the phoneme represented by a single *r* in the MacZ and Atepec orthographies. The Spanish trill, then, is written as *rr* in all positions, even word-initially, to keep it distinct from the retroflex tap.

Similarly, the letter *y* has been selected to consistently represent all instances of the palatal glide [j] in MacZ and Atepec Zapotec. In Spanish as it is spoken in Mexico and throughout much of Latin American, this sound is also represented with the digraph *ll*. However, it makes sense to use *ll* to represent the geminate [l:] phoneme, as discussed below. This choice is the biggest conflict between Spanish usage and the proposed MacZ orthography.

Both MacZ and Atepec have a number of consonant phoneme pairs that are distinguished only by length. Each language has at least six such pairs, including short and long laterals /l/ and /l:/. In the MacZ orthography, long consonants are written with a doubled letter. This gives such pairs as *t/tt*, *cw/ccw*, and *n/nn*. Following this pattern then, we write the long lateral /l:/ as *ll*. Using only the letter *y* to represent the glide /j/ avoids potential confusion between *ll*, the long lateral, and *ll*, the palatal glide

representation of Spanish.[16] Native speakers of MacZ generally seem to find this to be a reasonable decision when such pairs as *béllá*, 'fish,' and *beelá'*, 'meat,' are brought to their attention. In practice, however, restricting *ll* to long /l:/ can be difficult. (Interestingly, although the letter *r* in MacZ represents a different sound than in Spanish, especially word-initial *r*, this causes no apparent difficulty. Speakers do not seem to be tempted to pronounce Zapotec word-initial *r* as a trill in the same way they are tempted to read *ll* as [j].)

Nellis and Nellis avoid this confusion by writing the long lateral as *l.l* with a period or raised dot between the two *l*'s. Since they also use *y* and *yy* for the palatal glides, *ll* is restricted to a few Spanish loan words. This solution was not adopted for MacZ due to aesthetic preferences and concern that a period or dot might be too easily lost in writing. Further, the raised dot, which might be clearer, is difficult to enter on a computer. We also did not adopt the strategy found in many other SIL Zapotec projects such as Pickett 1959, Stubblefield and Stubblefield 1991, and Long and Cruz 1999, in which underlining is used to distinguish between certain (fortis/lenis) pairs of consonants. Again, an underline, especially under a single *l*, might be too easily overlooked. In addition, since only long *l* is problematic, there is no need to write all long consonants with an underline. Doing so only for long *l*, however, obscures the parallelism between it and other long consonants.

[16] Another reason that *ll* for the palatal glide is avoided is that there are also short and long glides. Maintaining our orthographic pattern would result in *ll* and *lll* for /j/ and /j:/, respectively. This is difficult to decipher and not very aesthetic. A compromise solution might be to write the short glide as *y* and the long one as *ll*. Besides leaving the problem of long /l:/, however, this obscures the similarity of the two phonemes, which is very clear in the *y/yy* pair and all other short/long pairs.

Representing other phonemes unfamiliar in Spanish does not create such conflicts. Once more, many of our orthographic choices straightforwardly adopt the conventions of Nellis and Nellis. For example, we follow them in representing the glottal stop with an apostrophe, *'*, the voiceless interdental fricative with the digraph *th*, the long voiceless alveolar affricate with *tts*, and the voiceless retroflex fricative with *x*. This latter spelling was not the first choice for the native speakers, who are nowadays more familiar with *sh* representing similar sounds. In the end, *x* was adopted not only for ease of comparison with Nellis and Nellis 1983 but also with essentially all other Zapotec orthographies, including those in the dictionaries of Pickett 1959, Stubblefield and Stubblefield 1991, Butler 1997, Long and Cruz 1999, and Munro and Lopez et al. 1999, all of which use *x* to represent either postalveolar or retroflex sibilants. This spelling is not simply a modern convention but dates back to the earliest adaptations of the Roman alphabet for representing Zapotec and other Mesoamerican languages. For example, this use of the letter appears in the Zapotec dictionary of Córdova (1987 [1578b]) and in a range of colonial Zapotec documents dating from the 16th-18th centuries as found in the Zapotexts group lead by Kevin Terraciano and Pamela Munro.

Some modifications were made in adapting the orthography of Nellis and Nellis. For example, as noted above, MacZ and AZ both have several pairs of long and short consonants. In general, in the Nellis and Nellis orthography long consonants are represented with a double letter, either a doubling of the letter corresponding to its short counterpart or by doubling the first letter if the short phoneme is represented by a digraph. This system gives pairs such as *t/tt*, *ts/tts*, *x/xx* and *qu/qqu*, for instance. For

some reason, however, the long interdental fricative and long alveopalatal affricate are written in Nellis and Nellis as *th.* and *ch.* with a period or raised dot following the corresponding short digraph. This difference is not explained. For the MacZ orthography, we have regularized these spellings to *tth* and *cch*, keeping them consistent with the representation of other long consonants.

Another, minor modification involves the representation of the labiovelar phonemes. In the AZ system, these three phonemes are written as *ccu-, cu-,* and *hu-*, keeping with Spanish conventions. For the MacZ orthography, the corresponding sounds are written with graphs containing the letter *w* resulting in *ccw, cw*, and *gw*. The use of *w* in place of *u* avoids any potential confusion between instances of a vowel-vowel sequence involving syllabic [u] and a labio-velar plus vowel sequence. The digraph *gw* was chosen over *hu-* (or *hw-* or *w*) because these latter symbols all obscure the fact that this represents a voiced stop as opposed to a glide. In addition, using *gw* in place of *gu-* avoids having to write a dieresis over the *u* before front vowels to indicate the labio-velar pronunciation in place of the plain velar.

One final segmental orthographic change involves the representation of the voiced retroflex fricative. Of all the orthographic selections, this one is probably the least familiar. In the Nellis and Nellis system, this is written as, *ỹ*, a *y*-tilde. This symbol was found to be too difficult to input on a computer keyboard and not available at all in many computer applications. As a result, we have opted to write this phoneme as the digraph *yh*, keeping a certain similarity with the AZ dictionary, while alleviating the computer input problems.

2.4.2 Orthographic Representation of Tone and Stress

In addition to the differences in segmental representations, a few alterations have also been made to the representation of the supersegmentals. In both orthographic systems, the same symbols are used to indicate the three level tones found in the languages: an acute accent (*á*) marks high tone, a grave (*à*) indicates low, and no accent (*a*) represents a mid tone. The two contour tones are indicated by a sequence of two vowels: a grave-acute sequence (*àá*) marks a rising tone and an acute-grave sequence (*áà*) a falling tone. In Nellis and Nellis 1983, but not in the MacZ system, the falling tone is typically written as acute-unaccented (*áa*).

More significant differences exist in the representation of stress. Nellis and Nellis frequently employ underlining to indicate stress in a variety of contexts. In the AZ orthography, stress is usually not explicitly marked on a word if it falls on the penultimate syllable. However, if the vowel has a mid (unmarked) tone and there is no coda in the syllable, the stressed vowel is underlined. If stress occurs on a syllable other than the penult, then that syllable is underlined. Finally, underlining is also used to indicate stress in vowel-vowel sequences when they do not represent a diphthong, regardless of tone or position. Examples from Atepec are given below:

36.

Penultimate Stress	Non-Penultimate Stress
xtìlà 'breakfast'	ỹ<u>á</u>reyí' 'scorpion'
tappa 'four'	bey<u>à</u>á 'nopal'
hu<u>i</u>ní' 'sad'	ín<u>a</u> 'to say something'
r<u>ú</u>'a 'mouth'	dígá' 'berry'

In this dissertation, the MacZ orthographic representation of stress makes use of the fact that stressed vowels are slightly lengthened in stressed syllables except word-

internal closed syllables (see Marks 1976, Foreman 2000a). Stressed syllables, then, are indicated by a double orthographic vowel unless the vowel is followed by two consonant segments, which, recall, does not necessarily correspond to two orthographic letters. Word final stressed syllables still exhibit lengthening, whether a coda is present or not and are also represented by doubled vowels. In sum, a double vowel marks the stressed syllable of a root. If no double vowel is present, then the stressed syllable will be marked by the presence of a coda segment. Examples are given below (note that an underline is used here to indicate the stressed syllable, but it is not part of the standard orthography):

37. gúúni 'will do'
ttsúnná 'three'
yhubààn 'tail'
néèda 'road'
yéèsilóyúù 'world'
duusíìnnà 'he is drunk' from duusí=nì=nà

It is important to remember that the doubled vowel indicating stress is an orthographic convention. There are several factors at work in determining the actual length of a vowel. Rate of speech and location of phrasal boundaries can obviously have a profound effect on absolute vowel duration. Tonal realizations can also alter vowel length. Typically, vowels with contour tones are much longer than stressed level-toned vowels, though stressed low vowels often show lengthening comparable to vowels with contour tones. Further, derived vowel-vowel sequences (typically involving the metathesis of the sequence *ni* in verbs like *duusini* 'is drunk') are also longer than single stressed vowels. Such sequences can thus sound more prominent than the stressed vowel

in the word. Similarly, high tones and glottal stops may also make unstressed syllables sound more prominent.

2.4.3 Representation of Other Languages

Unless otherwise noted, examples form other languages cited in this work will be given in their conventional orthographic form and/or in the form given in a particular work cited. This includes examples from AZ. Examples cited from Nellis and Nellis (1983) and Bartholomew (1983), for example, will be given in their orthography. Alternate forms (IPA transcriptions, MacZ-style transliterations) may also be provided if necessary to aid comparison with MacZ.

Loan words present additional difficulties. There are competing desires to accurately and consistently represent pronunciation versus desires to maintain more familiar spellings. The compromise adopted for this dissertation is to write borrowed words which show segmental nativization in the regular MacZ orthography, but keep (most) words which show no such change in the orthography of the loan language. This system hopefully allows for a reasonable compromise between these two constraints.

In MacZ example sentences, then, Spanish borrowings will be rendered in the MacZ orthography if they exhibit any segmental changes distinguishing them from the original Spanish word. For example, unstressed [o] is frequently borrowed into MacZ as [u], particularly in word-final positions. Thus, Spanish *conejo* 'rabbit' is borrowed and written as *conééjú* in MacZ. The spelling reflects not only the raising of [o] to [u], but the stressed vowel is written as a doubled letter and tone marks are added, following the conventions established for writing MacZ in this dissertation.

Borrowed words that show no segmental variation between borrowed and source forms may be kept in the Spanish orthography. In such cases, the high tones associated with the stressed (and following) syllables of the loan word will not be written either, but this addition of high tones appears to be a productive process which does not need to be overtly marked. A word such as *llave* 'key,' then, will be written following Spanish conventions in the MacZ examples. It will not be converted to the MacZ spelling, *yáábé*, which unnecessarily obscures the origin of the word and makes it difficult to read. While speakers are eager to represent segmental variation that distinguishes borrowed words from their native source (such as the [o]/[u] change), they are reluctant to alter spelling simply for the sake of orthographic regularity.

2.5 Phonotactics

Native Zapotec roots in MacZ are typically only one or two syllables in length. Words of more than two syllables are almost always morphologically complex or, at least, were historically so.

The segmental syllable structure of native roots is fairly constrained and thus relatively simple. Only six syllable structures are found in roots: V, CV, VC, CVC, CCV, and CCVC, where V can stand for a singleton vowel, stressed or unstressed, a single vowel with a contour tone or a diphthong. These are exemplified below in 38; syllables are separated by a period, and the relevant syllables are underlined.

38.					
	V	u.bii.sa	*sun*	i.yhéé	*many*
	CV	tu.láá.da	*peach*	bél.líú	*money*
	VC	in.da	*water*	ét.tu	*gourd*
	CVC	las.tò'	*heart*	yhu.bààn	*tail*
	CCV	xpii.lá	*cockroach*	ttsìí	*ten*
	CCVC	xtùt.tsí'	*hummingbird*	ttsún.ná	*three*

Note that the geminate consonant segments count as two consonants (CC) for the purpose of syllabification. As a result, the geminates do not combine with other consonants to form complex onsets in roots, since root onsets are restricted to at most two consonants.

2.5.1 Consonant Sequences

In morphologically derived words there is one environment in which more complex onsets occur. As shown below in 39, the long sonorants, *nn* and *ll*, may appear in complex onsets that form across morpheme boundaries with the concatenation of an *r*-prefix, an allomorph of the habitual aspect morpheme.[17]

39.	**rnnèè**	**rllààbì**	**rllàà'**
	r-nnèè	r-llààbì	r-llàà'
	H-speak	H-make.noise	H-smell
	speaks	*makes noise*	*smells*

Apart from the few examples such as these, a geminate cannot appear clustered with other consonants within a syllable or even in clusters distributed across syllable and morpheme boundaries. In fact, within a single morpheme, no more than two consonants may appear in a row. Thus, although both CVC and CCV(C) syllables are observed, they

[17] The AZ cognates of these words have a vowel as part of the prefix: *rinnè*, 'speaks', *ril.làbì* 'makes noise', and *ril.là'*, 'smells'. See Section 3.1.1 for a further discussion of aspectual morphology.

can never occur in sequence within a monomorphemic element. A root of the form CVC.CCV(C) is not possible. This includes glottal stop-CC sequences.

Within morphologically complex words, derived sequences of three consonants are possible, but very rare. MacZ has a few clitics, such as *=ccwà'* =2FN, *=rsa* =INT and *=rga*, meaning unclear, of CCV(') shape. In certain circumstances, the cliticization of these elements results in a three consonant sequence. Most often, however, they follow a vowel and are syllabified between syllables, as in the following (a period separates the syllables under discussion):

40. **¿Bííní rtééc.cwà'?**
bíí =ní rtéé =ccwà'
what =COMP H/feel =2FN
How are you?

41. **Ìntè' téér.saba chà' béllíú.** {ii22}
ìntè' téé =rsa =ba chà' béllíú
IND/1 S/exist =INT =EMP of/1SG money
I have lots of money.

42. **Rpaayà'yé "Gutààr.ga," què' na'lá gutà'à ttu béccú'.** {iii37}
r- paa =ya' =yé gutàà =rga què' na'lá gutà'à ttu béccú'
H- tell =1SN =3FN C/come =?? COMP over.there C/get.in a dog
I told him, "Come here," because a dog had gotten in over there.

Verbs ending in the sequence *ni*, however, delete the vowel before consonant-initial clitics. When that clitic is *=ccwà'*, *=rsa* or *=rga*, a three consonant sequence results, as shown in the examples below.

43. **Bèèn.ccwa' quèdiúúyhí.**
bèèni =ccwà' quèdiúúyhí
C/do =2FN please
Please do.

44. **Làànà beyúún.rsabanà cáárrú.** {iv269}
làà=nà beyúúni =rsa =ba =nà cáárrú
BASE=3 C/repair =INT =EMP =3N car
He repaired a lot of cars.

45. **Bèèn.rganàyhá.** {iv269}
bèèni =rga =nà =yhá
C/do =?? =3A =AFF
Come do it!

Interestingly, while cases involving *=rsa*, as in 44, caused no difficulty for speakers with the *rs* syllabified as a complex onset, speakers found difficulty with *n=rga* sequences like that in 45, with an *rg* onset. Speakers either completely rejected such words or altered the consonant sequence to ease pronunciation. Thus, the expected form *bèèn.rganàyhá* was rendered as *bèèrn.ganayhá* with the *r* and *n* metathesizing, in order to ease sonority transitions. The unacceptability of this *rg* onset may be related to the fact that while *r*C onset clusters are abundant, including *r*-stop sequences, *rg* is not attested. *Rs* onsets, on the other hand, are found in other words. This suggests that *rg* onsets are marked whereas other complex onsets, including *rs*, *rd* and *rc,* are not.

Glottal stops do not participate in these derived three consonant sequences either. When the *=ccwà'*, *=rsa* and *=rga* clitics attach to a verb that ends in a glottal stop, the glottal stop is deleted. Compare *guppa'* in 46 to *gutappársabanà* in 47:

46. **¿Núú taa' dàà guppá' etta?** {iv267}
núú taa' dàà guppá' etta
who FOC S/PROG G/pat tortilla
Who's making tortillas?

47. **Làànà gutappársabanà etta.** {iv268}
làà=nà gutappá' =rsa =ba =nà etta
BASE=3 C/pat =INT =EMP =3N tortilla
She made a lot of tortillas.

The only possible three consonant sequences found in any native words then are *rll*, *rnn*, *nccw*, *nrs* and *nrg*, all of which are found only in derived environments.[18]

Clusters of two consonants are also rather restricted in native words. As onsets, CC clusters are limited to certain geminates and a few heterogeneous clusters. Not all of the phonemic long consonants can occur syllable-initially. Only *tt, tts, cc/qqu, ccw, nn* and *ll* may appear in onset position.

48.

ttu	ttsúnná	ccá[19]	=ccwà'	=nna	llè'è
one	*three*	*will be*	=2FN	*=and*	*stomach*

Although *pp, cch* and *yy* are (arguably) phonemic, they do not occur word-initially and only contrast with their short counterparts in word-medial positions.

In heterogeneous onset clusters, the first consonant is limited to *x* or *r* or, in a few words, *s*. As exemplified below, *x* can combine with voiceless stops or the nasal *n* to form complex onsets.

49.

xpéèlá'	xtìisà'	xchuulá	xcurúúdí	xquè'è	xcwáádi	xcwaaná	xnáá	xnèèdà
naked	*language*	*pit, seed*	*rooster*	*dung*	*nest*	*uncle*	*mother*	*trail*

In many such words, *xchuulá, xcwáádi, xnáá* and *xquè'è*, for example, the *x* represents a possessed prefix, which is not productive in MacZ, but restricted to certain

[18] It is possible that other sequences might arise from compounds. Such cases would almost certainly involve *i*-deletion resulting in *n* as the first consonant of the sequence. So far, however, no other sequences have turned up in my data.

[19] Some speakers have an (apparently epenthetic) initial vowel, yielding *iccá* or *accá*, depending on the speaker.

lexical items (see Section 3.3.2). A few words still show synchronic alterations between possessed and non-possessed forms: *xtìì̀sà'* 'language' and *tìì̀sà'* 'word,' for instance. Others, such as *xcwáádi* 'nest', are frozen forms, appearing only with the *x*- prefix.

In some words, such as *xpiilá* 'cockroach,' *xtílá* 'Spanish,' *xcurúúdí* 'rooster' and *xtùttsí'* 'hummingbird,' however, the *x* does not originate from the possessed prefix. Synchronically at least, these words appear to be monomorphemic, indicating that *x*C onsets are not restricted to derived environments.[20]

Note that a following stop assimilates in voicing to the preceding voiceless *x*. This is evidenced in such pairs as *béèlá'* 'bareback' and *xpéèlá'* 'naked' and in a comparison of AZ *bi̲lá* and MacZ *xpiilá* 'cockroach'. Hence, there are no *x*-voiced stop clusters.

As noted, *x*C onsets are restricted to instances in which the C is a non-continuant (either an oral or nasal stop). As such, no *x*-fricative, *x*-lateral or *x*-glide clusters are attested. As most *x*- prefixed words are frozen forms, there is little synchronic evidence as to how potential illicit *x*C clusters, such as *xl*, might be resolved. One of the few possibly relevant pairs is *yè'è* 'excrement' and *xquè'è* 'manure'. However, the *y/qu* alternation appears to be the result of other regular historical sound changes and not motivated solely as a resolution to the marked *xy* cluster. Historically, many instances of *y* originate from **g*, with **g* becoming *y* before front vowels (Fernández de Miranda

[20] Some of these words may have been historically complex, but their origins are unclear. AZ, for instance, has *bi̲lá* for 'cockroach' and *íxtùttsí'* for 'hummingbird.' If MacZ added the *x* in 'cockroach,' the *x* does not originate from the possessed prefix, as the word shows alienable possession: *xpiilá què'nì* 'its cockroach,' not **xpiilánì*. In the case of 'hummingbird', it is unclear if the *í* is epenthetic in AZ or was deleted in MacZ. In either case, there is no clear evidence of a morpheme boundary between the *x* and *t*. The origins of *xtílá* 'Spanish' are known, however, and in this case at least there is clearly no morpheme boundary involved. The word is a borrowing of *Castilla* with *x* being the reflex of the *s*.

1995). This sound change would result in *yè'è* from **guè'è*, while **xguè'è* would undergo regular voicing assimilation yielding *xquè'è*.

There is some modern evidence for how *x*-fricative clusters might be resolved. For example, the word for 'grandchild' has been recorded as both *xtúá* and *rsúá* in addition to the more common *yhithúá*. Taking *yhithúá* or even **yhisúá* as representing the earlier form (Fernández de Miranda reconstructs it as *[ʒi-sowa]), then the variant forms result from the loss of the unstressed *i*. In the first variant form, the *th* fricative undergoes fortition to *t* while the initial *yh* assimilates in voicing to *x*.[21] This raises the possibility that some other *xt* onsets (and perhaps other *x*-stop clusters) may derive from historical *x*-fricative clusters.

In contrast to *x*C clusters, almost all *r*C onsets are the result of morphological concatenation. Apart from the two clitics, *=rsa* and *=rga* discussed above, all other *r*C onset clusters are created by the prefixation of the *r-* habitual allomorph to a consonant initial verb root.

The *r-* prefix creates the widest range of onset clusters as it is able to combine with the greatest number of consonants. Like *x, r* can combine with voiceless stops, as shown in 50, but it also combines with voiced stops as in *=rga* and the words in 51, with *s* as in *=rsa* and 52, and with both the long and short sonorant consonants as in 53.

50. rpaa'yà' rtèlíini rtìttí rquiina'nì
I said understands itches needs

[21] Fortition of an historical **th*/**s* following a consonant is also found in words such as *inda* 'water' from **nisa*.

51. rdúlóò rdúúsínì
starts gets drunk

52. rsa'áni
is angry

53. rllà'nì rlláá rluua' rnnèè rnààba
smells burns looks, appears talks requests, asks for

No instances of *r*- plus affricate have been recorded, but these could well be accidental gaps.

Before a voiceless stop, *r* becomes voiceless and essentially homophonous with an *x* in the same position. The two can be differentiated, since voiceless *r* occurs with verbs as an allomorph of the habitual aspect, while *x* occurs with nouns.

Finally, a very small number of words contain *s*C clusters, including *stiite* 'quickly', the apparently related words *scanque* 'if' and *scanna* 'then, so (pues)', and the word *(e)sjaana* 'failing' (discussed above in Section 2.1.6) when the initial *e* is not pronounced. These clusters do not appear to be derived from morphemic concatenation.

2.5.2 Codas

Codas are more restricted than onsets. As noted, a coda in MacZ can consist of at most a single consonant, and only a few consonants can serve this function: *s, m, x, l, r, n* and glottal stop. These are exemplified below in 54 (word-final codas are discussed later).

54.	l	ttu<u>l</u>te	*once*	chúppá<u>l</u>te	*twice*	tsúnná<u>l</u>te	*thrice*	
	m	be<u>m</u>bíiá'	*met*					
	n	i<u>n</u>da	*water*	ì<u>n</u>tè'	*I, me*	u<u>n</u>tó'	*child*	
	r	i<u>r</u>cá[22]	*occurs*	la<u>r</u>chu	*onion*	tee<u>r</u>saba	*there is a lot*	
	s	la<u>s</u>tò'	*heart*	be<u>s</u>tee	*dust*	jo<u>s</u>cu	*beautiful*	
	x	bi<u>x</u>ca	*why*	u<u>x</u>táálí[23]	*sack*	gwe<u>x</u>cuuta[24]	*to fuck*	
	'	yhí'<u>n</u>i	*child*	i'<u>y</u>a	*mountain*	be'yá	*mushroom*	

As can be seen, certain coda consonants are rather restricted. For example, *m* simply reflects assimilation to a following bilabial but does not occur in other positions (word finally, for example) and coda *l* is restricted to the *-lte* 'times' suffix, which apparently derives from the Spanish *vuelta* 'turn'.

Word-final codas are even more limited. The vast majority of words either do not have a final coda consonant and just end in a vowel (55) or have just a glottal stop word finally (56):

55.	beyàá	bestee	lóòyúù	gutoo	gutìí	binní	áttu	bequetthá
	nopal	*dust*	*land*	*ate*	*washed*	*bird*	*another*	*falcon*

56.	ìntè'	untó'	bèrèé'	lasto'	yíí'	chà'	étthú'	bèttsí'
	I, me	*child*	*ant*	*heart*	*fire*	*mine*	*pot*	*louse*

The only other possible word-final coda is *n*, exemplified below:

57.	yhubààn	naan	Áán	retíín	túntúrrèén
	tail	*mother*	*Señora*	*o'clock*	*june bug*

[22] The initial vowel appears to be epenthetic. Some speakers pronounce it with a different vowel producing *arcá*, while others do not include an initial vowel at all: *rcá*.

[23] *Uxtaali* is from Spanish *costal*. In addition, several words containing an *x* coda contain the morpheme *xtiila* 'Spanish (adj.)' from *Castilla*. These include *la<u>x</u>tiila* 'Spanish language', *ya<u>x</u>tiila* 'soap' and *etta<u>x</u>tiila* 'loaf'.

[24] The verb root is *–xcuuta* but the *x* gets syllabified as a coda with the addition of the tense/aspect prefixes.

Although phonemically an [n], word final nasals are typically realized as [ŋ], though in rapid speech they may assimilate in place to following consonants. The pronunciation of a final nasal as a velar also extends to borrowed words. So for example, *Juan* may be heard as [xwaŋ] and *OPAM* (Organización Para la Ayuda Macuiltianguense) as [opaŋ].

Within Sierra Zapotec, the word final nasals are an innovation. None are found in AZ. These forms derive from final vowel loss. Note that the stressed vowels remain lengthened in 57, reflecting the fact that they derive from historically open syllables. There have been, in fact, a number of phonological developments involving *n*-vowel sequences. These are discussed below in the next section.

2.6 Morphophonology of n-Vowel Sequences

Historically and synchronically, *n*-vowel (*n*V) sequences have been the locus of much phonological change and variation in the Zapotec languages of the Ixtlán district. In AZ, for example, several grammatical morphemes of the shape *n*V have reduced the *n* to nasalization on the following vowel. Compare some of these AZ morphemes with their MacZ cognates where the consonant has been retained:

58.

MacZ	AZ	MacZ	AZ	MacZ	AZ
=ni	=į	=nà	=ą	=nì	=į
=PROX		=3N		=3G	

These changes in AZ by themselves are not particularly noteworthy. However, when combining with other words and morphemes, the AZ vowel-initial forms interact with preceding vowels, coalescing with them (59a) or causing vowels to delete (59b) or to raise to high vowels (59c), or combinations of these processes (59d):

59.	**MacZ**	**AZ**	**MacZ**	**AZ**	**MacZ**	**AZ**
a.	dàànì *this bean*	dìị	làànà 3BAS	lą	yhiilánì *her sister*	ỹilíị
b.	betua'nì *this banana*	betu'ị	égú'ùnà *he will put back in*	égú'ą	=canì *their*	=quị
c.	yìinà'nì *this chili*	yìnì'ị	ínnenà *he will speak*	ínnią	naaga'nì *his ear*	nagui'ị
d.	tá'ànì *this petate*	tí'ị	gó'ònà *he will buy*	gú'ą	cwè'ènì *his back*	cuì'ị

In MacZ where the *n* is retained, there are no vowel-vowel interactions in such circumstances and the roots remain unchanged, identical to their free forms. In AZ, the roots, which in the above examples are identical to their MacZ counterparts, become radically altered when they are cliticized with the morphemes in 59. This results in some of the most striking and readily observed differences between MacZ and AZ.

In MacZ, the nasal consonant is retained in *n*V sequences, and instead, other phonological processes act upon these environments. When *n*V sequences are followed by another consonant-initial syllable ([$_{\sigma}$C…), one of two phonological processes is frequently triggered, either deletion of the vowel or metathesis of the *n* and vowel. These are schematized below:

60. **Vowel Deletion**
*n*V[$_{\sigma}$C… → *n*[$_{\sigma}$C…

61. ***n*V Metathesis**
*n*V[$_{\sigma}$C… → V*n*[$_{\sigma}$C…

Apart from the consonant-initial requirement, the particular phonological form of the following syllable does not usually play a role in conditioning vowel deletion and

metathesis. There are, however, some restrictions on the *n* and the vowel. Only the singleton, non-geminate *n* is involved in the processes in 60 and 61. Whether these processes could extend to any nasal-vowel sequences is uncertain, since *m* is so rare, but thus far, I have not found any examples of underlying *m*V undergoing vowel deletion or metathesis.

In addition, there are restrictions on the the vowel of *n*V sequences. When the V is mid, deletion and metathesis do not occur in *n*V sequences. These processes are restricted to instances where the V is *i, a,* or *u*. The absence of *o* in these processes is not too surprising since it is a rare vowel. The absence of *e* is more surprising and cannot be readily accounted for.

In almost all cases, a morpheme boundary occurs between *n*V and the following syllable, yielding *n*V#[$_{\sigma}$C…. That is, *n*V vowel deletion and metathesis almost never occur within a monomorphemic unit, but instead, occur across morphemes and words.

These processes have resulted in innovated word shapes. For example, they have resulted in words with a final *n*, where, prior to these innovations, the glottal stop was the only consonant that could occur in word final position. Additionally, these processes, along with several other historical changes, have contributed to the existence of vowel initial words in the language.

In addition to the phonological retrictions, deletion and metathesis are also sensitive to morphological properties, such as lexical category. For example, the processes are most widespread and synchronically active with verbs whose roots end in the sequence …*ni* or verbs that end in the incorporated preposition =*ni*. Deletion and

metathesis are also attested in some nouns and a few adjectives, but these processes are less frequent and apply idiosyncratically. Frequently, nouns that have undergo *n*V deletion or metathesis have become lexicalized and are no longer open to synchronic variation.

In the following subsection I discuss synchronic and historical instances of non-verbal *n*V vowel deletion and metathesis. In the subsequent subsection, I then go into greater detail about these processes in the more robustly represented verbal cases with *n-i* sequences.

2.6.1 Non-Verbal *n*V Phonology

The processes of *n*V vowel deletion and metathesis are most commonly found in verbs in MacZ, but are not restricted to that category. There are a few sporadic cases of these processes occuring with other lexical categories as well. Neither process seems like an active phonological process with non-verbal elements. There is some synchronic variation involving vowel deletion, but it is lexically conditioned, while metathesis can only be historically observed. Instead, these processes have become lexicalized and occasionally spread by analogy. It is difficult, if not impossible, then, to provide a purely phonological characterization of deletion and metathesis in non-verbal morphemes.

2.6.1.1 Non-Verbal *n*V Vowel Deletion

There are several words ending in *n*V sequences which undergo or have undergone final vowel deletion under the influence of following C-initial words and

morphemes. Thus, compare the combining forms in 62 with the citation forms and related words in 63:

62.	yáàn=lù'	xcwaan=ya'	yhubaan=nì	naan-quí'=ya'	retíín chúppá
	neck=2SG	uncle=1SG	tail=3G	mother-of=1SG	o'clock two
	your neck	*my uncle*	*its tail*	*my mother*	*two o'clock*
63.	yáàni	xcwaaná[25]	yhubaanà	naná (AZ)	ritííni
	neck	*uncle*	*tail*	*mother*	*rings, sounds*

For *yáàni, xcwaaná,* and *yhubaanà*, since they are inalienably possessed nouns, the conditioning environment for vowel deletion has been provided by clitic possessive pronouns, all of which are consonant initial. For *naan-quí'*, vowel loss has occurred under an unusual fusion of 'mother' and the preposition *què'/quì'* 'of'. *Retíín* is the most interesting example, since the vowel loss was triggered not by following bound morphology, as is typical, but by following independent words, in this case numbers, which again, are all consonant-initial. Perhaps, this might be taken as evidence that *retíín* has become a bound root.

For *naan-quí'* and *retíín*, the vowel loss has become permanent, and these words do not alternate with vowel-final morphemes in MacZ. Instead, we must look to cognate words in AZ (*naná*) or related words within MacZ (*ritííni*) to determine the identity of the historical vowel.

In the case of *yáàni, xcwaaná,* and *yhubaanà*, the vowelless forms have become lexicalized and are essentially in free variation with the vowel-final words. As a result,

[25] Since several of the words have identical vowels before and after the nasal, it is difficult to determine if these are instances of deletion or metathesis. However, since the final derived vowel is only as long as a stressed vowel and not as long as a V-V sequence, it is reasonable to conclude that these are indeed instances of deletion, although historically, of course, there could have been an intermediate metathesis stage, followed by V-V simplification.

the vowelless forms may appear outside of the expected conditioning environments. For example, the vowelless forms are often given as citation forms and can be used without pronominal possessors:

64. a. yhubààn(à) bia' =ni
tail horse =PROX
this horse's tail

b. xcwaan Felipe =á
uncle Felipe =INVIS
Felipe's uncle

In general, the preference is for the vowel-deleted form to occur with pronominal possessors, as in 62, and usually with any immediately following possessor, as in 64, while the vowel retention variant is preferred in other contexts, such as before adjectives, as in 65. However, both forms can occur in any of these environments.

65. a. yhubààn(à) tuuni bia' =nà'
tail long horse =DIST
that horse's long tail

b. xcwaan(á) =tó' =tù'
uncle =DIM =1EXCLG
our little uncle

For some speakers, final vowel deletion may also occur with certain adjectives ending in *n*V sequences when they are followed by clitic possessive pronouns:

66. yhubààn(á) tuun(i) =bà'
tail long =3ANIM
its long tail

Following vowel deletion in the adjective, the *n* would change to *m* assimilating to the following bilabial-initial clitic.

In 66, the deletion seems to be the result of an optional application of the deletion rule in 60. The vowelless form does not appear to be stored in the lexicon. It does not occur in other environments, nor is it ever given as the citation form.

2.6.1.2 Non-Verbal *n*V Metathesis

Like vowel deletion, examples of *n*V metathesis are found scattered throughout the lexicon. Unlike vowel deletion, there are no synchronically alternating examples of *n*V metathesis except with verbs ending in *n-i*. Metathesis in other words can only be observed through historical comparison.

There are examples of not only *n-i* metathesis, which is found synchronically in verbs, but also *n-u* and *n-a* metathesis. It is not the particular vowel, then, which is crucial in conditioning instances of *n*V metathesis.

2.6.1.2.1 n-i *Metathesis*

Historical *n*V metathesis gives us one of the very few confirmed instances of an *n*V phonological process not occurring at a morpheme boundary. There is at least one clear example of *n*V metathesis within the monomorphemic word, *inda* 'water'. For Proto-Zapotec, the word is reconstructed as **nisa* (Fernández de Miranda 1995). A plausible history for this word is given below:[26]

67.

	*nisa	>	*s>th*
	*nitha	>	metathesis[27]
	*intha	>	fortition of *th* following *n*
	inda		

[26] Many other modern words containing V*n* sequences may have undergone similar changes, though clear cognates which can confirm this have proven hard to find. For example, a very similarly shaped word to *inda* 'water', *indàá'* 'cherry,' may show metathesis as well. However, cognate words in published sources are not available, though *nazia'* in Zoogocho is very suggestive.

[27] The relative ordering of s>th and *n*V metathesis assumed here is not definite. An alternate ordering, **nisa* > **insa* > **inza* > *inda*, is also plausible. In either case we must assume an additional process of fricative voicing and/or fortition following *n*, processes not independently attested, but plausibly inferred. Note that the change of **z* to *d* is one that Fernández de Miranda independently reconstructs.

This particular innovation, along with others such as *ìntù'* 'we/us (exclusive)' (cf. Zoogocho *neto'*), is shared with AZ and other Ixtlán Zapotec varieties. This suggests that these forms represent older changes.

2.6.1.2.2 n-u Metathesis

MacZ also has several additional instances of diachronic metathesis that are not shared with AZ. For example, certain *n-u* sequences have undergone metathesis in MacZ. A few adjectives have been converted to nouns with the meaning 'one who is Adj' through the prefixation of an indefinite human pronoun, *nu*, which has subsequently metathesized to *un* before following consonant-initial adjectives.

68.	**uncwiití'**	**uncattse'**	**untó'**	**unduusi**	**unguula**
	un-cwiití'	un-cattse'	un-tó'	un-duusi	un-guula
	PRO-young	PRO-devil	PRO-DIM	PRO-drunk	PRO-old
	young person, guy	*devil*[28]	*child*	*drunk* (n.)	*old person*

That these cases involve metathesis is further supported by comparison with the one existing AZ cognate, *nùcuití'* 'young person', which retains the original non-metathesized *nu*.

Metathesis of a *n-u* sequence is also found in demonstrative pronouns. These are historically derived from a phonological base morpheme, *laa-*, used to create independent pronominal forms, the relative pronoun, *nu'*, and a demonstrative determiner, such as the proximate clitic *=ni*. The relative pronoun has subsequently undergone metathesis:

[28] There are a couple of other words for 'devil' that also obligatorily contain *un-* plus a bound root: *unxíìgwí'* and *uncaleetíà*. These words are said to be stronger than *uncattse'* {iv39}.

69.	**la'unni**	<	**laa-**	**nu'**	**=ni**		(cf. AZ *lanùì*)
	this (pronoun)		base-	REL	=PROX		
70.	**laacunni**	<	**laa-**	**ca**	**nu'**	**=ni**	(cf. AZ *lacanùì*)
	these (pronoun)		base-	PL	REL	=PROX	

The AZ cognates reveal the non-metathesized form. Recall that in AZ the proximate clitic has become *=ì*, although the nasalization on the vowel has been completely lost in these particular words.

Neither one of these pronominal morphemes, neither *nu* nor *nu'*, show any synchronic alternations. In the words in 68-70 they are always metathesized. Elsewhere they never are. So, for example, although the relative pronoun often appears before consonant-initial verbs, it does not metathesize in such environments:

71. a. **Àbíí rulaasa'yà' béccú' nu' ruyhiia'ná.**

àbíí	rulaasa' =ya'	béccú'	nu'	ruyhiia'	=ná
NEG	H/like =1SN	dog	REL	H/bark	=INVIS

I don't like that dog which is barking.

b. ***Àbíí rulaasa'yà' béccú' unruyhiia'ná.**

This probably results from the fact that *nu'* is not a bound morpheme in sentences such as those in 71.[29]

Before continuing with the discussion of *n*V metathesis, I should make a brief side note. For the two instances of *n-u* metathesis given above, one might wondered if they actually involve the same metathesized morpheme instead of two different ones. Perhaps, they should really both be treated as involving the relative pronoun, *nu'*. After all, relative clauses can be composed simply of the relative pronoun and an adjective:

[29] However, *nu'* does not seem like a completely independent word; it often does seem to form a unit with a following verb. Additional research is needed to establish if *nu'* is an independent word or a clitic.

72. ttu bestiidu nu' yaayhi
a dress REL expensive
a dress that's expensive

73. ttu bestiidu xináá nu' tuuni
a dress red REL long
a red dress that's long

It is possible then that words like *uncwiití'* and the others in 68 also derived from the relative pronoun.

There are reasons to believe, however, that the historical analysis offered above is the correct one and that the words in 68 and 69-70 have two different sources. Independent of the metathesized forms, there are two distinct *n-u* shaped morphemes, the relative pronoun (*nu'*) and the human indefinite pronoun (*núú*), which is found in a variety of words such as those in 74:

74. ¿núú=ní? à=núú=di núú-yha o=núú=la=yha'
who=COMP BAS?=who=NEG? who-EMBQ I.don't.know=who=EMP?=AFF?
who *nobody* *who*[30] *I don't know who*

The relative pronoun and human indefinite pronoun may be historically related, but they synchronically differ both in their phonology and semantics. Phonologically, the relative pronoun ends in a glottal stop while the human indefinite pronoun does not. Note that the glottal stop is preserved in the demonstrative pronoun *la'unni* in 69, while the words derived from *nuu* in 68 lack glottal stops.[31,32] Semantically, the relative pronoun is

[30] This form, *nuuyha*, is used in embedded questions.

[31] In *lacunni* in 70, additional processes appear to have resulted in the loss of the glottal stop. The [a] of the plural morpheme *ca* has been deleted, perhaps together with the glottal stop because they formed a stressless syllable. Another possibility is that the vowel deleted first, producing *lac'unni*, an illegal consonant sequence, which resulted in the deletion of the glottal.

not restricted to human referents, while the human indefinite pronoun is. As can be seen in 71-73, the relative pronoun can occur with animal and even inanimate referents. In contrast, all nouns derived from *un*+Adj, however, can only refer to humans (or supernatural human-like entities). *Untó'*, for instance, cannot be used to refer to small things, only to small people, i.e. children. If the relative pronoun is related to the human indefinite pronoun, then it has been semantically bleached of the restriction to refer to human referents (or vice versa).

This restriction to human referents then argues that the words in 68 were derived from the human indefinite pronoun and not the relative pronoun. The demonstrative pronouns, however, can refer to nonhumans, as can be seen in 75-76. This is expected if the demonstrative pronouns involve the relative pronoun as detailed in 69-70 above.

75. **¿La'unnà' taa' béccú' chò'?**
la'unnà' taa' béccú' chò'
that FOC dog of/2SG
Is that your dog?

76. **¿Núú carru què' taa' la'unni?**
nuu carru què' taa' la'unni
who car of FOC this
Whose car is this?

Thus, we can conclude that even if the relative pronoun and human indefinite pronoun are historically related, they have diverged in both form and meaning, and that this divergence took place before the formation of the nouns in 68 and the demonstrative

[32] The lack of an initial glottal stop in the words of 68 can easily be confirmed when these words are preceded by a vowel final morpheme, such as *ca*. No glottal stop can be detected between the [a] and [u] in *ca unto'saa* 'children' for example. This piece of evidence, however, is not as conclusive as it could be concerning the distinct origins of the words in 68 and 69-70. It could be that *nu'* metathesis resulting in *'un* would then be simplified to *un* since glottal stops are restricted to coda positions. However, as will be seen, additional evidence confirms that these two groups of words do have different underlying morphemes.

pronouns in 69-70 since these derived words directly reflect the observed differences between *nu'* and *nuu*.

One minor question that remains is why the *un*+Adj nouns show metathesis while the pronouns in 74, which involve the same *nuu* morpheme, do not. One confounding factor is that *nuu* is stressed in the pronouns in 74 while it is unstressed in environments where it metathesizes. Of course, it should also be noted that these processes are not just purely driven by phonological rules, but involve analogy and are sensitive to various other structural constraints. There are many morphemes of the correct phonological shape which do not or have not undergone metathesis or vowel deletion and those like *nuu*, which have only sporadically been affected.

2.6.1.2.3 N-A Metathesis

There is only one clear example of *n-a* metathesis. It is an historical change in the morpheme *aan*, which can be used as a title, as in *Aan Maria* 'Señora Maria', and is also found in the derived words *antíiá* 'aunt' and *anguulá* 'grandmother'. Non-metathesized cognates are found in AZ: *ná*, *nátį́á,* and *nágulá*. This suggests that **na* was the original form for MacZ as well. This seems to be confirmed by the word *naan* 'mother' in MacZ, which has not undergone metatheis but apparently derives from reduplication of **na* (cf. AZ *naná*) plus deletion of the final vowel.

The example of *aan* is interesting for a couple of reasons. It, along with *retíín* 'o'clock', provides one of the few examples of *n*VC phonology across word boundaries instead of across bound morphemes. That is, *n*V metathesis typically occurs in the environment of a following consonant within the phonological word. However, in the

usage of **na* as a title 'Señora', there is no following consonant within the word. The required phonological environment is instead provided by the initial consonant of the proper name following the title. Or perhaps the metathesis originated in the bound examples, *antíiá* and *anguulá*, and spread to the free form. Even more interestingly, however, *n-a* metathesis is an example of metathesis with a low vowel. This indicates that *n*V metathesis was not restricted to high vowels, even though synchronic *n*V metathesis is restricted to instances where *i* is the vowel and historically both *n-i* and *n-u* metathesis are reasonably well represented.

2.6.2 Synchronic *n*VC Phonology

Synchronic variation in underlying *n*VC sequences is restricted to *ni*C sequences. In particular, *n*VC deletion and metathesis are restricted to verbs whose roots happen to end in the sequence [ni] (which I will refer to as [ni] verb roots) and to the clitic preposition =*ni*, which attaches to verbs (which I will refer to as =*ni*-(clitic) verbs) as an applicative morpheme and also occurs in the free preposition *làànί* 'with'. When verbs ending in [ni] or words containing =*ni* are followed by the third person neutral clitic, =*nà*, the final [ni] undergoes metathesis. When such words are followed by other clitics, the final [i] deletes. Finally, the =*ni* clitic triggers additional phonological changes not associated with [ni] final verb roots. These are discussed in Section 2.6.2.2 below.

2.6.2.1 [ni] Final Verb Roots

As shown below in 77, when a person clitic (except the third person neutral =*nà*) attaches to a [ni] final verb root, the final [i] vowel deletes from the verb root.

77. ruuni 'H/do, make'

ruun=ya'	*I do*	ruun=tù'	*we (EXCL) do*
		ruun=riu'	*we (INCL) do*
ruun=lù'	*you do*	ruun=li	*you (PL) do*
ruun=ccwà'	*you (F) do*	ruun=ccwà'=li	*you (FPL) do*
ruun=yé	*he (F) does*	ruun=ca=yé	*they (F) do*
ruun=ba	*it (ANML) does*	ruun=ca=ba	*they (ANML) do*
ruun=bí	*he (CHILD) does*	ruun=ca=bí	*they (CHILD) do*
		ruun=ca=nà	*they (NONF) do*

Deletion of the final [i] is also triggered by clitic adverbial morphemes as illustrated in 78:

78.

beyuuni	*fixed*	illani	*will arrive*
beyuun=rsaba	*fixed a lot*	illan=xia	*will quickly arrive*
beyuun=ttse'	*fixed well*	illan=gwa	*will also arrive*

Although the vowel deletion results in a closed syllable, a preceding stressed vowel remains lengthened (represented orthographically by a doubled vowel). This is also true of nouns and other words that have historically lost final vowels (cf. Section 2.6.1.1):

79.

ruunlù'	beyuunttse'	reenyà'	rtuungwa	yhubaanba
ruuni=lù'	beyuuni=ttse'	reeni=ya'	rtuuni=gwa	yhubaaná=ba
H/do=2SN	C/repair=well	H/be.at=1SN	H/be.hungry=also	tail=3ANIMG
you do	*fixed well*	*I am at*	*is also hungry*	*its tail*

Recall that every three consonant sequence (CCC) found in MacZ is derived through morphophonological processes. Final *n-i* vowel deletion produces most such sequences, as in the following examples:

80.

beyuunttse'	rtuunrsaba	reenccwa'	illanccwa'li
beyuuni=ttse'	rtuuni=rsa=ba	reeni=ccwa'	illani=ccwa'=li
C/repair=well	H/be.hungry=INT=EMP	H/be.at=2SFN	P/arrive=2SFN=2pN
fixed well	*is really hungry*	*you (F) are at*	*you (FPL) will arrive*

When [ni] verbs are not followed by a clitic or other bound morpheme, the final [i] is retained as shown below in 81-82:

81. **Ruuni naanquí'yà' yíínató'.**

ruuni	naan	-quí'	=ya'	yíína	-tó'
H/do	mother	-of	=1G	chili	-DIM
				yellow mole	

My mother is making yellow mole.

82. **Beyuuni carruà'.** {mm}

beyuuni	carru	=à'
C/repair	car	=DIST

Fix the car.

Note that all of the person clitics and adverbial clitics happen to be consonant-initial and thus provide the conditioning environment for final [i] deletion and *ni* metathesis. This is not the case in AZ, where several of the person clitics have lost their initial consonants.

83.

MacZ	**AZ**	
=ya'	-a'	first person singular
=yé	-é	third person formal
=nà	-ą	third person nonformal

The lack of initial consonants in these three high frequency person clitics correlates with the absence of robust *n-i* synchronic phonology in AZ then. The consonant-initial forms of the MacZ pronouns may have contributed to the widespread *niC* vowel deletion and metathesis in verbs, or conversely, the loss of the consonants in AZ may have reversed vowel deletion and metathesis in AZ. That is, AZ lacks the conditioning environment for vowel deletion and metathesis for several high frequency pronominal forms.[33]

[33] Nellis and Nellis (1983:188) list one instance of *n-i* metathesis in AZ with the verb *ruin* 'makes, does'.

As noted above, when the third person neutral clitic, *=nà*, immediately follows a verb ending in [ni], the *n-i* sequence of the verb metathesizes, yielding an *i-n* final sequence:

84.	ruuinnà	beyuuinnà	illainnà	rtuuinnà	biyeeinnà
	ruuni=nà	beyuuni=nà	illani=nà	rtuuni=nà	biyeeni=nà
	H/do=3N	C/repair=3N	P/arrive=3N	H/be.hungry=3N	C/sound=3N
	he does	*he fixed*	*he will arrive*	*he is hungry*	*it sounded*

Recall that when such verbs are followed by the third plural form *=canà*, the final vowel simply deletes, as seen above in 77.

In more rapid speech, the derived *n-n* sequences frequently reduce to a single *n*. This reduction never happens with the lexical geminate *nn*'s. For *=ni* verbs, final glottal stops are also lost before *n-i* vowel deletion and metathesis:

85.	rquiina'=ni	*needs*	caaba'=ni	*possibily is*
	rquiina=n=lù'	*you need*	caaba=n=lù'	*you possibly are*
	rquiina=in=nà	*he needs*	caaba=in=nà	*he possibly is*

No [ni] verb roots happen to have a glottal stop before the *ni* syllable, so we cannot determine if glottal stop deletion also occurs within monomorphemic metathesizing verb roots.

The V-V sequences resulting from metathesis are distinct from lexical diphthongs in a number of respects. My consultants do judge the derived V-V sequences as belonging to single syllables just as they do with lexical diphthongs, but the phonological behavior of derived V-V sequences suggests that they are best thought of as sequences of

syllables.[34] Regardless of the syllabification question, the derived sequences are systematically distinguished from lexical diphthongs.

For example, lexical diphthongs in MacZ are restricted to having a high vowel, either *i* or *u*, as the first component of the diphthong (*ia, iu, ui, ue, ua*). As seen in 84, however, metathesis yields many V-V sequences, such as *e-i* and *a-i*, which do not conform to this pattern.

Furthermore, many speakers actually delete unstressed vowels before the *i* of the metathesized *=ni* clitic. This follows a more general pattern of vowel elision observed across words, where …CV_1#V_2 may become …C#V_2 when V_1 is [-stress].

Consider the following two examples from two different speakers of vowel elision before an *i-n* sequence resulting from metathesis:

86. **Cáási íttú ttsitaa' cààbínàyhà ò méénús ruulà.** {Wedding.Story.1}
cáási íttú ttsitaa' cààba=ní =nà =yhà ò menus ruulà
almost about fourteen S/probably.be=PREP =3N =AFF or less even
She was probably about fourteen or even less.

87. **Ca miiyhi raasiquinà ca béccú'.** {ii200f}
ca miiyhí raasi =ca =ni =nà ca béccú'
PL cat H/be.afraid =PL =PREP =3N PL dog
Cats are afraid of dogs.

In the underlined word, a preceding stressless *a* is deleted before the metathesized *=ni* clitic. This is schematized below:

[34] My consultants' intuitions about syllables are almost certainly influenced by Spanish syllabification patterns.

88.		S/probably.be=PREP=3N[35]	H/be.afraid=PL=PREP=3N
		cààba'=ní=nà	raasi=ca=ni=nà
	metathesis	cààba=ín=nà	raasi=ca=in=nà
	vowel elision	cààb=ín=nà	raasi=c=in=nà
	n-n simplification	cààbínà	raasiquinà[36]

Although in rapid speech lexical diphthongs may coalesce, e.g. *ia* diphthongs are frequently realized as a monophthongal mid vowel *e*, it is never the case that one component of a lexical diphthong simply deletes, as has happened with the words in 88. This suggests that these derived sequences are treated not as indivisible diphthongs but as separate sequences of vowels across morphemes to which a regular rule eliding the unstressed vowels may apply. This is then a second difference between derived vowel sequences and lexical vowels.

Vowel deletion with metathesis has not been observed in [ni] verb roots. This is due in part to the fact that for most *ni* verb roots, the vowels preceding *ni* are stressed vowels, which do not delete. Of those verbs listed in 84, only *illani* 'will arrive' has an unstressed vowel before *ni*. More likely, however, vowel deletion simply doesn't occur inside a monomorphemic element, and in this regard, [ni] verb roots behave differently from =*ni*-cliticized verbs.

Although certain speakers do allow vowel elision preceding a metathesized =*ni* clitic, other speakers, including my two primary consultants, consistently retain both vowels as in 84-85 above. This occurs even in cases where metathesis results in an *i-i* or *ii-i* phonetic sequence like those in 89:

[35] The =*yha* =AFF clitic appears in the sentence in 86 but does not condition metathesis and vowel deletion, and has been left off to simplify the presentation.

[36] Recall that the *c/qu* alternations are simply orthographic variants for the phoneme /k/.

89.

duusi=ni	*is drunk*	raasi=ni	*is scared*	rtelii=ni	*understands*
duusiinnà	*he is drunk*	raasiinnà	*he is scared*	rteliiinnà	*he understands*

While stressed vowels in open syllables are lengthened, lexical long vowels do not exist in MacZ. This is a third difference between derived sequences and lexical diphthongs.

For speakers who retain both vowels, the derived vowel sequences are longer than simple vowels and lexical diphthongs. This was demonstrated in Foreman 2000b for single *i* versus derived *i-i* sequences.[37] In unstressed syllables, *i-i* sequences were found to be approximately twice the length of singleton stressless *i* in an open syllable. The results for my two primary consultants, treated individually and together, are summarized in Figure 2-5:

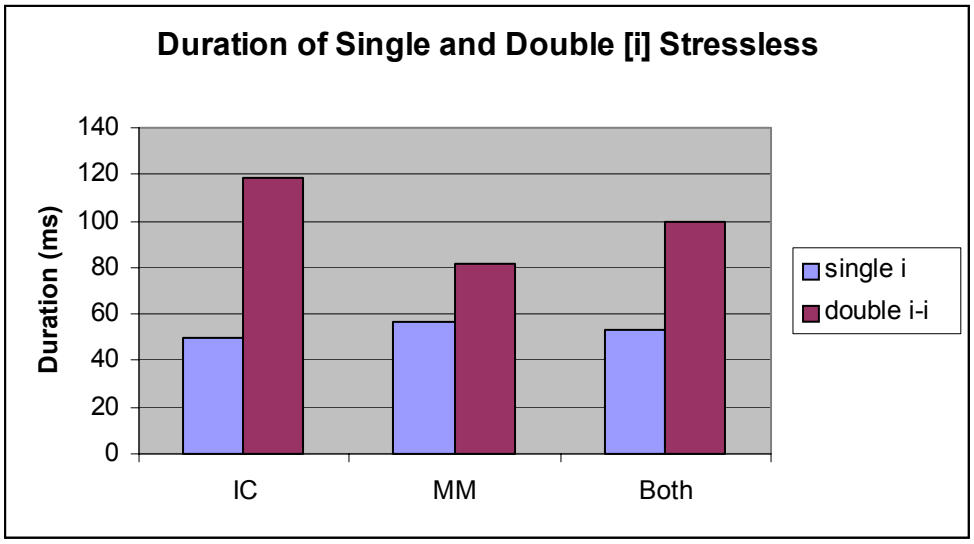


Figure 2-5

Similar findings occurred with stressed vowels. Stressed *ii-i* sequences are twice the length of stressed simple *ii* vowels, as illustrated in Figure 2-6:

[37] I am indebted to Roger Billerey-Mosier for making the relevant measurements concerning derived *Vi* sequences and developing the layout for the data.

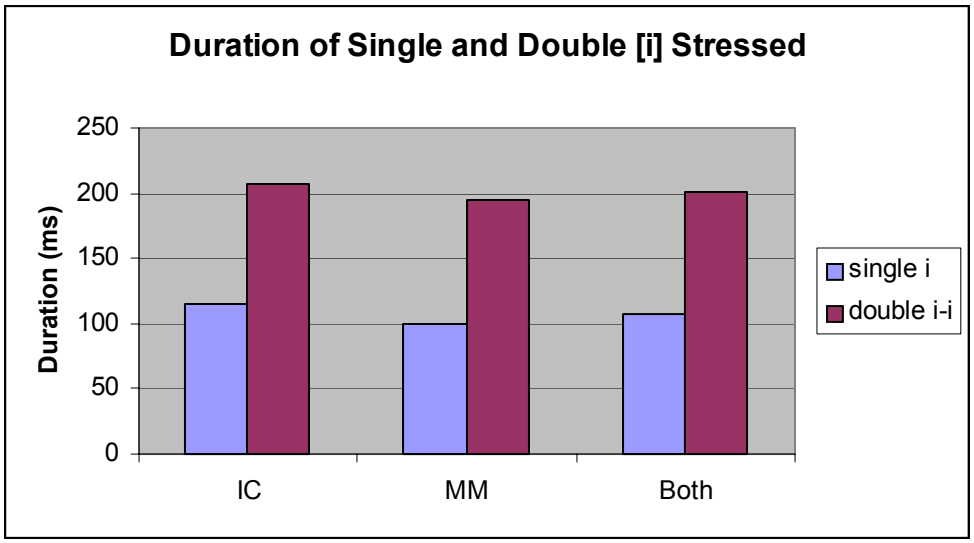


Figure 2-6

These results again argue that the derived vowel sequences are distinct from lexical simple vowels and diphthongs. The derived sequences roughly have the length of two singleton vowels, which is predicted if metathesis results in vowel-vowel sequences across syllables instead of diphthongs contained inside a single syllable.

Despite speaker intuitions, then, there are several reasons to consider vowel-vowel sequences derived via metathesis to be just that: sequences of vowels in two distinct syllables and not diphthongs within a single syllable. The derived sequences violate the phonotactics of diphthongs with non-high initial vowel components, undergo elision and have the duration of two vowels.

Since the stressless *i-i* sequences are roughly the same length as a single stressed *i* in an open syllable, the derived V*i* sequences are quite prominent. Impressionistically, it often seems that the derived V*i* sequence is acting as the stressed syllable of the word, and stress may not be perceived elsewhere in the root. This problem may be particularly

compounded if the stressed vowel of the root is followed by a geminate consonant and, as a result, is not lengthened.

For example, in the word *illani* 'will arrive', it is easy to mistake the *a* vowel for the stressed vowel since the initial *i* is not lengthened and, in fact, may be somewhat shortened before the geminate. Careful study of the *a* and comparison with stressed *a* in other words reveal that the *a* is not lengthened, however, and cannot be the stressed vowel. In a form like *illainnà* 'he will arrive', the derived V*i* complex is now of comparable length to be a stressed vowel. So, at least one phonological indicator of stress—lengthened vowels in open syllables—points to the V*i* sequence as bearing the stress of the word.

This issue of stress and metathesis was also addressed in Foreman 2000b, which investigates whether derived V*i* sequences attract stress away from other parts of the root, or, in the case of =*ni* verbs, whether the addition of an extra syllable, leads to a stress shift. The question is if stressed vowels in the root still show lengthening in open syllables when a derived V*i* sequence appears elsewhere in the word. Or are stress and the resultant lengthening shifted away from the root stress to the V*i* sequence? If so, then *duusini* 'H/be.drunk' should, with the addition of =*nà* and the resulting metathesis, become *dusiinnà*. If, however, the root stressed vowel still shows lengthening, then it should be realized as *duusiinnà*.

Only the latter conclusion is supported. The root stressed vowel remains long even when a V*i* sequence, which may sound more prominent, appears elsewhere in the word. This is evidenced below in Table 2-3 for two speakers:

Meaning	Verb	V	IC ms	MM ms
is drunk	duusini	u	136	108
he is drunk	duusiinnà	u	156	117
he is also drunk	duusigwainnà	u	164	141
is scared	raasini	a	191	139
he is scared	raasiinnà	a	200	142
he is also scared	raasigwainnà	a	196	152
needs	rquiina'ni	i	109	104
he needs	rquiinainnà	i	118	100
he also needs	rquiina'gwainnà	i	115	94

Table 2-3 Stress and Derived V-V Sequences

For each stressed root vowel considered, *u, a* and *i*, there was no significant shortening induced by the creation of a V*i* complex in the word. Distance between the stressed root vowel and V*i* complex also did not lead to any shortening. Thus, the addition of another clitic, in this case *=gwa* 'also', before the metathesized *=ni* had no shortening effect on root vowel length. Although the derived V*i* complex may be as long as or even longer than the root stressed vowel, the underlying stress is still realized and the stressed vowel remains lengthened in open syllables.[38]

This conclusion is further supported by the earlier observation of a length difference between stressed and stressless derived *i-i* sequences. The stressed sequences were about twice as long as ones in which stress did not fall on either of the underlying *i* vowels. If derived vowel complexes always attract stress, then both underlyingly stressed and stressless *i-i* sequences should become stressed and show the same amount of lengthening. However, the sequences retain a surface length distinction, supporting the finding that derived vowel sequences do not automatically attract stress.

[38] Note that only *=ni* verbs were tested since most [ni] verb roots have stress immediately preceding the *ni* syllable, making it impossible to test if the V*i* sequences are long at the expense of other stressed syllables. It is possible that the two types of verbs behave differently in this regard, but no way to tease these differences apart has yet been found.

2.6.2.2 The Phonology of the Clitic *=ni*

The *=ni* clitic is a valency increasing particle, typically adding an experiencer argument to the verb. It is also involved in the realization of morphological case. The details of its argument and case licensing properties will be discussed in Chapter 5. As already noted, the prepositional clitic *=ni*, which appears incorporated with verb stems, undergoes the same phonological processes of vowel deletion and metathesis that is observed in verbs whose roots end in *ni* syllables, what I refer to as [ni] verb roots. There are, however, a variety of morphophonological differences between *=ni* verbs (verbs that contain *=ni*) and [ni] verb roots.

For example, *=ni* often coalesces with first person experiencer subjects. In addition, it interacts with adverbial clitics and third person plural clitics in interesting ways. It cannot be followed by adverbial clitics but instead must always follow them. It also intervenes between the plural marker *ca* and third person clitics.

2.6.2.2.1 Basic Vowel Deletion and Metathesis Involving =ni

When followed by many of the clitic personal pronouns, *=ni* verbs behave identically to [ni] verb roots and are indistinguishable from them. The third person nonformal clitic, *=nà*, triggers metathesis while other person clitics trigger deletion of the *i* vowel.

90.

gureesiya'a=ni	*yelled at*	rquiina'=ni	*needs*
gureesiya'an=ya'	*I yelled at*	rquiinan=riu'	*we (INCL) need*
gureesiya'an=lù'	*you yelled at*	rquiinan=lì	*you (PL) need*
gureesiya'an=yé	*he (F) yelled at*	rquiinan=ba	*it (ANML) needs*
gureesiya'ain=nà	*he yelled at*	rquiinain=nà	*he needs*

The independent preposition *làànì* 'with', which also contains *=ni*, exhibits the same pattern:

91.	lààn=lù'	*with you*	lààn=riu'	*with us (INCL)*
	lààn=yé	*with him (F)*	lààin=nà	*with him*

2.6.2.2.2 Phonological Interactions with First Person Exclusive Dative Subjects

One difference between [ni] verb roots and *=ni* words, however, involves first person exclusive arguments. These often show a pattern distinct from other arguments. When *=ni* licenses a first person exclusive subject clitic, the pronoun appears in the dative form (*=(n)tè'* 1SD, *=ntù'* 1EXCLD) instead of nominative (*=ya'* and *=tù'*), although when the *=ni* applicative licenses an object, a nominative subject is retained. The preposition *lààni* always takes the dative form. These different case forms are illustrated below in 92 (dative) and 93 (nominative and genitive):

92.	rquiinantè'	rquiinantù'	lààntù'
	rquiina'=ni=ntè'	rquiina'=ni=ntù'	làànì=ntù'
	H/is.needed=PREP=1SD	H/is.needed=PREP=1EXCLD	with=1EXCLD
	I need	*we need*	*with us*
93.	ruunyà'	ra'athitù'	què'tù'
	ruuni=ya'	ra'athi=tù'	què'=tù'
	H/do=1SN	H/sleep=1EXCLN	of=1EXCLG
	I do	*we sleep*	*for us*

As can be seen, the *i* of *=ni* is lost in 92, as generally happens when it is followed by a consonant-initial clitic. In addition, the resulting *n=n* sequences, e.g. *rquiina'=n=ntè'* in 92 above reduces to a single *n*, yielding *rquiina'=ntè'*.

In fact, the remaining *n* from underlying *ni=ntè'* may be deleted altogether leaving only *=tè'*. As a result, there is no overt realization of *=ni*:

94.	rquiinatè'	*I need*	duusitè'	*I'm drunk*	nabiiatè'	*I know (someone)*
cf.	rquiinantè'		duusintè'		nabiiantè'	

Only the dative case of the subject indicates the covert presence of *=ni*.

This *n* deletion does not extend to final root *n*'s. So, for example, *riyeeni=ni* 'hear' is composed of a [ni] verb root and an incorporated *=ni* preposition. While both the root final *i* and the *i* of *=ni* are deleted, an *n*, presumably the root *n*, must be retained. It cannot be deleted: *riyeentè'* not **riyeetè'*.

The *n*-less form is the only first person singular form listed for these types of verbs in AZ. In MacZ, there is variation among speakers and even within a single person's speech with respect to the retention of the *n*, as shown above in 94.

The first person plural exclusive dative experiencer subject, *=ntù'*, however, does not show a similar alternation. An *n* must always be retained:

95.	rquiinantù'	*we need*	duusintù'	*we're drunk*	nabiiantù'	*we know (s.o.)*
cf.	*rquiinatù'		*duusitù'		*nabiiatù'	

Interestingly, retention of the *n* in words like those in 95 avoids conflation with the nominative form for the first person exclusive clitic, *=tù'*. Deleting the *n* of the dative form, *=ntù'*, would make the two forms homophonous and would lead to ambiguity in words like *rquiinatù'* 'we (EXCL) are needed' and *rquiinantù'* 'we need'. In contrast, deleting the *n* with first person singular dative subjects does not lead to conflation of forms since the first person singular forms, *=ya'* and *=ntè'*, are quite distinct.

In addition, a *=ni=ntè'* sequence can only be reduced to *=tè'* when the first person clitic indicates the subject. When it functions as a non-subject, the reduction cannot take

place even if *=ni* and the object *=ntè'* form a contiguous string as shown in the following pairs of sentences:[39]

96. **Gureesiya'a*(n)tè'.** {v67e}
gureesiya'a =ni =ntè'
C/yell =PREP =1SA
Yell at me.

97. **Béccú'nà' gudàànà gweyhia*(n)tè'.** {v149e}
béccú' =nà' gudàà =nà gweyhia =ni =ntè'
dog =DIST C/be =3N N/bark =PREP =1SA
That dog was barking at me.

The *n* must also be retained with the preposition *làànì*, thus *lààntè'*, not **lààtè'*. There are two possible explanations for this latter fact: one syntactic, one phonological. Perhaps *lààntè'* 'with me' cannot be reduced to **lààtè'* since the reduction is restricted to dative subjects and *=ntè'* here is the object of a preposition, not a subject. Another possibility is that *lààntè'*, like *riyeeni=ni* 'hears' (discussed above), underlyingly or historically contains a root *n* as well. Thus, the preposition would underlyingly be *lààni=ni*, and not simply the phonological base morpheme *làà-* plus the clitic preposition *=ni*. This is a possibility though it makes the identification of *làànì*'s component morphemes more mysterious.

[39] Positive imperatives and participial forms such as those in 96 and 97 provide the only environments in which an incorporated *=ni* clitic may be immediately followed by an object clitic. Positive imperatives and participial forms are most robustly found with nominative subject verbs; verbs with agentive subjects work most naturally in imperative contexts and this is also the class of verbs that have a participial form. This means that in 96-97, *=ni* necessarily licenses the object. It is impossible to test whether *=ni* and an object clitic would behave the same in verbs where *=ni* licenses the subject. I would predict, however, that they would.

2.6.2.2.3 Interaction with Clitic Adverbs

Another difference between [ni] verb roots and *=ni* verbs is their interaction with adverbial clitics. MacZ has a large number of adverbs which can cliticize to verbs (see Section 3.1.5). If the verb happens to be a [ni] verb root, the final vowel of the verb root is deleted, as shown in 78 repeated below:

78.	beyuuni	C/fix	illani	P/arrive
	beyuun=rsaba	fixed a lot	illan=xia	will quickly arrive
	beyuun=ttse'	fixed well	illan=gwa	will also arrive

The *=ni* clitic, however, always follows any adverbial clitic. Consequently, in this position, vowel deletion will not be triggered by the adverbial clitic.

98. a. rtoo=ttse'=ni — tee=rsa=ba=ni — raasi=gwa=ni
H/taste=well=PREP — S/exist=INT=EMP=PREP — H/be.scared.of=also=PREP
tastes good to — *has a lot of* — *is also scared of*

b. rlua'=xia=ni — rnnee=ru=ba=ni {ii114/ii125}
H/look=maybe=PREP — H/talk=still=EMP=PREP
maybe looks to — *still calls*

Ordering of *=ni* before the clitic adverb results in ungrammaticality, as seen below:

99. raasi=gwa=ni/*raasi=ni=gwa {mm}
H/be.afraid=also=PREP
is also afraid

For a discussion of the syntactic implications of this ordering, see Section 5.3.3 on the syntax of *=ni* verbs.

2.6.2.2.4 Interaction with Plural Third Person Clitic Pronouns

Surprisingly, the clitic plural marker *ca* behaves similarly to the clitic adverbs with respect to its order relative to *=ni*. When any immediate following argument clitics

contain the plural marker *ca*, the *=ni* clitic intervenes between *ca* and the person clitic. Stated another way, third person plural clitics are composed of the nominal plural marker *ca* and one of the four third person clitic pronouns. When they appear cliticized to a *=ni* verb, the *=ni* clitic follows the plural marker, appearing before the clitic pronoun. Metathesis and vowel deletion then apply according to the person clitic: metathesis before *=nà*, vowel deletion before the other person clitics:

100.

H/be.needed=PREP=PL=3D		H/be.needed=PREP=PL=3FD
rquiina'=ni=ca=nà	underlying order	rquiina'=ni=ca=yé
rquiina'=ca=ni=nà	*=ca/=ni* reordering	rquiina'=ca=ni=yé
rquiina'=ca=in=nà	metathesis or deletion	rquiina'=ca=n=yé
they need		*they* (F) *need*

Many speakers, though not all, delete the vowel of *ca* when it is followed by metathesized *=ni*. Thus, *=ca=in=nà* becomes *=c=in=nà,* written as *=quinà*, as in the following examples:

101.

H/be.afraid=PREP=PL=3D		S/know=PREP=PL=3D	{ii84}
raasi=ni=ca=nà	underlying order	nabiia'=ni=ca=nà	
raasi=ca=ni=nà	*=ca/=ni* reordering	nabiia'=ca=ni=nà	
raasi=ca=in=nà	metathesis	nabiia'=ca=in=nà	
raasi=c=in=nà	vowel elision	nabiia'=c=in=nà	
raasiquinà	*n-n* reduction	nabiia'quinà	
they are scared		*they know (someone)*	

My two primary consultants do not do this, but instead, they exhibit another interesting feature, frequently having two copies of the *=ni* clitic, one on each side of the plural marker. Thus, one copy of *=ni* with the vowel deleted, appears before *ca*, while another instance of *=ni* appears after *ca* before the third person pronoun, which triggers vowel deletion or metathesis of the second copy of *=ni*. I assume the second copy is generated because *=ni* is attracted to either some position closer to the right edge of the

word or to the first following clitic personal pronoun (see Section 5.3.3 for more discussion). The multiple realizations of *=ni* are illustrated in the examples below:

102.	H/be.needed=PREP=PL=3D		H/be.needed=PREP=PL=3FD
	rquiina'=ni=ca=nà	underlying order	rquiina'=ni=ca=yé
	rquiina'=ni=ca=ni=nà	copy *=ni*	rquiina'=ni=ca=ni=yé
	rquiinancainnà	surface realization	rquiinancanyé
	they need		*they (F) need*

Occasionally, this double marking of the *=ni* incorporated preposition may occur with adverbial clitics as well. For example, the underlying form in 103 can surface as either *caabagwainnà* or *caabangwainnà*, with an apparent additional *=ni* (underlined) before the adverb *=gwa*.[40]

103. caaba=ni=gwa=nà
S/probably.be=PREP=also=3D
she was also probably

With the two copies of *=ni*, it is almost as if the *ni* sequence is being treated both as part of the verb root and as the separate clitic morpheme. For verbs that do in fact have a [ni] verb root plus an incorporated *=ni* clitic, both instances of the *ni* sequence must appear in the surface form. Unlike the case with non-[ni] verb roots, the *n* before the plural marker is obligatory with these verbs.

104.	releeni=ca=ni=nà	biyeeni=ca=ni=nà
	releencainnà	biyeencainnà
	*releecainnà	*biyeecainnà
	they are sad	*they heard*

[40] This fact seems to correlate with other features involving *=ni* verbs present in my primary consultants' speech which may be absent in the speech of others, especially older speakers. For example, my primary consultants persist in using *n* with the first person singular *=ni* subject, *=ntè'*, instead of *=tè'*, and they preserve the underlying vowels before metathesized *=ni*, whence *=cainnà*, instead of *=quinà*.

For the preposition *lààní* 'with', the *n* before the plural marker is also obligatory. There is variability, however, in whether *=ni* appears after the plural marker or not as shown by the two derivations presented below in 105:

105.	with=PL=3D		with=PL=3D	{v99c}
	lààní=ca=nà	underlying order	lààní=ca=nà	
	--	copy *=ni*	lààní=ca=ni=nà	
	lààn=ca=nà	metathesis and/or vowel deletion	lààn=ca=in=nà	
	with them		*with them*	

The first derivation seems to be the preferred form of the word, and the status of the second variant needs further confirmation. If it can be verified, however, this again suggests that the preposition is variably treated as though it were either a single root *lààní* underlyingly or as a [ni] root plus the *=ni* clitic, *lààní=ni*.

2.6.2.2.5 Syntactic Licensing and Phonological Processes

These metathesis and vowel deletion processes are not purely conditioned by phonological factors, but are restricted to certain morphemes and specific syntactic environments. For example, we have already seen that historical *n*V metathesis and deletion idiosyncratically applied to only certain morphemes, and not to others which occurred in the same phonological conditioning environment. The same is true of synchronic vowel deletion and metathesis involving *n-i* sequences. Only [ni] verb roots (verbs whose roots end in [ni]) and the incorporated *=ni* preposition undergo these processes, and these show interesting sensitivities to the syntactic environment.

There are many other morphemes of the phonetic shape *ni* which appear in the correct phonetic environment, but do not undergo vowel deletion or metathesis (or

reordering with a following *ca*). For example, the proximate clitic *=ni* and the third person possessive clitic *=nì* are of the correct phonetic shape, but do not undergo metathesis and deletion when placed in the proper phonological environment. As illustrated below, vowel deletion and metathesis fail to occur in these morphemes even when they are followed by third person clitic pronouns which do consistently trigger vowel deletion or metathesis elsewhere.

106. a. **Beyuuni Naachu<u>ni</u>nà.** {mm}
beyuuni Naachu <u>=ni</u> =nà
C/repair Nacho <u>=PROX</u> =3A
Nacho fixed it.

b. ***Beyuuni Naachu<u>in</u>nà.** (no metathesis) {mm}

107. a. **Beeni ttu dàànan<u>ì</u>canà.** {mm}
beeni ttu dààna <u>=nì</u> ca =nà
C/make a sibling.of.opposite.sex <u>=3G</u> PL =3A
One of her brothers made them.

b. ***Beeni ttu dàànaca<u>in</u>nà.** (no reordering (and metathesis)) {mm}
c. ***Beeni ttu dàànan<u>n</u>canà.** (no vowel deletion) {mm}

Not only are synchronic metathesis and vowel deletion limited to verb roots and *=ni*, but they are also sensitive to which syntactic environments they appear in. These morphophonological processes can only be triggered by a following clitic pronoun, or in the case of [ni] verb roots, by a following clitic adverb.[41] Other clitic elements which may follow [ni] verb roots or *=ni* cannot trigger these phonological interactions.

[41] Recall that a clitic adverb may also trigger vowel deletion with the clitic *=ni*, but only when two copies of *=ni* appear in the word, one before the adverb and one after. This is relatively uncommon, however, and *=ni* usually only appears after the clitic adverbs, which therefore cannot trigger vowel deletion.

Demonstrative clitics, for example, do not trigger these processes. As discussed extensitvely in Section 3.3.1, definite DPs in MacZ generally require a demonstrative clitic (*=ni* PROX, *=nà'/=à'* DIST or *=á*/=∅ INVIS). These clitics follow the entire DP, including relative clauses:

108. **béccú'ni**
béccú' =ni
dog =PROX
this dog

109. **béccú' chà'ni**
béccú' chà' =ni
dog of/1SG =PROX
this dog of mine

110. **béccú' nu' rooni**
béccú' nu' r-oo =ni
dog REL H-eat =PROX
this dog that's eating

If the relative clause happens to end with a verb that ends in [ni] or *=ni*, then this would seem to provide the correct phonological environment for vowel deletion or metathesis. The *n-i* sequence would be followed by a consonant-initial clitic. However, neither deletion nor metathesis occurs in such environments, neither with [ni] final verb roots (as in 111) nor with *=ni* incorporated verbs (as in 112):

111. **Ca untó'saa canu' rtuuninà'/*rtuu(i)nnà' arcalaa'canì lagóó.** {v71a}
ca untó' -saa ca nu' r-tuuni =nà' arcalaa' ca =nì lagóó
PL child -DIMPL PL REL H-be.hungry =DIST H/want PL =3G food
Those children who are hungry want food.

112. **Beyùú' nu' rsa'anini/*rsa'a(i)nni arcalaa'nì belliu què'niá.** {v72a}
beyùú' nu' r-sa'a =ni =ni arcalaa' =nì belliu què' =nì =á
man REL H-be.angry =PREP =PROX H/want =3G money of =3G =INVIS
This man who's angry wants his money.

In each case, *rtuuninà'* and *rsa'anini* were judged by my consultants to be single words, suggesting that we have the correct phonological conditioning environments. But, apparently, some aspect of the syntactic structure blocks the expected metathesis and vowel deletion.

Instead, deletion and metathesis must either be sensitive to movement traces or CP clause boundaries (or both). The relevant structures are illustrated in 113 for the relative clause in 111.

113. $[_{DP}$ ca untó'saa $[_{CP}$ canu'$_i$ rtuuni=t_i]=nà']
$[_{DP}$ PL children $[_{CP}$ who$_i$ are.hungry=t_i]=DIST]

It is difficult, however, to find conclusive evidence which might distinguish between the effects of the traces and CP-clause boundaries.[42]

While demonstrative clitics do not trigger these phonological processes, any clitic argument pronoun can. Both subject and object pronouns can trigger these processes. Even more interesting, *=ni*, which licenses an additional argument, phonologically interacts with the first following clitic pronoun whether licensed by *=ni* or not. In addition, *=ni* may undergo reordering with any immediately following third person plural

[42] As discussed in Chapter 4, the null subjects in imperatives and with non-finite verbs are not apparently derived via movement and therefore do not involve traces. As a result, the fact that clitic objects can trigger *n-i* phonological processes in these constructions does not indicate that these phonological processes are blocked by an intervening trace. An answer to the question of why demonstrative clitics do not trigger these processes remains elusive.

clitic argument pronoun even if it is not one licensed by *=ni*. As a result, *=ni* will often appear in the middle of an argument which bears no syntactic relation to *=ni*.

The affected *n-i* sequences occur at the ends of verbs, whether as part of the root or introduced by *=ni*. Since argument clitics (when present) maintain a rigid V=s=o order, *i*-deletion and *n-i* metathesis are most frequently triggered by a following subject clitic pronoun. However, in cases where there is no subject clitic pronoun, as with imperatives and non-finite verbs, the *n-i* sequence may be directly followed by an object pronoun. These pronouns may then provide the conditioning environment licensing vowel deletion or metathesis, as illustrated below in 114-115 with the [ni] verbs *beyuuni* 'repaired' and *gweeni* 'to make, do': [43]

114. **Beyuuncanà.** {mm}
beyuuni =ca =nà
C/repair =PL =3A
Fix them!

115. **Diiayà' gweeinnà.** {mm}
diia =ya' gweeni =nà
S/go =1SN N/make =3A
I am on my way to do it.

The incorporated preposition *=ni* shows similar behavior, and as discussed above, also exhibits reordering with a following *ca*. As with [ni] verb roots, the phonological interactions can occur both with subject and object argument clitics. If the argument licensed by *=ni* functions as the subject, then following the V=ni=s=o clitic order, *=ni* will be contiguous with the argument it licenses. Phonological interactions, including

[43] As discussed in Chapter 4, subjects may also undergo movement to a preverbal position. However, when an object clitic pronoun is present, a resumptive subject pronoun must be used.

=ni/ca ordering, will be triggered by this licensed argument. In cases where *=ni* licenses a non-subject, however, *=ni* will typically not be adjacent to its argument (except in imperative and non-finite contexts discussed above). Instead, the subject will intervene between *=ni* and its licensed argument. However, vowel deletion, metathesis and *=ni*/*ca* interactions still occur, being triggered by the following subject clitics. As a result, the *=ni* clitic frequently interacts phonologically with arguments that it doesn't actually license.

For example, as can be seen in 116-117, *=ni* licenses a subject argument for the verb *rquiina'ni* 'needs' (*=ni* and the argument licensed by it are underlined):

116. **Nii rquiina' ttu liibru.** {v66i}
nii rquiina' ttu liibru
here H/is.needed a book
A book is needed here.

117. **Rquiina'<u>ni</u> <u>Juan</u> ttu liibru.** {v66f}
rquiina' =ni <u>Juan</u> ttu liibru
H/is.needed =PREP John a book
John needs a book.

The single argument of *rquiina'* 'is needed', in this case *ttu liibru* 'a book', becomes the object of *rquiina'ni* and the argument *Juan* introduced by *=ni* functions as the experiencer subject. (In Chapter 5, I present evidence that the argument introduced by *=ni* for *rquiina'ni* is in fact the syntactic subject.)

When the subject is a clitic pronoun, it immediately follows *=ni* and interacts with the clitic preposition:

118. **Rquiina'cainnà ttu liibru.** {mm}
rquiina' =ca =ni =nà ttu liibru
H/is.needed =PL =PREP =3A a book
They need a book.

For a verb like *ribeesiya'ani* 'yells at,' however, *=ni* introduces an object. This can be seen in the following pair of sentences:

119. **Ribeesiya'a beyùú'à'.** {mm}
ribeesiya'a beyùú' =à'
H/yell man =DIST
That man is yelling.

120. **Ribeesiya'ani beyùú'à' béccú'nà'.**
ribeesiya'a =ni beyùú' =à' béccú' =nà'
H/yell =PREP man =DIST dog =DIST
That man is yelling at that dog.

The argument of *ribeesiya'a* serves as the subject for both it and *ribeesiya'ani* in 119-120. The argument introduced by *=ni* functions as the object. In such cases, *=ni* will not usually be contiguous with the argument it licenses, but a clitic or full DP subject will typically intervene. When a subject clitic is present, *=ni* phonologically interacts with it, and not the argument it introduces, as seen in 121 and 122:

121. **Gureesiya'agwainnà béccú'á.** {v70b}
gureesiya'a =gwa =ni =nà béccú' =á
C/yell =also =PREP =3N dog =INVIS
He also yelled at the dog.

122. a. **Gureesiya'acainnàlù'.** {mm}
gureesiya'a =ca =ni =nà =lù'
C/yell =PL =PREP =3N =2SA
They yelled at you.

b. ***Gureesiya'acanànlù'.** {mm}
gureesiya'a =ca =nà =ni =lù'
C/yell =PL =3N =PREP =2SA

In 121, metathesis of *=ni* is triggered by the subject clitic *=nà*. (Note that *=ni* follows the adverb *=gwa* 'also'.) Similarly in 122a, *=ni* intervenes between the plural marker *ca* and person clitic *=nà* of the subject argument. Although *=ni* can skip over adverbial clitics, it is not possible for *=ni* to skip over the subject clitic in order to be adjacent to the argument it licenses, as illustrated by the ungrammaticality of 122b. So despite the fact that *=ni* licenses *béccú'á'* and *=lù'* in 121 and 122 respectively, the phonological processes of metathesis, vowel deletion and *=ni/ca* ordering are triggered by the subject clitics *=nà* and *=canà*, which are licensed directly by the verb root rather than by *=ni*.

Of course, for verbs like *gureesiya'ani*, if the subject is rendered non-overt by some other syntactic or morphological requirement, the *=ni* clitic may be adjacent to the object clitics. When this occurs, *=ni* will phonologically interact with them. As discussed above, this arrangement occurs in positive imperatives and with non-finite verb forms. In such cases, the phonological processes associated with *=ni* are triggered by the object clitic, the argument licensed by *=ni*:

123. **Gureesiya'ainnà.** {v67f}
gureesiya'a =ni =nà
C/yell =PREP =3A
Yell at her.

124. **Gureesiya'acainnà.** {v68d}
gureesiya'a =ca =ni =nà
C/yell =PL =PREP =3A
Yell at them.

125. **Diiayà' gubeesiya'ancainnà.** {v68e}
diia =ya' gubeesiya'a =ca =ni =nà
S/go =1SN I/yell =PL =PREP =3A
I am on my way to yell at them.

Conversely, *=ni* may come to interact with an object it did not license, when a *=ni* licensed subject is omitted, as in the impearative in 126:[44]

126. **Uccwasi'incainnà.** {mm}
uccwasi'i=ni =ca =nà
C/love=PREP =PL =3A
Love them.

There is only one case in which the *=ni* morphophonological processes show sensitivity to the morphosyntactic structure of the *=ni*-licensed argument. This involves the interaction of *=ni* and first person singular *=ntè'* clitics. As noted previously in 2.6.2.2.2, the entire string *=ni+=ntè'* can be reduced to *=tè'* when *=ntè'* represents a first person singular dative subject (licensed by *=ni*), as illustrated below:

127. **Rquiina'(n)tè' ttu liibru.** {mm'}
rquiina' =ni =ntè' ttu liibru
H/is.needed =PREP =1SD a book
John needs a book.

However, when *=ntè'* represents a *=ni* licensed dative object, *=ni+ntè'* cannot be reduced to *=tè'*, but must be realized as *=ntè'*, as illustrated in 96, repeated below. This restriction holds even though both the dative subjects and objects are licensed by *=ni*.

[44] Subjects licensed by *=ni* are typically experiencers and often do not fit into imperative contexts. In addition, *=ni* subject verbs do not have non-finite forms. As a result, *=ni* seldomly interacts with an object it did not license.

96. **Gureesiya'a*(n)tè'.**
gureesiya'a =ni =*(n)tè'
C/yell =PREP =1SD
Yell at me.

2.6.2.3 Summary of *n-i* Morphophonology in Verbs

As we have discussed, verb roots ending in the sequence [ni] or with the applicative clitic *=ni* exhibit many interesting morphophonological properties. Both [ni] verb roots and verbs with *=ni* undergo *n-i* metathesis before the pronominal clitic *=nà* and undergo deletion of the *i* vowel before other clitic pronouns and before clitic adverbs (for [ni] verb roots). In addition, *=ni* also interacts with first person singular dative subjects and also shows interesting ordering interactions with adverb placement and with third person plural clitic pronouns.

These properties can be used to distinguish *=ni* verbs from verb roots that happen to end in the phonetic sequence [ni], as illustrated below in 128:

128.	**rquiina'=ni**	**rutti'=ni**	**rtuuni**	**ra'athi**
	needs	*sells to*	*is hungry*	*sleeps*
***ni* metathesis**	rquiina'innà	rutti'innà	rtuuinnà	ra'athinà
	he needs	*he's selling to*	*he's hungry*	*he sleeps*
vowel deletion	rquiinanlù'	ruttinlù'	rtuunlù'	ra'athilù'
	you need	*you're selling to*	*you're hungry*	*you sleep*
adverbial clitic	rquiina'gwani	rutti'gwani	rtuungwa	ra'athigwa
placement	*also needs*	*also selling to*	*is also hungry*	*also sleeps*
plural clitic	rquiina'cainnà	rutti'cainnà	rtuuncanà	ra'athicanà
placement	*they need*	*they're selling to*	*they're hungry*	*they sleep*
dative subject case	rquiina'tè'	ruttinyà'	rtuunyà'	ra'athiyà'
licensing	I need	I'm selling	I'm hungry	I sleep

In 128, the various morphophonological properties associated with [ni] verb roots and *=ni* verbs are listed in the leftmost column and applied to the verbs listed across the top. *Rquiina'ni* 'needs' is a *=ni* verb that licenses a dative subject. *Rutti'ni* 'sells to' is a *=ni*

verb in which *=ni* licenses the indirect object. *Rtuuni* 'is hungry' has a [ni] verb root. *Ra'athi* 'sleeps' provides a control verb which neither has a root ending in [ni] nor contains the applicative clitic *=ni*. The light shading marks those phonological processes that apply to both [ni] verb roots and *=ni* verbs. The darker shading marks those properties that are restricted to *=ni* verbs. As can be seen in comparing *rquiina'ni* and *rutti'ni*, the dative subject property is restricted to a subset of *=ni* verbs, those in which *=ni* licenses a subject.

These morphophonological properties are important to keep in mind in identifying *=ni* verbs. Other criteria prove insufficient. For example, most dative *=ni* subjects are experiencer subjects. This, however, is not a sufficient condition for identifying a *=ni* verb, as can be seen with *rtuuni* 'is hungry' above. It ends in [ni] and presumably has an experiencer subject, making it a prime candidate to be a *=ni* verb. However, the other morphophonological tests reveal it is not a *=ni* verb—it does not exhibit any special interaction with adverbial clitics or the plural clitic *=ca* nor does it license a dative subject.[45]

We have seen that *n*V sequences show many interesting morphophonological properties, both historically and synchronically. The extent of the *n*V phonology is one important area of MacZ phonology that distinguishes this language from the language of Atepec Zapotec. Furthermore, some of the older historical changes which are shared with Atepec Zapotec can be used to separate the Ixtlán linguistic group from other Northern Zapotec languages. In addition to its historical/classificatory significance, the

[45] An interesting question for future research would be to determine if *rtuuni* derives from an historical *=ni* verb.

synchronic phonology of *n-i* sequences is important for understanding the syntactic behavior of the *=ni* applicative clitic, the topic of Chapter 5.

2.7 Conclusion

We have now surveyed the phonetics and phonology Macuiltianguis Zapotec and described a practical orthography for representing the language. We have also observed many properties which will be of interest both within the comparative study of Zapotec and in general crosslinguistic investigations. Of particular interest are the number of geminate consonants in the language (with a three-way contrast in the stop series), the occurrence of both tone and stress, the phonetic realizations of stress, and the diachronic and synchronic phonology of *n*V sequences.

3 Verbs, Pronouns and Nouns

In this chapter, I discuss various aspects of MacZ grammar that will be relevant for the later discussions of subject syntax in MacZ. I will focus in particular on verbs, pronouns and noun phrases. The structure of verbs will be crucial in understanding the type of subjects that are licensed, whether nominative, dative or genitive. Since pronouns are the only DPs showing case distinctions, these are also discussed. Finally, certain aspects nominal syntax are also crucial in understanding the subject syntax of MacZ, particularly the Covert Subject Binding construction analyzed in Section 6.2.

3.1 Verbal Morphology

The elements (affixes and clitics) that may typically form a phonological word with the verb root occur in the order outlined below in 1:[1]

1. ASP-CAUS/RE/MID-root-*ya'a*(=adverb)-compound.noun(=adverb)=PREP=pronouns

The verb root never appears as a free form but always (minimally) occurs with an aspectual prefix, the form of which is dependent on the semantic and phonological form of the verb.[2] The other prefixes—the causative, repetitive and middle prefixes—are lexically restricted, only combining with certain verbs. This is also true of the suffix –*ya'a*, compound noun roots, and the incorporated prepositional clitic =*ni*. In contrast, the

[1] Additional clitic particles, such as the coordinator =*nna* and sentence final particles, may attach to the verb as well. However, such particles are not particularly associated with the verb, do not phonologically interact with the verbal complex and are not discussed here.

[2] A handful of verbs arguably do not contain distinct aspect prefixes but represent suppletive forms. This is possibly true of the copular verb *naa*, though I analyze it here as containing a stative prefix *n-*. This is difficult if not impossible to verify as no other verbal forms appear to be built off of the hypothesized –*aa* root.

optional clitic adverbs, which may precede or follow the compounded noun, are fully productive, restricted only by semantics. The number and form of the pronominal clitics is conditioned by the selectional properties and licensing mechanisms of the verbs.

3.1.1 Aspect

Verbs are always inflected with an aspectual prefix. Frequently, there is some phonological fusion between the aspectual prefix and the verb root. In addition, the aspectual prefixes (or the selection of aspectual prefix) may express more than aspect, encoding such categories as agentivity and transitivity, possibly representing a fusion of the aspectual prefixes and other verbal prefixes. For these reasons, I generally do not segment the aspectual prefix and the verb root, but leave them together as a fused form.

Most verbs have at least three aspectual forms (completive, habitual, and potential), but many have additional forms (such as stative, indefinite, and non-finite). Following fairly common practice in describing Zapotec, I have labeled the three aspectual categories common to most verbs as completive, habitual, and potential. (For example, Pickett, Black and Marcial (1998:52-55) use these terms for the cognate forms in Isthmus Zapotec, Butler (1980:27-30) and Long and Bulter (1999:425-7) use completive, continuative, and potential for the closely related Villa Alta languages of Yatzachi and Zoogocho, and Stubblefield and Hollenbach (1991:211) use Completive, Habitual and Indefinite Future). It is possible, however, that these are not the best labels

to describe the MacZ categories and that further research will suggest other, more appropriate terms for these categories.[3]

For Atepec Zapotec, Bartholomew (1983:385) actually refers to these prefixes as tenses, labeling them past, present and future respectively. While they certainly do frequently translate this way, their selection is not necessarily connected to the relationship between the verbal event and utterance time as would be expected of tenses. As will be seen below, just because an event took place prior to utterance time does not mean the completive (Bartholomew's past) prefix must be used. Instead, the prefixes are more aspectual in nature, relating the state of one event (completed, in progress, recurring, etc.) to another. When no other events are present in the discourse, relation to utterance time may be taken into account, but this is at best a default, not a requirement. In light of this, I follow most other work on Zapotec which labels these morphemes aspectual prefixes.

3.1.1.1 Completive Aspect

The completive aspect marks events and activities that have been completed. As seen in 2-5, it is marked by a variety of prefixal forms including *be-, bi-, gu-, gut-, u-,* and *gw-*. In English, it is generally translated by the simple past (as in 2 and 3) or by perfects, either present (4-5) or past (5), depending on context.

[3] Munro and Lopez et al. (1999) do not follow this common pattern, but suggest alternative labels for certain of these aspectual categories and some of there terms might be appropriate for MacZ. For example, they label the "completive" category as perfective. This might be a better term for MacZ as well in light of the fact that this form of the verb is used to form positive imperatives. It seems incongruous that a verbal form which otherwise describes events that have been completed should be used in imperatives. A perfective label, however, seems more plausible in describing both these uses.

2. **Naa retíín ttsúnná attilo gulaainnà.** {iv139d}
naa retíín ttsúnná attilo gulaani =nà
S/be o'clock three when C/arrive =3N
It was three o'clock when he arrived.

3. **¿Sallia guuyhalù' náàyá'?** {iv129e}
sallia guuyha =lù' náàyá'
how.much C/be.paid =2SN yesterday
How much were you paid yesterday?

4. a. **¿Chi nabiia'nlù' Tagaayu'?** {ii55b}
chi nabiia'=ni =lù' Tagaayu'
already S/know=PREP =2SD Macuiltianguis
Do you know Macuiltianguis?

b. **O'o. Chi gwa'ayà' Tagaayu'.** {ii55c}
o'o chi gwa'a =ya' Tagaayu'
yes already C/go =1SN Macuiltianguis
Yes. I have been to Macuiltianguis.

5. **Felipeá betappanà iyaate ca carru chi guduu què'nì.** {v239f}
Felipe =á betappa =nà iyaate ca carru chi guduu què' =nì
Felipe =INVIS C/wreck =3N all PL car already C/stand of =3G
Felipe has wrecked all of the cars that he has ever had.

6. **Para chi dedáá'runa—chi bettsanàá'nì tàà'nna—** {Wedding Story 4}
para chi dedáá' =ru =nà chi bèttsànàá' =nì tàà' =nna
for already S/come.back =still =3N already C/get.married =3G FOC =and
So she was coming back—she had already gotten married—

This form of the verb is also used in positive imperatives, as in the examples below (compare the imperative in 7 with the sentence in 6):

7. **Bettsa'nàá' làántè'.** {v21f}
bettsa'nàá' làání =ntè'
C/get.married with =1SA
Marry me.

8. **Gutoo ru'ayà'.** {v21g}
gutoo ru'a =ya'
C/eat mouth =1SG
Kiss me.

9. **Gutii ca nàá'lù'.** {v25c}
gutii ca nàá' =lù'
C/wash PL hand =2SG
Wash your hands.

3.1.1.2 Habitual Aspect

The habitual aspect encodes habitually recurring events and activities (as illustrated in 10-11 below), though it can also be used in a progressive sense, for activities that are ongoing or in progress (as in 12-13). This latter use is especially common for verbs that don't have a distinct stative form.

10. **Béccú' chà'á retegoonà beriidanna roonà zapatunna.** {v143}
béccú' chà' =á retegoo =nà beriida =nna roo =nà zapatu =nna
dog of/1SG =INVIS H/chase =3N squirrel =and H/eat =3N shoe =and
My dog chases squirrels and eats shoes.

11. **Ttuttu saa ribiiayà' ttu bia'.** {v110}
ttuttu saa ribiia =ya' ttu bia'
each day H/get.on =1SN a horse
Everyday, I ride a horse.

12. a. **Ca iyyalolù' rluuacanà xinaa.**
ca iyyalo =lù' rluua =ca =nà xinaa
PL eye =2SG H/look =PL =3N red
Your eyes look red.

b. **Rtitticanà.**
rtitti =ca =nà
H/itch =PL =3N
They are itching.

13. **Ribeedayà' què' Edgar quiinà traste tàà'nna attigwanna biyhuulalainnà.** {v172b}
ribeeda =ya' què' Edgar quii =nà traste tàà' =nna
H/expect =1SN of Edgar P/wash =3N dish FOC =and

attigwa =nna biyhuulala =ni =nà
but? =and C/forget =PREP =3D
I was expecting Edgar to wash dishes, but he forgot.

Sentence 13 provides a clear example showing how the choice of prefix is not solely dependent on tense, but is aspectual in nature. At the time of utterance, the expectation must have been over. However, the habitual form of the verb is still used, because the expectation was in progress at the time of Edgar's forgetting.[4] Thus, the choice of prefix is determined by the status (ongoing, completed, etc.) of the event denoted by the verb relative to other events and not necessarily relative to utterance time. As a result, while the habitual form may frequently translate into English as a progressive (or as a simple present), the English tense (past or present) will often depend on context.[5]

The habitual aspect has the most consistent morphological representation, always containing an [r] phoneme as seen in the following forms: *ru-, re-, ri-, r-,* and *a/ir-*. This holds true even of the word *arca/irca/rca* 'be, happen' which is reported as being *cca* in Atepec Zapotec.[6]

An [r] in the prefix almost always denotes the habitual aspect. One exception worth noting because of its frequency, however, is the word for 'say/tell'. The *r-* form of this word, *rpaa/raa* 'said, saying,' is used in completive and progressive contexts, as in 14-15 below, but cannot be used to mark habitual events of saying (Here, the different forms represent a special first person exclusive form, *rpaa*, and a non-first exclusive form, *raa*.)

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[4] This sentence also contains a potential verb form, *quii*. Verbal/sentential complements are often required to be in the potential form, again regardless of the actual time frame under discussion. See Section 3.1.1.3.

[5] More work is needed to see if the habitual form can be used for future progressives and habituals.

[6] The three different forms (*arca/irca/rca*) represent individual/dialect differences within MacZ. It is possible the initial vowel is an epenthetic vowel with different dialects having selected different epenthetic vowels or retaining the vowelless form.

14. **Raanàntè'.** {green}
raa =nà =ntè'
H/say =3N =1SA
*He told me./He's telling me. *He tells me (everyday).*

15. **Chi baraariu'nà.** {green}
chi ba= raa =riu' =nà
already EMP= H/say =1INCLN =3A
We already told him.

Habitual uses are encoded by a distinct form, *eyaa*, as shown below in 16. This may have derived from a repetitive form of the root (see Section 3.1.1.7.2 below).

16. a. **Ttuttu saa eyaanàntè' quii laayayà'.** {green}
ttuttu saa eyaa =nà =ntè' quii laaya =ya'
each day RE/say =3N =1SA P/wash tooth =1SG
Everyday, he tells me to brush my teeth.

b. ***Ttuttu saa raanànte' quii laayayà'.** {green}
**Everyday, he tells me to brush my teeth.*

The expected/historical completive form of the verb (presumably of the form **gutaa*) has been lost, its function having been completely taken over by the *r-* form of the verb. The *r-* form, however, is not used in imperatives although completive forms typically are as was discussed in Section 3.1.1.1 above. Instead, this verb has a suppletive imperative form, *guusi*, as seen in 17a; the *r-* form is ungrammatical when used as an imperative as seen in 17b.

17. a. **Guusiyé.**
guusi =yé
IMP/say =3FA
Tell him.

b. ***Raayé**
raa =yé
H/say =3FA
(Tell him.)

3.1.1.3 Potential Aspect

Morphophonologically, the potential aspect exhibits wide variation, being encoded by a diverse set of allomorphs including *i-, e-, gu-, gw-, g-, ga-, qu-, cw-, tts-,*

ch-, icca and initial consonant mutations. Semantically, it refers to events that have not been realized or initiated with respect to some reference point. In simple sentences, it often refers to the future and translates as *will* in English, as in 18-20 below (though note that the first potential verb in 20 is translated without *will*):

18. **Ittu retíín ttsúná illainnà.** {iv139e}
ittu retíín ttsúnná illani =nà
around o'clock three P/arrive =3N
He will arrive around three o'clock.

19. **Esaariu' xto'biisa' na'a saa.** {iv180b}
esaa =riu' xto'biisa' na'a saa
P/get.back.together =1INCLN two.weeks now day
We will meet again in two weeks from today.

20. **Loochi guxxí luuyhuyà' guluua'ya' adicca' uncwitti'.** {v155g}
loochi guxxí luuyhu =ya' guluua' =ya' adicca' uncwitti'
when P/wipe beard =1SG P/look =1SN more young
When I shave my beard, I will look younger.

Potential verb phrases are also frequently selected as complements to certain auxiliaries and verbs where they typically correspond to English infinitival complements. This is seen in the sentences in 21-24 below (the potential verbs are underlined):

21. **Ìntè' rulaasiyà' <u>guyhiitinyà'</u> niula chà'á.** {v167f}
ìntè' rulaasi =ya' guyhiiti =ni =ya' niula chà' =á
me H/like =1SG P/confuse =PREP =1SN woman of/1SG =INVIS
I like to confuse my wife.

22. **Tee <u>quii</u> Edgarnà' traste taa'.** {v173f}
tee quii Edgar =nà' traste taa'
S/exist P/wash Edgar =DIST dish FOC
Edgar has to wash the dishes.

23. **Àbíí ribeedayà' què' Edgar <u>quiinà</u> traste ttuttu yeela.** {v173c}
àbíí ribeeda =ya' què' Edgar quii =nà traste ttuttu yeela
NEG H/expect =1SN of Edgar P/wash =3N dish each night
I don't expect Edgar to wash dishes every night.

24. **Nuuyha àbíí raasini beyeeti' daani ttsianà llè'è bellianà'.** {iv41g}
nuuyha àbíí raasi=ni beyeeti' daani ttsia =nà llè'è beelia =nà'
someone NEG H/be.afraid.=PREP bat S/should P/go =3N in cave =DIST
Someone who isn't afraid of bats should go in that cave.

The potential verb form is also used in forming negative imperatives as in examples 25-26 below:

25. **Bittu guttsa'nàá'lù'.** {v21d}
bittu guttsa'nàá' =lù'
NEG P/get.married =2SG
Don't get married.

26. **Bitturu goolù' laata'nà'.** {vi99e}
bittu =ru goo =lù' laa=ta'=nà'
NEG =still P/eat =2SN BAS=one.RESP=DIST
Don't eat anymore of that!

In addition to completive, habitual and potential forms, which most verbs have, many verbs have various additional aspects such as an indefinite potential, a stative and a non-finite/infinitive form. These are discussed below.

3.1.1.4 Indefinite Potential

In addition to the potential form found in most verbs, a smaller percentage of verbs have a second potential form, an indefinite potential. This form, like the potential, refers to events that have not yet been been realized, but only when there is uncertainty about whether the event will actually be realized or not. It often translates as *would* or *might* in English and is typically marked by a *gw(a)-* prefix as in 27-30 below:

27. **Gwayulaasayà' yhi'niyà' guttsa'nàá'nì ttu bènné' Tagaayu'.** {v97b}
gwayulaasi =ya' yhi'ni =ya' guttsa'nàá' =nì ttu bènné' Tagaayu'
I/like =1SG child =1SG P/get.married =3G a person Macuiltianguis
I would like for my child to marry a person from Macuiltianguis.

28. **¿Gwaguii ca nàá'lù'?**
gwaguii ca nàá' =lù'
I/wash PL hand =2SG
Would you wash your hands?

29. **Scanquè' gwi'yalù'yha' attia' gwa'ayà' gweyhii' nu' gui'yariu'.** {iv95a}
scanquè' gwi'ya=lù' =yha' attia' gwa'a =ya' gweyhii' nu' gui'ya =riu'
if I/drink=2SN =?? then P/go =1SN N/take REL P/drink =1INCLN
If you will drink, then I will go get something for us to drink.

30. **¿Gwacca cho' gugwiia'tilù' béccú' chà'nà' ca ttsúnná ubiisa' nu' làbíí thuayà' yú'ù?**
gwacca cho' gugwiia' =ti =lù' béccú' chà' =nà' ca
I/be.able of/2SG P/watch =please =2SN dog of/1SG =DIST PL

ttsúnná ubiisa' nu' làbíí thua =ya' yú'ù
three sun REL NEG P/live =1SN house
Could you please watch my dog for the three days that I won't be home?

Interestingly, Bartholomew (1983) does not discuss this aspectual form for Atepec Zapotec and I have not been able to locate any of these specific verbal forms in the dictionary of Nellis and Nellis (1983). This aspect is rarer in frequency, and it is perhaps possible it was missed in Atepec Zapotec, but it seems more likely that this form does not exist in Atepec Zapotec. This is an interesting difference then between these very closely related languages, in which one lacks an aspectual inflection found in the other language. It appears that Atepec Zapotec has lost this aspectual inflection as it is also found in other Northern Zapotec languages, such as Zoogocho Zapotec (Long and Butler 1999:429-430).

3.1.1.5 Stative Aspect

Another common aspectual form, found with a number of verbs, is the stative aspectual form. It marks a state that holds at some reference point. The insensitivity of

this aspectual form to tense can easily be seen. It can be used to refer to present states (31-33), past states (34-36) or future ones (37) (the stative verbs have been underlined in the following examples):

31. **Làànà neccu'nà ttu bestiidu cuubi.** {mm}
làà=nà neccu' =nà ttu bestiidu cuubi
BAS=3 S/wear =3N a dress new
She's wearing a new dress.

32. **Nii gwendi nabia'ni bènnè'ntè'.**
nii gwendi nabia'=ni bènnè' =ntè'
here a.lot S/know=PREP person =1SA
A lot of people know me here.

33. **Gwendite deete'lù'.** {vi95e}
gwendi =te deete' =lù'
a.lot =very S/learn =2SN
You have learned a lot.

34. **Uncwiiti'te naayà' loochi biriayà' de llè'è laasiya' nu' laa Tagaayu'** {iv39a}
un- cwiiti' =te naa =ya' loochi biria =ya'
one- young =very S/be =1SN when C/leave =1SN

de llè'̀e laasi =ya' nu' laa Tagaayu'
from in hometown =1SG REL S/be.named Macuil.
I was a very young person when I left from my town called Macuiltianguis.

35. **Joseá biriayé de Nasaret ttu yeesi què' Galileá, attianna deyyateyé llè'è attu yeesi què' Judea...**
Jose =á biria =yé de Nazaret ttu yeesi què' Galile
Jose =INVIS C/leave =3FN of Nazareth a town of Galilee

=á attia=nna deyya =te =yé llè'è attu yeesi què' Judea
=INVIS then=and S/go.back =just =3FN in another town of Judea
Joseph left from Nazareth, a town in Galilee, and went back to another town in Judea…

36. **Làànà teya'athinà attilo gulaanyà'.** {iv182c}
làà=nà teya'athi =nà attilo gulaani =ya'
BAS=3 S/be.asleep =3N when C/arrive =1SN
He was asleep when I arrived.

37. **Làànà chi teya'athinà loochi elaanyà'.** {iv82d}
làà=nà chi teya'athi =nà loochi elaani =ya'
bas=3 already S/be.asleep =3N when P/return =1SN
He will already be asleep when I return.

Unsurprisingly, this is a restricted aspectual form, occurring only in verbs that denote states. However, it is not the case that all verbs that potentially denote states have a stative aspectual form. For example, *arcalaasi'* 'wants' and *rlua'* 'looks, appears' both lack stative forms. Instead, they, and other verbs like them, typically use the *r*-habitual/progressive form where an overt stative form might be expected.

Bartholomew (1983) does not discuss these verbal forms as a distinct aspect (or tense) for Atepec. Instead, many of these forms are listed in Bartholomew (1983) and Nellis and Nellis (1983) as participial forms; for example, *neccu'* in 31 above, *deete'* in 33 and *teya'athi* in 36-37 are only listed as the participles *naccú'*, *déete'* and *ti'áthí* (Nellis and Nellis 1983:121, 168, 196). While participial/adverbial forms may be identical or closely related to stative verb forms, their distributions are distinct. The underlined verbs in 31-37 above clearly represent a verbal aspectual form as they occur as the sole verb in each of their predicates and license arguments including nominative subjects (with the exception of *nabia'ni* 'knows' in 32 which takes a dative subject licensed by *=ni*). Similar facts seem to hold in the example sentences presented in Nellis and Nellis. This argues that these represent finite verbal forms and not participles.

While Nellis and Nellis label some of these verb forms as participles, others are given the label *presente actual* 'present contemporary' (this term does not appear to be used in Bartholomew 1983). For instance, this is the label given to *nabia'ni* and *naa* above in 32 and 34 respectively. But tense labels do not seem to be the most appropriate

description of verbal forms in Zapotec, and as can be seen in 34-37 above, these verbal forms are not sensitive to tense, and can be used not only in present contexts, but also in past and future ones as well. These facts further justify the choice of *stative aspect* as the label for this verb form.

Morphologically, there is no consistent allomorph (or even set of allomorphs) that are used to indicate the stative form of the verb. Some verbs have an *n-* prefix, as in *neccu'* 'wears' vs. *reccu'* 'puts on', and just one or two have a *te(y)-* prefix, as in *teya'athi* 'be asleep' vs. *ra'athi* 'sleeps'. Many, however, appear to be unprefixed forms, such as *yuu* 'know' (cf. *guyuu* 'will know'), *deete'* 'have learned' (cf. *rideete'* 'learns') and *duusini* 'be drunk' (cf. *rduusini* 'gets drunk'). A large number of this latter class of apparently unprefixed aspectual forms do begin with [d], and it is possible this represents a prefix. In the verb 'go', this seems to be the case as it appears to alternate with other prefixes (*gwiia* 'went/has gone', *riia* 'goes', *ttsia* 'will go' and *diia* 'is going/is on the way').[7] However, with most [d]-initial stative verbs, the [d] does not alternate with other prefixes. Other aspectual forms retain the [d] as with *rideete'* 'learns' and *rduusini* 'gets drunk' mentioned above. This suggests that the [d] is either part of the root (with a zero stative prefix in the stative form) or, perhaps more interestingly, that the [d] represents a prefix even in the other aspectual forms. Thus, *rduusini* 'gets drunk' should be analyzed as *r-d-uusini* 'gets in the state of being drunk'. Additional research is needed to tell which of these two possibilities represents the best analysis. In support of the latter hypothesis, however, it is interesting to note that complex verb forms do sometimes seem to be built

[7] These are forms of the verb used with non-first person exclusive subjects.

from aspectually marked verbs; so causatives frequently seem to contain potential verb stems (as in *ruthuusini* 'makes (someone) drunk', which is possibly built from *thuusini* 'will be drunk', and *rugoo* 'feeds', which appears to contain *goo* 'will eat'). Perhaps similar mechanisms are (or historically were) at work in deriving inchoatives from overtly stative marked stems.

3.1.1.6 Non-Finite Form

The last verbal form is technically not an aspect, but a non-finite/infinitive form of the verb. It is listed here since the non-finite prefix occupies the same position within the word as the aspectual prefixes, alternating with them.

The most common form of the non-finite prefix is *gw(e)-*, though other forms occur as well. This verb form behaves like a typical infinitive in other languages. It frequently occurs as a complement to certain verbs (as in 38-41 below), but unlike the potential aspect, which also frequently occurs as a subordinate verbal form (as seen in 21-24 above), the non-finite verb does not license an overt subject (nominative or otherwise). The non-finite verbs are underlined below:

38. **Diiayà' <u>guta'athi</u>.** {iv181d}
diia =ya' guta'athi
S/go =1SN N/sleep
I am on my way to go to sleep.

39. **Gwíácayé Debiinà <u>gwettsanàá'</u>.** {Wedding Story.3}

gwíá	=ca	=yé	Debiinà	gwèttsà	-nàá'
C/go	=PL	=3FN	Luvina	N/join	-hand
				N/get.married	

They had gone to Luvina to marry.

40. **Làànànna dáá'nà ló néédà gwìttià, gwètuppá ìyyà…** {Wedding Story.6}
làà=nà =nna dáá' =nà ló néédà gwìttià gwètuppá ìyyà
BAS=3 =and S/come =3N on road N/play N/collect flower
and she was coming back on the road playing, gathering flowers…

41. **Rilittianriu' loochi rugwiia'riu' Edgarnà' gwittia futbol.** {iv19a}
rilittia=ni =riu' loochi rugwiia' =riu' Edgar =nà' gwittia futbol
H/enjoy =1INCLD when H/see =1INCLN Edgar =DIST N/play soccer
We have fun when we watch Edgar play soccer.

Non-finite phrases can also act as nominals, occurring, for example, as the subject of a sentence as in 42-43 below:

42. **Gwetheete' xtiisa'lù' gweendite ttsittsi taa'.** {vi95}
gwetheete' xtiisa' =lù' gweendi =te ttsittsi taa'
N/learn language =2G a.lot =very strong FOC
Learning your language is very hard.

43. **Gwelappa lle'e ca yú'ù gweendi ttsittsi taa'.** {iv18f}
gwelappa lle'e ca yú'ù gweendi ttsittsi taa'
N/clean in PL house a.lot strong FOC
Cleaning houses is very hard.

A few verbs can be changed to nouns in the non-finite form and can be (alienably) possessed, as in 44-46 below.

44. **Gwendite saa' naa gwedia cho'nà'.** {v23b}
gwendi =te saa' naa gwedia cho' =nà'
a.lot =very good S/be N/write of/2SG =DIST
Your writing is really good.

45. **¿Gwateeliinlù' gwedia què'nìá.** {v22j}
gwateelii=ni =lù' gwedia què' =nì =á
I/understand =2SD N/write of =3G =INVIS
Will you understand his writing?

46. **Rulaasayà' gwilla cho'.** {v24e}
rulaasa =ya' gwilla cho'
H/like =1SG N/sing of/2SG
I like your singing.

Such nominalizations, however, are fairly rare among the verbs that have non-finite forms. Most do not allow this possibility:

47. ***gwettsa'nàá' què'riu'** {v23e}
gwettsa'-nàá' què' =riu'
N/get.married of =1INCLG
**our getting married/our marriage*

Not all, nor even most, verbs in MacZ have a non-finite form. This form is restricted only to verbs that license agentive (or causer) subjects, where agent must be understood broadly, not necessarily as a volitional agent, but as "the entity that performs an activity or brings about a change of state" (Blake 1994:69). In more theory-specific terms, we might say that the non-finite form only occurs with verbs that are associated with vP (or even v*P following Chomsky 2000). Other verbs, such as those that license only experiencer and theme subjects, lack non-finite forms.

3.1.1.7 Verb Classes

As we have seen, each aspect has several different allomorphs and three of the aspectual forms (indefinite potential, stative, and non-finite) show significant lexical restrictions, only occurring with certain roots. The various allomorphs and additional aspectual forms group together into several distinct verb classes. Based on the shape of the aspectual prefixes, Bartholomew (1983:387) and Nellis and Nellis (1983) identify seven different verb classes for Atepec, four of which are further subdivided into two or three subclasses. Below in 48-49, I give examples from MacZ of their six main classes (and their subclasses) (I lack an example of class VII for MacZ).

48.	**IA**	**IA**	**IB**	**IIA**	**IIB**	**IIC**	**III**
	change	**read/sing**	**give**[8]	**learn**	**scratch**	**repair**	**take out**
COMP	bettsianí	billa	bee'	bideete'	guche'ne	beyuuni	guleccha
HAB	ruttsianí	rulla	rue'	rideete'	riche'ne	reyuuni	ribeccha
POT	guttsianí	gulla	gwee'	ideete'	iche'ne	eyuuni	cweccha
STAT	--	--	--	deete'	--	--	--
NONFIN	gwettsianí	gwilla	gwee'	--	gweche'ne	gweyuuni	gubeccha
INDEF	--	--	--[9]	gwadeete'	gwache'ne	gweyuuni	--

49.	**III**	**III**	**IVA**	**IVB**	**VA**	**VB**[10]	**VI**
	wash	**get drunk**	**get paid**	**sleep**	**go**[11]	**buy**	**want**
COMP	gutii	guduusi=ni	guuyha	guta'athi	gwiia	guyo'o	uccwalaasi'
HAB	rii	rduusi=ni	raayha	ra'athi	riia	ro'o	arcalaasi'
POT	quii	thuusi=ni	gaayha	ga'athi	ttsiia	go'o	accalaasi'
STAT	--	duusi=ni	--	teya'athi	diia	--	--
NONFIN	gwii	--	--	guta'athi	--	go'o	--
INDEF	gwaguii	gwaduusi=ni	gwaayha	gwa'athi	--	--[12]	gwaccalaasi'

Note that there are differences in the form of the allomorphs between the classes used for Atepec and their cognates in MacZ. For example, MacZ sometimes lacks a vowel for the habitual aspect where Atepec has one. Thus, the class III word, *rduusini* 'gets drunk' is *ridútsínì* in Atepec since Atepec does not allow the habitual prefix *r-* to create onset clusters.

Although there is a certain amount of unpredictability as to which aspectual class(es) a verb root will belong, various patterns run throughout the different paradigms. Class membership may be conditioned in part by both phonological and semantic

[8] This verb is restricted to third person indirect objects.

[9] If there were an indefinite form, it would likely be *gwee'* and thus indistinguishable from the potential.

[10] The word 'buy' in MacZ seems like it should be grouped in IVB with 'sleep' while in Atepec, the completive and nonfinite form of 'buy' are *hui'i*, leading to the word being placed in a distinct class, VB.

[11] This root for 'go' occurs only with non-first person exclusive subjects.

[12] The same phonological conflation would happen here as with *gwee'*.

features.[13] For example, the *gut-/r-/g-* series in IVB is restricted to vowel-initial roots like *–a'athi* 'sleep' and *–oo* 'eat'.

More interesting are the semantic patterns within the verb classes. For example, certain aspectual prefixes are associated with agentive verbs, while others indicate that an event has been repeated or returned to a previous state. These different semantic classes are discussed below.

3.1.1.7.1 Agentive and Non-Agentive Subclasses

The *be-/ru-/gu-* series in IA only appears in verbs that license agents/causers (project a vP), where agent/causer is understood quite broadly as "the entity that performs an activity or brings about a change of state" (Blake 1994:69). Note that the converse is not true: not all verbs which license agents belong to the *be-/ru-/gu-* class. As might be expected, all verbs in this class have a non-finite form, which as noted above in 3.1.1.6, is restricted to agentive verbs. In contrast, the *bi-/ri-/i-* verbs (class IIA) are restricted to verbs that have non-agentive subjects.

The same verb root (or closely related verb roots) may belong to both aspectual classes thereby yielding pairs of related verbs that differ in the agentivity of their subjects. For example, the related verb roots *–theete'* and *-deete'* both mean 'learn' with the former taking class IA (*be-/ru-/gu-*) aspectual prefixes and the latter taking IIA prefixes (*bi-/ri-/i-*) as shown in 50 below:

[13] For some of the classes proposed by Bartholomew (1983), it is unclear which features are relevant for the MacZ classification. Further research is needed to determine if all of these categories are appropriate for MacZ.

50.	**IA**	**IIA**
	learn/study/teach	**learn**
COMP	betheete'	bideete'
HAB	rutheete'	rideete'
POT	gutheete'	ideete'
STAT	--	deete'
NONFIN	gwetheete'	--
INDEF	--	gwadeete'

With the *be-/ru-/gu-* forms of the verb, the subject is understood as an agent/causer intiating the learning. The learner can be understood as the same as or distinct from the agent. In the latter case, the verb means 'teach' (though this usage is not so common).

In the *bi-/ri-/i-* forms, the verb's subject is not construed as a necessary agent, and can be used in contexts in which the subject refers to a passive learner. These (frequently very subtle) semantic differences are illustrated in 51-52:

51. **Rutheete'yà' tiiyha gutthayà' carru.** {vi96b}
rutheete' =ya' tiiyha guttha =ya' carru
H/learn =1SN how P/drive =1SN car
I'm learning to drive.

52. **Unto'nà' chi bideete'bí tiiyha que'yá llè'èbí.** {vi102a}
unto' =nà' chi bideete' =bí tiiyha que'yá llè'è =bí
child =DIST already C/learn =3CHI how P/drag stomach =3CHIG
The child has learned how to crawl.

Substituting the other verb form in each of these sentences resulted in a downgraded acceptability, though the judgements have so far not been terribly sharp. That is, these verb forms were volunteered to translate these sentences, and the other verb forms were slightly marked, but they were not completely rejected and in many other contexts, there was significant overlap in the two verbs uses.

However, the differences between the two verbs become sharper when the *=ni* dative applicative is added to *–theete'*, licensing a dative experiencer argument. The *=ni*-licensed experiencer surfaces as an indirect object and is understood as the learner while the subject argument is marked as being the agent by the aspectual class (and likely by the change of the verb root). As a result, the subject is understood as the causer of learning, i.e. the semantic subject of a teaching event:

53. **Betheete'nyà'nà ttu chúppá tiisa'.** {iv95h}
betheete' =ni =ya' =nà ttu chúppá tiisa'
C/learn =PREP =1SN =3A one two word
I taught him a few words.

The example in 53 highlights the causative/agenitive semantics associated with subjects licensed by verbs in the *be-/ru-/gu-* aspectual class.

For other verb pairs, not only do the different aspectual classes indicate differences in the agentivity of the subjet, but they also coincide with the licensing of an additional argument: the agentive subject. Thus, the *be-/ru-/gu-* form of the verb licenses an (agentive) subject that is not found with the *bi-/ri-/i-* form of the verb. This yields various causative-unaccusative pairs such as those in 54:

54.	**IA**	**IIA**	**IA**	**IIA'**[14]	**IA**	**IIA'**	**IA**	**IIA**
	lose	**get lost**	**show**	**appear**	**use**	**be needed**	**tickle**	**be ticklish**
COMP	benitti'	binitti'	belua'	bilua'	bequiina'	biquiina'	bequitti'=ni	biguitti'=ni
HAB	runitti'	rinitti'	rulua'	rlua'	ruquiina'	rquiina'	ruquitti'=ni	riguitti'=ni
POT	gunitti'	initti'	gulua'	ilua'	guquiina'	iquiina'	guquitti'=ni	iguitti'=ni
STAT	--	nitti'	--	--	--	--	--	--
NONFIN	gwenitti'	--	gwelua'	--	gwequiina'	--	gwequitti'=ni	--
INDEF	--	gwanitti'	--	--	--	gwaquiina'	gwaquitti'=ni	--

[14] In Atepec, *rlua'* and *rquiina'* have an *ri-* prefix as does *rinitti'* and they are properly included in class IIA. In MacZ, the vowel is missing and I have dubbed this class IIA'.

Thus, *runitti'*, a *be-/ru-/gu-* verb meaning 'loses', licenses an agentive subject in addition to its theme direct object, the argument which corresponds to the sole argument of the intransitive verb *rinitti'* 'gets lost', a *bi-/ri-/i-* verb (compare 55 and 56). The same can be seen with the pair *belluulu/billuulu* 'rolled' in 57-58:

55. **Ttuteba runitti'yà' ca llaveá.**
ttuteba runitti' =ya' ca llave =á
always H/lose =1SN PL key =INVIS
I always lose those keys.

56. **Ttuteba rinitti' ca llaveá.** {mm}
ttuteba rinitti' ca llave =á
always H/get.lost PL key =INVIS
Those keys are always getting lost.

57. **Felipeá belluulunà yaa llè'è yooá.** {v223g}
Felipe =á belluulu =nà yaa llè'è yoo =á
Felipe =INVIS C/roll(tr.) =3N tree in river =INVIS
Felipe rolled the log into the river.

58. **Carru què' Felipeá billuulunà llè'è yooá.** {v223f}
carru què' Felipe =á billuulu =nà llè'è yoo =á
car of Felipe =INVIS C/roll(INTR.) =3N in river =INVIS
Felipe's car rolled into the river.

Verb pairs belonging to other aspectual classes can also show similar causative-unaccusative/inchoative alternations, as seen in 59-60 below:[15]

[15] The 'open' pair are discussed by Bartholomew (1983:390) for Atepec.

59.	IA make drunk	III' be drunk	IA change(tr.)[17]	IIC[16] change(it.)
COMP	bethuusi=ni	guduusi=ni	bettsianí	besianí
HAB	ruthuusi=ni	rduusi=ni	ruttsianí	resianí
POT	guthuusi=ni	thuusi=ni	guttsianí	esianí
STAT	--	duusi=ni	--	--
NONFIN	gwethuusi=ni	--	gwettsianí	--
INDEF	--	gwaduusi=ni	--	--

60.	IIB open (tr.)	IIA open (it.)	III pay	IVA get paid
COMP	guthaalia	biyaalia	gutiiyha	guuyha
HAB	rithaalia	riyaalia	riiyha	raayha
POT	ithaalia	iyaalia	quiiyha	gaayha
STAT	--	yaalia	--	--
NONFIN	gwethaalia	--	gwiiyha	--
INDEF	gwathaalia	gwayaalia	gwaguiiyha	gwaayha

Apart from the *be-/ru-/gu-* and *bi-/ri-/i-* verbs, it is not entirely clear what semantic restrictions associated with agentivity there are in the other classes. For example, Nellis and Nellis (1983) identify both 'pay' and 'gets drunk' as belonging to class III, yet the former takes an agentive subject while the latter requires an experiencer/non-agentive subject. Perhaps additional research will reveal additional semantic patterns and subclasses within the hypothesized aspectual classes.

For those aspectual classes for which some semantic restriction has been established, a question arises: do these prefixes contribute these additional meanings such as causation or do the roots alone contain this information and they in turn select different aspectual classes or is it perhaps some of both? That is, should the *be-/ru-/gu-*

[16] This verb appears to be one that means 'change back/again' as expected from its IIC subclass (see Section 3.1.1.7.2). However, I have had a difficult time establishing this and eliciting the non-repetitive/restorative form of this verb. It is possible that this latter form has been lost and that this form has taken over as the general verb for 'change', whether it refers to a single instance of change or a repetition/restoration.

[17] This verb also has some unexpected intransitive uses.

prefixes be analyzed as fused causative/aspectual prefixes, or alternatively, should the agentive/unaccusative semantics of a verb be analyzed as being solely dependent on the verb root which then selects different classes of aspectual prefixes? For this present work, I treat the agentive semantics as a property of the whole verb, root plus aspectual prefix, and not necessarily uniquely associated with either part. Further research, however, might lead to a refined analysis in which the agentive semantics could be securely established as part of the meaning of the verb root or as part of the aspectual prefixes. An outline for such research and issues to address are discussed below.

Are the causative-unaccusative differences encoded in the verb roots alone? We have seen instances in which the verb root (as well as the aspectual class) differs according to the agentivity of the subject, pairs such as *rutheete'*/*rideete'* 'learns', *ruquitti'ni/riguitti'ni* 'tickles/is ticklish', *ruthaalia/riyaalia* 'opens/gets open' and *ruthuusini/rduusini* 'makes drunk/gets drunk'. If the different roots encode the differences in licensing an agentive subject, then the roots might have lexical entries like the sample ones for *–thuusini/-duusini* in 61:

61. a. *-thuusini* 'make drunk' [+agt] [+exp], selects class IA prefixes
    b. *-duusini* 'get drunk' [+EXP], selects class III' prefixes

However, it is unclear if the differences in the roots might be in part conditioned by some other factor. For example, as noted in 3.1.1.5, causative verb forms frequently seem to be built up from potential verbs. Thus, *rugoo* 'feeds' looks to be derived from *ru-* H- (class IA) plus *goo*, the potential form of 'eat'. Similarly, *ruthuusini* appears to be derived from *ru-* H (class IA) plus *thuusini*, the potential form of 'be drunk'. If this is correct, then the root changes between causative-unaccusative pairs do not necessarily

indicate that the root itself licenses the agentive subject. In addition, there are verb pairs that show no changes in the root, such as *runitti'/rinitti'* 'loses/gets lost', *rulua'/rlua'* 'shows/appears' and *ruquiina'/rquiina'* 'uses/is needed'. The simplest hypothesis for such verbs is that the unchanging verb root has a constant semantics throughout these various verb forms, as in 62. Of course, homophonous verb roots with different meanings are also a possibility that must be considered, as in 63.

62. *-nitti'* 'be lost/missing' [+theme]

63. a. *-nitti'* 'lose' [+agt] [+theme], selects class IA prefixes
    b. *-nitti'* 'be lost/missing' [+theme], selects class IIA prefixes

If different verbs like *runitti'* and *rinitti'* are built from the same root as represented in 62, then it must be some other element that conditions the appearance of an agentive subject. Since the only overt difference signaling the different verb types is the choice of aspectual prefix class, then a reasonable hypothesis is that the aspectual prefixes are responsible for licensing (or blocking) an additional (agent) argument.

If so, the first question to resolve is whether the *be-/ru-/gu-* series are fused aspect/causative morphemes (to be analyzed as a light verb) or if the *bi-/ri-/i-* prefixes are fused aspect/passive morphemes. This latter possibility can easily be dismissed.

As we have seen, several of these verbs have stative forms, such as *nitti'* 'is lost/missing' and *duusini* 'is drunk', that do not bear an obvious aspectual prefix, but appear identical to the root. This suggests that these stative forms fairly directly reflect the meaning of the roots, which would be along the lines of that given in 62 for *nitti'*. These stative root forms take theme subjects as do the non-agentive aspectual prefixed forms of these verbs, such as *binitti'/rinitti'/initti'/gwanitti'*. The *bi-/ri-/i-* prefixes (and

other non-agentive prefixes) do not passivize these verbs, most of which appear to be lexically intransitive and thus incapable of passivization anyway. Instead however, the addition of the prefixes *be-/ru-/gu-* to these (stative) roots is associated with the addition of an agentive argument. This suggests that the *be-/ru-/gu-* prefixes might be fused aspectual/causatives morphemes.

Such fused aspectual/causatives would have lexical entries like those in 64. Combining with roots like *–nitti'* in 62, they would produce causativized forms like that in 65:

64. a. *be-* COMP/CAUS [+agt]
    b. *ru-* HAB/CAUS [+agt]
    c. *gu-* POT/CAUS [+agt]

65. *runitti'* 'causes X to be lost' i.e. 'loses' [+agt] [+theme]

An analysis along these lines seems promising, but the exact semantic contribution of the prefix still depends on the root/stem it attaches to. For example, as we have seen, the *be-/ru-/gu-* prefixes do not consistently license an additional argument. While they do in pairs like *rinitti'/runitti'* 'gets lost/loses', they do not in pairs like *rideete'/rutheete'* 'learns'.

Furthermore, many verbs belong solely to the *be-/ru-/gu-* class, a fact which must be conditioned by the root. Thus, while the root *-nitti'* takes both *be-/ru-/gu-* prefixes and *bi-/ri/i-* prefixes, the root *–diia* 'write' only takes the former: *bediia/rudiia/gudiia.* There are no corresponding intransitive forms like **bidiia/ridiia/idiia* meaning 'be written'.[18]

[18] When the agent/cause of such verbs is unknown, a pronoun must still be used to fill the subject of the verb although it receives a generic interpretation (similar to generic *they* in (colloquial) English). Thus, in translating a sentence such as *When was this book written?*, the respectful third person pronoun is used to refer to agent of writing, even though the specific referent is unkown:

This indicates that its root does mean 'write' not 'be written' and that it is the root itself which requires an agentive subject. The choice of aspectual prefix merely seems to "agree" with the agentive requirements of the verb.

A similar "agreement" analysis of the *be-/ru-/gu-* prefixes is necessary with another class of verbs, those that take a distinct causative morpheme. As discussed in Section 3.1.2.2 below, certain verbs can occur with a causative morpheme, *di-*, which is distinct from the aspectual morphemes. This is seen in verbs such as *bedibiisi'* 'dried' (cf. *bibiisi'* 'got dry') and *rudiláá* 'names' (cf. *láá* 'is named'). As can also be seen with these causativized verbs, they occur with the *be-/ru-/gu-* prefixes. The aspectual prefixes, however, do not contribute their own causative meaning. That is, these verbs are not doubly causativized; *bedibiisi'* means 'someone has caused X to be dry' not 'someone has caused Y to dry X', which would be the expected meaning if the *be-/ru-/gu-* morphemes represented fused aspectual/causative morphemes. Instead, again the aspectual class merely seems to "agree" with the agentive requirements of the verb which result from the addition of the causative prefix *di-*.

In light of the facts presented above, I do not adopt either of the analyses represented in 66. It does not seem clear to me that the root or aspectual prefix alone liceses the presence of the transitive subject.

66.	ru-nitti'	ri-nitti'	ru-nitti'	ri-nitti'
	H-lose	H-get.lost	H.CAUS-be.lost	H.INCH-be.lost

---

i. **¿Baata bediiayé libruni?** {mm}
baata bediia =yé libru =ni
when C/write =3F book =PROX
When was this book written?/When did they write this book?

Instead, I take the argument structure (particularly with reference to the licensing of an agent) to be a property of the inflected verb, aspectual prefix plus root (plus causative morpheme when present) as represented below:

67. runitti' rinitti'
H/lose H/be.lost

Under this representation, the causative semantics are not uniquely associated with the root or prefix. Instead, these forms are semantically fused and the causative semantics are a property of the inflected verb. As a result of this widespread semantic fusion combined with frequent morphophonological fusion, verbal glosses will in this work generally be rendered like those in 67.

3.1.1.7.2 The Repetitive/Restorative Subclass

Another semantic subclass within the aspectual classes is the repetitive/restorative subclass (the RE class). As Bartholomew (1983:391) notes, the class IIC aspectual prefixes (*be-/re-/e-*) are associated with a repetitive meaning (the event of the verb is repeated) or restorative meaning (the verbal event returns the subject to a previous state). This frequently corresponds to English *again* or *back* (as in *went back*). An example verb of this class is given in 68 below with the verb 'repair'.

68.

	IIC
	repair
COMP	beyuuni
HAB	reyuuni
POT	eyuuni
STAT	--
NONFIN	gweyuuni
INDEF	gweyuuni

The verb is related to the verb 'make' (*beeni/ruuni/guuni*), since to 'return something to its previous made state' is 'to repair it'.

Many verb roots appear in both the RE class and some other aspectual class. This alternation is particularly common among verbs appearing with both class IIA/B prefixes (*bi/ri-/i-* or *gu-/ri/i-*) and *be-/re-/e-* class IIC prefixes. This is illustrated below in 69:

69.	**IIA**	**IIC**	**IIB**	**IIC**	**IIB**	**IIC**
	get together	get back together	get dry	get dry again	arrive	arrive back
COMP	bisaa	besaa	gubiisi'	bebiisi'	gullani	bellani
HAB	risaa	resaa	ribiisi'	rebiisi'	rillani	rellani
POT	isaa	esaa	ibiisi'	ebiisi'	illani	ellani
STAT	--	--	biisi'	biisi'	--	--
NONFIN	--	gwesaa	--	--	--	--
INDEF	--	gwesaa	gwabiisi'	gwebiisi', gwabiisi'	gwallani	gwellani

Interestingly for these verbs, not only does the RE conjugation entail that an event is a return to a previous state, but the non-RE counterpart entails that an event is achieving a new, never previously attained state. Thus, *resaa* means 'gets back together' while *risaa* means 'gets together for the first time' and *rebiisi'* means 'gets dry again' while *ribiisi'* means 'gets dry for the first time'.

This is different from the use of *back* in English. While *went back to* entails that the subject is returning to some previously visited location, *went to* is unspecified as to whether this is a new or repeated visit. Thus, *he went back to Oaxaca* asserts that the subject has been there before, but *he went to Oaxaca* does not assert that the subject referent has never been there before. In MacZ, however, not only does 70a assert that Felipe has been to Oaxaca before, but 70b asserts that he has never been there before.

And furthermore, there is no more general form of *arrive* in the language that is unspecified as to whether or not the subject referent has been to that location before.

70. a. **Felipeá chi bellainnà Lola'a.** {vi118d}
Felipe =á chi bellani =nà Lola'a
Felipe =INVIS already C/arrive.back =3N Oaxaca
Felipe has arrived back in Oaxaca.

b. **Felipeá chi gullainnà Lola'a.** {vi118e}
Felipe =á chi billani =nà Lola'a
Felipe =INVIS already C/arrive =3N Oaxaca
Felipe has arrived in Oaxaca

As with the causative subclasses discussed in the previous section, some verbs do take a segmentable RE prefix, *de-*. Note that such derived stems still take the RE aspectual prefixes as exemplified below in 71:

71.

	IIC	**III'**	**IIC**	**IVB**
	be drunk again	**be drunk**	**sleep again**	**sleep**
COMP	bededuusi=ni	guduusi=ni	bedeya'athi	guta'athi
HAB	rededeuusi=ni	rduusi=ni	redeya'athi	ra'athi
POT	ededuusi=ni	thuusi=ni	edeya'athi	ga'athi
STAT	--	duusi=ni	dedeya'athi	teya'athi
NONFIN	--	--	--	guta'athi
INDEF	--	gwaduusi=ni	--	gwa'athi

Unlike verbs that signal repetitive/restorative semantics solely by choice of aspectual class, verbs that take *de-* do not indicate that a new state is being attained when they occur without it. Thus, while *rededeuusini* asserts that the subject referent is getting drunk again, *rduusini* merely asserts that the subject referent is getting drunk, whether for the first time or the latest of many. Like *back* and *again* in English, the *de-* prefix provides additional information, but nothing about the reoccurrence of an event can be inferred from its absence.

3.1.2 Other Prefixes

There are a few additional prefixes which appear between the aspectual prefixes and the verb root. Two of these, the repetititve and causative morphemes, have already been encountered in the discussion of aspectual morphemes. The other two are a middle prefix and what seems to be a reflexive prefix, both of which seem quite restricted in their distribution.

3.1.2.1 Repetitive Prefix

As discussed in Section 3.1.1.7.2, some verbs allow a prefix, *de-*, which indicates the repetition of the predicate, similar to the adverb *again*. Semantically, not only does *de-* indicate that an action is being repeated, but its use typically indicates that the speaker is surprised by this repetition or even disapproves of it; perhaps the event is being repeated one too many times. Thus, in the pair of sentences in 72, the first sentence which solely relies on analytic structures (i.e. *attu* 'again') to indicate the repetitive semantics, merely indicates that the need to buy tortillas has arisen again. In contrast, 72b with the addition of *de-*, infers that not only has the need has arisen again, but that it is surprising or inconvenient (say because it has happened so quickly). This additional meaning of surprise/disapproval associated with *de-* is also illustrated in 73.

72. a. **Rquiina'nriu' go'oriu' etta attu.** {vi114a}

rquiina'=ni	=riu'	go'o	=riu'	etta	attu
H/be.needed=PREP	=1INCLD	P/buy	=1INCLD	tortilla	again

We need to buy tortillas again.

b. **Rquiina'nriu' edeyo'oriu' adicca' etta.** {vi114b}
rquiina'=ni =riu' e-de-yo'o =riu' adicca' etta
H/be.needed=PREP =1INCLD P-RE-buy =1INCLD more tortilla
We need to buy more tortillas again.

73. **Chi redeyoolù' attu! ¿Biigwa risaalù'?** {vi114d}
chi re-de-yoo =lù' attu biigwa risaa =lù'
already H-RE-eat =2SN again NEG H/be.full =2SN
You're eating again! Don't you get full?

Most verbs prefixed by *de-* change to the *be-/re-/e-* series of prefixes. This is exemplified in 71 repeated below:

71.

	IIC	**III'**	**IIC**	**IVB**
	be drunk again	**be drunk**	**sleep again**	**sleep**
COMP	bededuusi=ni	guduusi=ni	bedeya'athi	guta'athi
HAB	rededuusi=ni	rduusi=ni	redeya'athi	ra'athi
POT	ededuusi=ni	thuusi=ni	edeya'athi	ga'athi
STAT	--	duusi=ni	dedeya'athi	teya'athi
NONFIN	--	--	--	guta'athi
INDEF	--	gwaduusi=ni	--	gwa'athi

When *de-* is prefixed to a *be-/ru-/gu-* verb, however, the *be-/ru-/gu-* prefixes may be retained, though in an altered form with the habitual prefix realized as *ro-* and the potential as *go-*. The vowel of *de-* changes to *o* as well, as if there is vowel harmony between the aspectual prefixes and *de-* or as if the vowel of the repetitive prefix is determined via reduplication of the aspectual prefix vowel. This paradigm is exemplified below:

74.

	IA' bark again	**IA bark**	**IA' watch again**[19]	**IA watch**
COMP	bedeyhiia'	beyhiia'	bedegwiia'	begwiia'
HAB	rodoyhiia'	ruyhiia'	rodogwiia'	rugwiia'
POT	godoyhiia'	guyhiia'	godogwiia'	gugwiia'
STAT	--	--	--	--
NONFIN	--	gweyhiia'	--	gwegwiia'
INDEF	--	--	--	--

As can be seen in 71, 74 and below in 75, the *de-* morpheme is quite productive occurring with a wide range of verbs of various aspectual classes and with various semantic properties, including agentive, unaccusative and dative subject *=ni* verbs. Note too that *de-* can occur with verbs like *rebiisi'* which independently take the class IIC restorative/repetitive aspectual prefixes.

75. a.

IVB/VB	**IIA'**	**IVB**
ro'o	rsa'a=ni	roo
edeyo'o	redesa'a=ni	redeyoo
P/buy.(again)	H/get.angry.(again)	H/eat.(again)

b.

IIC	**VA**
rebiisi'	diia
redebiisi'	dedediia
H/returns.to. being.dry.(again)	S/go.(again)

The *de-* prefix, however, cannot attach to stems containing other prefixes; it cannot cooccur with the causative, middle or reflexive prefixes. Thus, while *redebiisi'* 'returns to being dry again' occurs with the *de-* prefix and *rudibiisi'* 'dries' occurs with the causative prefix *di-*, the two cannot be combined. *De-* cannot coocur with *di-* as seen below:

76. *rededibiisi' *rododibiisi' *rudidebiisi'

[19] This verb may also take the expected *be-/re-/e-* prefixes.

All four of these prefixes (repetitive, causative, middle, and reflexive) are mutually exclusive; only one may appear per verb. The causative, middle and reflexive prefix all affect the valency of the verb, and thus their incompatibility stems from their conflicting semantics. It is less clear, however, why the repetitive prefix should also be incompatible with these other prefixes.

3.1.2.2 Causative Prefix

MacZ has several different methods of forming causatives, both morphological and syntactic. As discussed in Section 3.1.1.7.1, some verbs signal their causative forms solely by the choice of aspectual prefix, others additionally show changes in the roots, and others take the causative prefix *di-*. These three possibilities are exemplified below in 77:

77.

riluulu rolls (INTR.)	*riguitti'* is ticklish	*rebaani* wakes up (INTR.)
ruluulu rolls (TR.)	*ruquitti'* tickles	*rudibaani* wakes up (TR.)

Whether a root will take *di-* or mark the causative in some other way is not entirely predictable but must be lexically encoded.

A verb prefixed with *di-* takes the *be-/ru-/gu-* series of aspectual prefixes associated with agentive subjects (Section 3.1.1.7.1). This choice in aspectual class is exemplified below in 78:

78.

	IA	**IIB**	**IA**	**IIC**	**IA**	**IVA**
	dry (tr.)	**get dry**	**wake up (tr.)**	**wake up (int.)**	**scare**	**be scared**
COMP	bedibiisi'	gubiisi'	bedibaani	bebaani	bedigaasi=ni	guusi=ni
HAB	rudibiisi'	ribiisi'	rudibaani	rebaani	rudigaasi=ni	raasi=ni
POT	gudibiisi'	ibiisi'	gudibaani	ebaani	gudigaasi=ni	gaasi=ni
STAT	--	biisi'	--	--	--	--
NONFIN	gwedibiisi'	--	gwedibaani	--	gwedigaasi=ni	--
INDEF	--	gwabiisi'	--	--	--	--

The *di-* morpheme is not as widespread as the repetitive *de-* morpheme. This is in part due to the fact that just as many verbs form a morphological causative via other means (different aspectual prefixes and stem changes) as by prefixing *di-*. In addition, morphological causatives of all types are generally restricted to intransitive verbs, particularly those lacking an agentive subject. For causatives derived from transitive verbs or for most of those derived from verbs with an agentive subject, a syntactic causative is used in which the verb *ruuni* 'do/make' takes the causativized predicate (in the potential form) as its complement:

79. a. **Beenyà' què' go'onànà.** {vi118b}
beeni =ya' què' go'o =nà =nà
C/do =1SN of P/buy =3N =3A
I made him buy it.

b. ***Bediyo'oyà'nànà.** {vi118c}

80. **Beenyà' què' béccú'nà' guyhiianà.** {mm}
beeni =ya' què' béccú' =nà' guyhiia =nà
C/do =1SN of do =DIST P/bark =3N
I made the dog bark.

b. ***Bediyhiiayà béccú'nà'.** {mm}

Unlike the other morphological causatives in MacZ, however, there are some examples of *di-* combining with intransitive verbs that do license agentive subjects.

Thus, both *ruya'a* 'dances' and *ruyhiisi* 'laughs/smiles' are *be-/ru-/gu-* verbs capable of licensing agentive subjects, but they can occur in a causativized from with *di-*:

81. **Chi bediya'ayà' Juanni.** {vi117c}
chi be-di-ya'a =ya' Juan =ni
already C-CAUS-dance =1SN Juan =PROX
I made Juan dance.

82. **Arcalaasayà' gudiyhiisinyà'lù'.** {mm}
arcalaasa =ya' gu-di-yhiisi =ni =ya' =lù'
H/want =1SG P-CAUS-smile =PREP =1SN =2SD
I want to make you smile/laugh.

Interestingly, not only does the causativized form of *ruyhiisi* 'laughs/smiles' contain *di-*, but also the dative applicative clitic *=ni* as can be seen by comparing 82 with the syntactic version of the causative in 83:

83. **Arcalaasayà' guunyà' què' guyhiisilù'.**
arcalaasa =ya' guuni =ya' què' guyhiisi =lù'
H/want =1SG P/do =1SN of P/laugh =2SN
I want to make you smile/laugh.

This indicates that the laugher argument in 82 is being realized as a dative experiencer of the causativized verb.

3.1.2.3 Middle Prefix

In addition to the the repetitive prefix *de-* and causative prefix *di-*, MacZ has a middle prefix, *t-*, that also occupies the slot between the aspectual prefixes and root. As yet, my research has not turned up many instances of this prefix. Its most common

occurrence in my data has been to turn the verbs *roo* 'eats' and *gu'gwi* 'drank'[20] into verbs of tasting as illustrated below in 84-85:

84. a. **Ettaxtiilani rtoottse'yé.** {vi14b}
ettaxtiila =ni r-t-oo =ttse' =yé
bread =PROX H-MID-eat =well =3FN
This bread tastes good. < This bread eats well.

cf. b. **Roonà ettaxtiilani.**
He eats this bread.

85. a. **Caféni rtu'gwittse'nà.** {vi14f}
café =ni r-t-u'gwi =ttse' =nà
coffee =PROX H-MID-drink =well =3N
This coffee tastes good. < This coffee drinks well.

cf. b. **Gu'gwiyà' café.**
I drank coffee.

It can also occur with the verb *ro'o* 'buys' as in 86. Additional investigation could well turn up a number of other middles in the language.

86. **¿Nuulacanà taa' ca libru nu' adicca' saa rto'o?** {vi17c}
nuula =ca =nà taa' ca libru nu' adicca' saa r-t-o'o
which =PL =3N FOC PL book REL more well H-MID-buy
Which of these are the books that sell best? (lit. *buy best*)

As illustrated below in 87, verbs with the *t-* middle prefix seem to take *bi-/r(i)-/i-* aspectual prefixes, though I do not have enough examples to conclude that this is a necessary property of verbs in the middle.

[20] Two roots are used to form the verb 'drink'. G*u'gwi* occurs as the completive form while *ri'ya* and *i'ya* are the habitual and potential forms of this verb. The completive root is used to derive the middle form of this verb.

87.

	IIA'	**IVB**
	taste	**eat (tr.)**
COMP	bitoo	gutoo
HAB	rtoo	roo
POT	itoo	goo
STAT	--	--
NONFIN	--	goo
INDEF	gwatoo	--

3.1.2.4 Reflexive Prefix

While the middle prefix might be relatively rare, the last prefix to be discussed appears to be even rarer, so much so that it is difficult to even say with certainty what its function is. This prefix, *yu-*, may be a reflexive prefix, but its use is very restricted. It is required when the verb *rutti* 'kills' is used reflexively with a *luesi'* 'self' object, as seen in 88a. Omitting the prefix with this verb results in ungrammaticality.

88. a. **Beyutti luesi'lù'.** {v292a}
be-yu-tti luesi' =lù'
C-REFL-kill self =2SG
Kill yourself.

b. ***Betti luesi'lù'.** {v292a}

cf.

89. **Betti coneejuà'.**
betti coneeju =à'
C/kill rabbit =DIST
Kill the rabbit.

Generally, this prefix does not (and cannot) occur with most other reflexives. Instead, they are generally formed with the normal transitive form of the verb plus *luesi'* 'self' as in 90 below. (This productive method of producing reflexives and reciprocals is discussed extensively in Section 6.2.)

90. a. **Beyhiisini luesi'lù'.** {mm}
ruyhiisi =ni luesi' =lù'
H/laugh =PREP self =2SG
Laugh/smile at yourself.

b. ***Beyuyhiisini luesi'lù'.** {mm}

Apart from its use with 'kill (oneself)', I have not been able to find other instances of this *yu-* prefix. I have presented it here for completeness and as a reminder for future investigation.

Now that we have considered what types of prefixes attach to verb stems, we will look at the various morphemes which follow verb roots. These include the derivational suffix *–ya'a*, compounded noun roots, adverbial clitics, the applicative clitic *=ni* and clitic argument pronouns.

3.1.3 The –ya'a Suffix

MacZ has a derivational suffix, *-ya'a*, which indicates that the event denoted by the verb has been done with aggression. The suffix does not appear to be very productive but does occur with a few verbs yielding a lexicalized meaning. For example, combined with 'eats' it yields 'bites' and with 'cries' produces 'yells':

91. roo-ya'a ribeesi-ya'a
H/eat-AGGR H/cry-AGGR
bites yells

The main point of interest about this suffix, and potentially other derivational suffix that may be identified, is that it contrasts with verb-noun compounds with respect to its behavior in the syntax. The noun roots contained inside complex verbs appear to still be visible to the syntax. In particular, clitic adverbs may either precede or follow

them (see Section 3.1.4, ex. 104-105). However, the clitic adverbs can only follow *–ya'a*, they may not precede it (the clitic adverb is underlined below):

92. a. **Gutooya'a miiyhiántè'. Angwa béccú'á gutooya'agwanà ìntè'.** {iv120e}
gutooya'a miiyhi =á =ntè' angwa béccú' =á gutooya'a =gwa =nà ìntè'
C/bite cat =INVIS =1SA also dog =INVIS C/bite =also =3N 1SA
The cat bit me. The dog also bit me.

b. ***Angwa béccú'á gutoogwaya'anà ìntè'.** {iv120e}

Thus, while both *–ya'a* suffixed verbs and verb-noun compounds tend to have lexicalized, non-compositional meanings, the substructure of the latter, but not the former, appears to be visible in the syntax.

3.1.4 Noun Roots and Compound Verbs

Some verbs are compound verbs consisting of a verb root and a noun root. Two are exemplified below in 93:

93. gunaaba-tiisa' bettsa'-nàá'
C/ask.for-word C/join-hand
C/ask (something) C/get.married

Most verb-noun compounds contain an inalienable noun like *nàá'* 'hand' in *bettsa'nàá'* above. Such nouns license and apparently require that the resulting verb have a genitive subject. (No examples of a verb-inalienable noun compound have been uncovered in which the compound lacks a genitive subject.) This is evidenced by the choice of pronominal subjects, the only DPs which have distinct case markings. Verbs like *bettsa'nàá'* take a genitive subject, such as *=nì* as in 94a (cf. the possessed DP in 94b), whereas uncompounded verbs (like 95a-b) and those compound verbs like *gunaabatiisa'* (in 95c) which lack an inalienable noun have nominative subjects.

94. a. bettsa'nàá'=nì cf. b. nàá'=nì
C/get.married=3G hand=3G
he/she got married *his/her hand*

95. a. gutoo=nà b. gunaaba=nà c. gunaabatiisa'=nà
C/eat=3N C/ask.for=3N C/ask(something)=3N
he/she ate *he/she asked for* *he/she asked*

The most common compounded noun root is *laasi'* 'being, essence, nature' as in 96 below:

96. ribiisi-laasi'=nì
H/gets.dry-being=3G
he/she is getting thirsty

It generally occurs in verbs denoting mental states and sensations:

97. *rulaasi'* 'likes' *arcalaasi'* 'wants' *ruyulaasi'* 'is upset' *runnalaasi'* 'remembers' *rutthalaasi'* 'thinks' *riisia'laasi'* 'hates'

Not all verbs denoting mental states and sensations include *laasi'*. Another large group take the experiencer applicative clitic *=ni* (see Section 3.1.6 below and Chapter 5). Whether verbs occur with *laasi'* or *=ni* appears to be partly arbitrary and must simply be memorized as part of the lexicon. There are even semantically close pairs that can be found between the two groups, pairs like *rutthalaasi'* 'thinks' and *arcani* 'thinks, occurs to' and *ruyulaasi'* 'is upset' and *rsa'ani* 'is angry'. A few verbs, but not many, vary between a *laasi'* form and a *=ni* form:

98. *releeni-laasi'* *riganna-laasi'* *redacca'-laasi'*
releeni=ni *riganna=ni* *redacca'=ni*
'is sad' 'is angry' 'is happy'

Most verbs, however, occur in one form or the other and do not vary:

99. *ru-laasi'* *ribiisi-laasi'* *arca-laasi'* *rquiina'=ni* *arca=ni* *riyeeni=ni*
**ru=ni* **ribiisi=ni* **arca=ni* **rquiina'-laasi'* **arca-laasi'* **riyeeni-laasi'*
'likes' 'is.thirsty' 'wants' 'needs' 'thinks' 'hears'

Laasi' exhibits various allomorphs, both as a free root and when compounded. When followed by the first person singular genitive (subject) clitic *=ya'* the final vowel of *laasi'* may harmonize to the [a] of the person clitic (the glottal stop seems to disappear as well):

100. *arcalaasi'ya'/arcalaasaya'*
'I want'

There is some speaker variation with respect to this variant: some appear to allow either *laasi'* or *laasa* while others consistently prefer *laasi'*. When *laasi'* is followed by any other clitic, all speakers allow a shortened allomorph, *laa'*, to occur. Here the glottal stop is consistently pronounced:

101. *rulaasi'=lù'* *rulaasi'=nì* *rulaasi'=tù'* *rulaasi'=ccwa'=íi* *rulaasi'=ca=yé*
rulaa'=lù' *rulaa'=nì* *rulaa'=tù'* *rulaa'=ccwa'=lí* *rulaa'=ca=yé*
H/like=2SN H/like=3G H/like=1EXCLG H/like=2FN=2pG H/like=PL=3FN
'you like' 'he/she likes' 'we (excl.) like' 'you all (form.) like' 'they (form.) like'

This is purely a morphophonological variation; there is no semantic difference between the two. The shortened variant only occurs when the verb has an enclitic attached to it. When no enclitics occur, the shortened form is dispreferred:

102. **Rulaa*(si)' Felipeà' goonà.** {vi121b/c}
rulaasi' Felipe =à' goo =nà
H/like Felipe =DIST P/eat =3N
Felipe likes to eat.

103. **¿Núúní rulaa*(si)' goo?** {vi122a/b}
núú =ní rulaasi' goo
who =COMP H/like P/eat
Who likes to eat?

Compounding of verb and noun roots is not productive in MacZ, but is generally lexicalized. Most of the verbs it occurs in do not have transparently compositional semantics, and in many verbs, the verb root is a bound root, never occurring without the compound noun. One of the few transparent verbs is *ribiisilaasi'* 'gets thirsty' in 96 above (from *ribiisi* 'gets dry' plus *–laasi'* 'being'). Other verbs like *arcalaasi'* contain verb roots that do occur as free forms (*arca* 'is, occurs'), but have a lexicalized, non-compositional meaning. For many other verbs such as *rulaasi'* 'likes' and *rutthalaasi'* 'thinks', the verb roots do not occur as free forms, but only as part of the lexicalized compound verbs.

Despite their lexicalized nature, these compound verbs show surprising interactions in the syntax. In particular, clitic adverbs may either follow the noun root, or more commonly, intervene between the verb root and noun root (see Section 3.1.5 for further discussion of the adverbs):

104. a. **¿Barcarulaa'lù'?**
ba= arca =ru =laa' =lù'
EMP= H/happen =still =being =2SG
Do you still want (more)?

b. **¿Barcalaa'rulù'?**

105. a. **Angwa intu' bettsa'gwanàá'tù'.** {v24f}
angwa intu' bettsa' =gwa =nàá' =tù'
also us (EXCL) C/join =also =hand =1EXCLG
We also got married.

b. **Angwa intu' bettsa'nàá'gwatu'.** {v24g}

This suggests that the internal structure of these compounds is visible to the syntax.

Additional syntactic properties of these verbs, including evidence of genitive subjecthood, are extensively discussed in Chapter 6.

3.1.5 Clitic Adverbs

Many, though by no means all, adverbs in MacZ occur as clitics. They most commonly attach to verbs, although they occur with words of other categories as well. The clitic adverbs in MacZ include the following:

106.

=ba	=EMP	=ru	=still
=ca(ba)[21]	=probably	=sanna	=try.to
=canna	=a.little.while	=si	=quietly
=chi	=already	=ta'di	=completely
=ga	=actually, =in.fact	=te	=immediately
=gá	=on.time	=ti'[22]	=please
=gwa	=also	=ttse'	=well
=ní	=carefully	=xià	=quickly
=rsa(ba)	=INT	=xia	=maybe

In addition to these adverbial clitics, others have been identified, including *=rga*, *=niba* and *=la*, whose meanings remain unclear. Bartholomew (1983:427) does list the adverbs *níbaní* 'scarcely, with difficulty' and *lá* 'instead', but it is unclear if these are the best meanings for their MacZ counterparts. Further investigation is needed to determine their meanings and to refine some of the meanings suggested in 106 above.

Example sentences containing the clitic adverbs are given below in 107-124 (in each sentence, the clitic adverb has been underlined):

[21] The adverbial clitics *=ca* and *=rsa* typically occur with *=ba*, which is most likely the emphatic adverbial clitic. Particularly with *=rsa*, an intensifier, this makes sense. Why it would occur with *=ca* 'probably' is less clear.

[22] Bartholomew (1983:427) lists *=ti'* as meaning 'a little'. In MacZ, however, it seems to mean 'please' and is used to soften imperative statements. For the 'a little' meaning, MacZ does have the related phrase *ttu laa=ti'* 'a BAS=little', with *=ti'* attaching to the phonetic base *laa-* to create an independent word. It seems reasonable to conclude that this adverb did originally mean 'a little' but in being used to make polite requests has taken on a meaning akin to 'please'. This replaces the 'please' clitic in AZ, *bál.la*, which is unfamiliar to my MacZ consultants.

107. **Pam illangwanà retíín ttsúnná.** {v71b}
Pam illani =gwa =nà retíín ttsúnná
Pam P/arrive =also =3N o'clock three
Pam will also arrive at three o'clock.

108. **Bèttóòxìàyà' puertaà'.** {i172a}
bèttóò =xìà =ya' puerta =à'
C/close =quickly=1SN door =DIST
I quickly closed the door.

109. **Reenrunà Estadus Unidus.** {i191g}
reeni =ru Estadus Unidus
H/be.located =still United States
He is still in the United States.

110. **Serafín beenttse'nà íttsí què' ttu gringu.** {v11f}
Serafín beeni =ttse' =nà íttsí què' ttu gringu
Serafín C/do =well =3N part of a gringo
Serafín played the part of a gringo well.

111. **Làànà ra'athisinà.** {i169g}
làànà ra'athi =si =nà
3BAS H/sleep =quietly=3N
He is sleeping quietly.

112. **Táá Yiin rillangáyé ca junta què'riu'.** {vi126e}
Táá Yiin rillani =gá =yé ca junta què' =riu'
Sr. Efraín H/arrive =on.time =3FN PL gathering of =1INCLG
Sr. Efraín comes on time to our meetings.

113. **Guduusigainnà taa'.** {vi127e}
guduusi =ga =ni =nà taa'
C/be.drunk =actually =PREP =3D FOC
He really was drunk.

114. **Uccusanna bestiiduà' allá' gwaccanlù'nà laa.** {vi126a}
uccu =sanna bestiidu =à' allá' gwacca =ni =lù' =nà laa
P/wear =try.to dress =DIST if P/be =PREP =2SD =3A fit
Try to put on that dress if you fit into it.

115. **Guyhiicannayà'nà.** {v189h}
guyhii =canna =ya' =nà
C/take =a.little.while =1SN =3A
I took it for a little while. (i.e. *I borrowed it.*)

116. **Naacabanà nu' guuni siina ttse'.** {v119a}
naa =caba =nà nu' guuni siina ttse'
S/be =probably =3N REL P/do work good
He's probably one who will do good work.

117. **Barluaxiainnà Felipeà' què' duusiinnà?** {ii114}
ba= r- lua =xia =ni =nà Felipe =à' què' duusi =in =nà
EMP= H- look =maybe =PREP =3D Felipe =DIST of S/be.drunk =PREP =3D
Does Felipe maybe look drunk to him?

118. **Been quediuyhi gaati'lù' iyaate familia "Padiuyhi"nna guteesiti'cayénna gutooti' loocayénna.**
been(i) quediuyhi gaa =ti' =lù' iyaate familia padiuyhi =nna guteesi
C/do please P/tell =please =2SN all family hello =and C/hug

=ti' =ca =yé =nna gutoo =ti' loo =ca =yé =nna
=please =PL =3FA =and C/eat =please face =PL =3FG =and
Please say "Hello" to the entire family and give them a hug and a kiss.

119. **Cuantote ttsaloo chò' nu' ruunlù'ni attianna eyyatelù'.** {vi125a}
cuanto-te ttsaloo chò' nu' ruuni =lù' =ni
as.soon.as P/finish of/2SG rel H/do =2SN =PROX

attia=nna eyya =te =lù'
then=and P/leave =immediately =2SN
As soon as you finish what you are doing, then leave.

120. **Ìntè' bedechuuníyà' ca la'ri ittsá.** {ii125b}
ìntè' bedechuu =ní =ya' ca la'ri ittsá
1SA C/fold =carefully =1SN PL cloth hair
I carefully folded the blankets.

121. **Felipeá teersabainnà belliu'.** {ii22h}
Felipe =á tee =rsa =ba =ni =nà belliu'
Felipe =INVIS S/exist =INT =EMP =PREP =3SD money
Felipe has lots of money.

122. **Beyhiisita'dincainnàcanà.** {iv194d}
beyhiisi =ni =ta'di =ca =nà =ca =nà
C/laugh =PREP =completely =PL =3N =PL =3D
They completely made fun of them.

123. **Ìntè' si' gullan<u>ba</u>yà' náàyá'**
ìntè' si' gullani =<u>ba</u> =ya' náàyá'
me just C/arrive =EMP =1SN yesterday
I just arrived yesterday.

124. **¡Bedeyo'o<u>chi</u>lù' etta attu!** {vi119a}
be-de-yo'o =<u>chi</u> =lù' etta attu
C-RE-buy =<u>already</u> =2SN tortilla another
You already bought tortillas again!

There is not just a single slot for adverbs, and the adverbs are not mutually exclusive. Instead, verbs may occur with multiple adverb clitics. This very commonly occurs with the clitic *=ba* =EMP, which frequently occurs with other clitic adverbs (as in 125), but other combinations are also possible (126-127):

125. **Carru què' Felipeá riyhuu<u>ruba</u>nà,** {iv250b}
carru què' Felipe =á riyhuu =<u>ru</u> =<u>ba</u> =nà
car of Felipe =INVIS H/function =<u>still</u> =EMP =3N
Felipe's car still does work.

126. **¿Ga'athi<u>cannacaba</u>yà'?** {v189j}
ga'athi =<u>canna</u> =<u>caba</u>[23] =ya'
P/sleep =<u>a.little.while</u> =<u>probably</u> =1SN
Should I sleep a little? Maybe I'll sleep a little while?

127. **Felipeà' bèttòò<u>síxià</u>nà puertà'.** {i170g}
Felipe =à' bèttòò =<u>sí</u> =<u>xía</u> =nà puerta =à'
Felipe =DIST C/close =<u>quietly</u> =<u>quickly</u> =3N door =DIST
Felipe closed the door quickly and quietly.

While the adverbs follow verb roots and complex verb stems containing suffixes (see Section 3.1.3 above), as noted in Section 3.1.4, they tend to precede nouns that have been compounded with verbs, although they may optionally follow the noun. This variation in ordering with respect to compounded noun roots is illustrated below:

[23] The *=ba* here is possibly a separate clitic, giving three in a row. While *=ca* '=probably' may in certain contexts occur alone, it does more commonly occur with *=ba*.

128. a. **¿Barcarulaa'lù'?**
ba= arca =ru =laa' =lù'
EMP= H/happen =still =body =2SG
Do you still want (more)?

b. **¿Barcalaa'rulù'?**

129. a. **Angwa intu' bettsa'gwanàá'tù'.** {v24f}
angwa intu' bettsa' =gwa =nàá' =tù'
also us (EXCL) C/join =also =hand =1EXCLG
We also got married.

b. **Angwa intu' bettsa'nàá'gwatu'.** {v24g}

130. a. **Diiatù' gwettsa'xianàá'.** {v32h}
diia =tù' gwettsa' =xia =nàá'
S/go =1EXCLNN/join =quickly =hand
We are on our way to quickly get married.

b. **Diiatù' gwettsa'nàá'xia.** {v32i}

These adverbs are not simply suffixes on the verb. Certain adverbs may appear in different positions, and others can combine with words other than verbs. For example, while the adverb *=chi* 'already' may appear postverbally (as in 124), it most frequently appears in a preverbal position as a proclitic as in 131. This difference is also illustrated in 132.

131. **Camiisa chà'nà' chi bebiisinà.** {v51d}
camiisa chà' =nà' chi bebiisi =nà
shirt of/1SG =DIST already C/get.dry.again =3N
My shirt has already gotten dry.

132. a. **Ìntè' biyhullachilantè'nà.** {vi127h}
ìntè' biyhulla =chi =la[24] =ni =ntè' =nà
1SA C/forget =already =? =PREP =1SD =3A
I already forgot it.

[24] It is unclear as to the exact meaning of *=la* in this sentence, but its presence is preferred when *chi* occurs postverbally. It is optional when *chi* is in preverbal position as seen in 132b.

b. **Ìntè' chi(la) biyhullantè'nà.** {vi128a}

Similarly, the emphatic clitic *=ba* may follow verbs as in 123, but can also appear preverbally (133) or even in both positions simultaneously (134).

133. **Balíínlù'.**
ba= líí =ni =lù'
EMP= true =PREP =2SD
You're correct.

134. **Barugwiia'bayà' Juan attia tuxiaba benitti'loonà.** {i177b}
ba= rugwiia' =ba =ya' Juan attia tuxiaba benitti'-loo[25] =nì
EMP= H/look.at =EMP =1SN Juan then quickly C/lose-face =3G
C/disappear
I was just looking at John and then he suddenly disappeared.

This clitic also occurs preverbally with verbs in the habitual aspect in order to form yes/no questions as in 128a repeated below. In these cases, it assumes the initial high tone associated with yes/no questions.

128. **¿Barcarulaa'lù'?**
ba= arca =ru =laa' =lù'
EMP= H/happen =still =body =2SG
Do you still want (more)?

Further investigation is needed to determine which other adverbs may exhibit variable ordering and which factors condition this variation.

In addition to exhibiting different ordering with respect to the verbs, certain of the adverbial clitics combine with words of lexical categories other than verbs. For example, some of the adverbs may appear attached to the negative adverb *(l)abíí* 'not'. Interestingly as can be seen in 135-136, they may clticize to the end of *(l)abíí* or appear in between the two morphemes that comprise the independent negative word, which seems

[25] This verb has surprisingly also been recorded with a nominative subject. Further investigation is needed.

to be composed of *(l)àà-*, a phonological base used to support clitics to produce independent words and *bíí* NEG (note that the optionality of the [l] is a general property of the *(l)àà-* morpheme and is seen with most words that contain it).

135. **Carru què' Felipeá larubíí/labííru riyhuunà.** {iv250a}
carru què' Felipe =á la- =ru =bíí riyhuu =nà
car of Felipe =INVIS BAS- =still =NEG H/function =3N
Felipe's car no longer works.

136. **Làcabíí Felipeà' taa' bettinà conejuá.** {i181b}
là- =ca =bíí Felipe =à' taa' betti =nà coneju =á
BAS- =probably =NEG Felipe =DIST FOC C/kill =3N rabbit =INVIS
It probably wasn't Felipe who killed the rabbit.
I don't think it was Felipe who killed the rabbit.

This interaction with negation is not available to all of the clitic adverbs. Many cannot combine with negation as shown below:

137. *la=gwa=bíí *la=chi=bíí *la=xia=bíí *la=bíí=xia
*BAS=also=NEG *BAS=already=NEG *la=quickly=NEG *BAS=NEG=quickly

Again, further research is needed to fully understand these restrictions and to determine what other, non-verbal elements these clitic adverbs may combine with.

3.1.6 Applicative Clitic *=ni*[26]

Following compounded nouns and clitic adverbs, comes the incorporated preposition *=ni*, which functions as an applicative morpheme licensing an additional dative argument. Less commonly, it may also license an instrumental argument. In this section, I provide an overview of the various properties of *=ni* and show that these distinct uses stem from the grammaticalization of an earlier preposition/applicative

[26] This section is a revision and update of Foreman 2005.

meaning 'with'. This connection, I argue, between instruments and datives, as well as comitatives, extended back to earlier varieties of Zapotec, perhaps to Proto-Zapotec.

3.1.6.1 Grammatical Relations and *=ni*

The applicative morpheme *=ni* attaches to verbs and licenses an argument. Depending on the verb, the argument may surface in a variety of grammatical positions, as a direct object, indirect object or even as a subject (For evidence of dative subjecthood and an account of when the *=ni* licensed argument appears as a subject or object, see Chapter 5.) These differing possibilities are illustrated below with pairs of sentences without and with the *=ni* applicative morpheme and the argument it licenses. Observe that *=ni* always attaches to the verb while the argument it licenses shows up in the normal VSO order (both *=ni* and the argument it licenses are indicated via underlining):

Direct Object

138. a. **Ruyhiisi' Felipeà'.** V S
ruyhiisi' Felipe =à'
H/laugh Felipe =DIST
Felipe is laughing.

b. **Ruyhiisi'ni Felipeà' béccú'à'.** V=ni S DO
ruyhiisi' =ni Felipe =à' béccú' =à'
H/laugh =PREP[27] Felipe =DIST dog =DIST
Felipe is laughing at that dog.

139. a. **Felipeà' rnneerubanà làànì Pedruà'.** TOP_s V=s PP
Felipe =à' rnnee =ru =ba =nà làànì Pedru =à'
Felipe =DIST H/talk =still =EMP =3N with Pedro =DIST
Felipe is still talking with Pedro. {ii36e'}

[27] I gloss *=ni* as =PREP in anticipation of the arguments put forth in Section 3.1.6.3 that historically it may have represented an independent preposition and that in some cases *=ni* does alternate with the free preposition *làànì* 'with'. This alternation can be observed, in a lexicalized form, in example 139.

b. **Felipeà' rnneerubainnà Pedruà'.** TOP_s V=ni=s DO
Felipe =à' rnnee =ni[28] =ru =ba =nà Pedru =à'
Felipe =DIST H/talk =PREP=still =EMP =3N Pedro =DIST
Felipe still calls Pedro.[29] {ii125c}

140. a. **Làànà gudianà.** TOP V=s
làà=nà gudia =nà
BAS=3 C/bathe =3N
He bathed. {ii116k}

b. **Làànà gudiainnà yaxtiila.** TOP_s V=ni=s DO
làà=nà gudia =ni =nà yaxtila
BAS=3 C/bathe =PREP =3N soap
He bathed with soap. {vi61e'}

141. a. **Béccú' chà'á beyhunnianà.** TOP_s V=s
béccú' chà' =á beyhunnia =nà
dog of/1SG =INVIS C/run =3N
My dog ran away. {vi69f}

b. **Làngwa miiyhi chà'nà' ruyhunniagwainnàntè'.** TOP_s V=ni=s=do
làngwa miiyhi chà' =nà' ruyhunnia =ni =gwa =nà =ntè'
also cat of/1SG =DIST H/run =PREP =also =3N =1SD
My cat also runs away from me. {vi69h}

[28] In the interlinearization, I place *=ni* in what I take to be its syntactic position, immediately following the verb. The bold pronunciation line reflects its actual order within the phonological string. I take the difference in order, in which *=ni* is pronounced following clitic adverbs and the plural clitic *ca*, to be the result of post-syntactic rules within the morphophonological component of the grammar. The morpho-phonological rules affecting *=ni*, including vowel deletion, metathesis, and ordering, are discussed above in Section 2.6.2.2. The syntactic structure is discussed in Chapter 5.

[29] Generally, the dative contribution of *=ni* and its object argument is semantically transparent and the resulting meaning can be computed through simple composition, as is the case in example 138. A fair number of verbs, however, have lexicalized meanings. Thus, *rnneeni* in 139 would be expected to have the meaning 'talks to' based on the meaning of the verb *rnnee* 'talks' and *=ni*, but it has the meaning 'calls' instead. Additionally, many *=ni* subject verbs have bound roots that only occur with *=ni*, such as *raasi*(=ni)* 'is scared', *rsa'a*(=ni)* 'is angry', *arcasi'*(=ni)* 'loves', and *nabiia'*(=ni)* 'knows someone'. I have adopted the convention of glossing such verbs with no space between the verb root and *=ni*. With other verbs in which the *=ni* is optional, space is placed between the verb root and *=ni*.

Indirect Object

142. a. **Gunaaba Felipeà' ttu libru.** V S DO
gunaaba Felipe =à' ttu libru
C/ask.for Felipe =DIST a book
Felipe asked for a book.

b. **Gunaabani Felipeà' bexuudiá ttu libru.** V=ni S IO DO
gunaaba =ni Felipe =à' bexuudi =á ttu libru
C/ask.for =PREP Felipe =DIST priest =INVIS a book
Felipe asked the priest for a book.

143. a. **Gutti'nà ttu la'ri íttsá gallia peesu.** V=s DO …
gutti' =nà ttu la'ri íttsá gallia peesu
P/sell =3N a cloth hair twenty peso
blanket
He will sell a blanket for twenty pesos. {ii158f'}

b. **Gutti'innà bèttsì'nià' ttu la'ri íttsá gallia peesu.** V=ni=s IO DO …
gutti' =ni =nà bèttsì' =nì =à' ttu la'ri ittsá gallia peesu
P/sell =PREP =3N man's.brother =3G =DIST a blanket twenty peso
He will sell a blanket to his brother for twenty pesos. {ii156e'}

144. a. **Lààcayé gullacayé ttu liibru què' Isabel Allende.** TOP_s V=s DO
làà=ca=yé gulla =ca =yé ttu liibru què' Isabel Allende
BAS=PL=3FN P/read =PL =3FN a book of Isabel Allende
They will read a book by Isabel Allende. {vi36c'}

b. **Ìntè' billanyà' Victorià' ttu cwentu.** TOP_s V=ni=s IO DO
ìntè' billa =ni =ya' Victoria =à' ttu cwentu
me C/read =PREP =1SN Victoria =DIST a story
I read a story to Victoria. {vi50i}

145. **Felipeá belliainnà pelota Edgar attianna Edgar bellianànà tuliite llè'è porteriá.** TOP_s V=ni=s DO IO
Felipe =á bellia =ni =nà pelota Edgar attia =nna Edgar
Felipe =INVIS C/kick =PREP =3N ball Edgar then =and Edgar
bellia =nà =nà tuliite llè'è porteria =á
C/kick =3N =3A straight in goal =INVIS
Felipe kicked the ball to Edgar and then Edgar kicked it straight into the goal. {vi38k}

Subject

In the =*ni* subject examples below in 146-149, the subject of the =*ni*-less sentences corresponds to the direct object of the =*ni* subject sentences.

146. a. **Nii rquiina' ttu libru.** V S
nii rquiina' ttu libru
here H/be.needed a book
A book is needed here.

b. **Rquiina'ni Felipeà' ttu libru.** V=ni S DO
rquiina' =ni Felipe =à' ttu libru
H/be.needed =PREP Felipe =DIST a book
Felipe needs a book.

147. a. **Ca llave chò'á beseelacanà lle'e carru chò'á.** TOP_s V=s…
ca llave chò' =á beseela =ca =nà lle'e carru chò' =á
PL key of/2SG =INVIS C/be.found =PL =3N in car of/2SG =INVIS
Your keys were found in your car. {d228a}

b. **Beseelantè' ca llave chò'á lle'e carru chò'á.** V=ni=s DO...
beseela =ni =ntè' ca llave chò' =á lle'e carru chò' =á
C/be.found =PREP =1SD PL key of/2SG =INVIS in car of/2SG =INVIS
I found your keys in your car. {d228c}

148. a. **Belliuá yhúànà loo meesà'.** TOP_s V=s…
belliu =á yhúà =nà loo mesa =à'
money =INVIS S/be.on =3N on table =DIST
The money is on the table. {ii103h}

b. **Lààcanà yhúàcainnà belliuà' loo meesà'.** TOP_s V=ni=s DO…
làà=ca=nà yhúà =ni =ca =nà belliu =à' loo meesa =à'
ind=pl=3N S/be.on =PREP =PL =3D money =DIST on table =DIST
They have the money on the table. {ii104c}

149. a. **La'ri ittsani dacca'nà gallia peesu.** TOP_s V=s...
la'ri ittsa =ni dacca' =nà gallia peesu
cloth hair =PROX S/cost =3N twenty peso
blanket
This blanket costs twenty pesos. {ii290b}

b. **La'ri ittsani guyhacca'cainnànà gallia peesu.** TOP_{do} V=ni=s=do...
la'ri ittsa =ni guyhacca' =ni =ca =nà =nà gallia peesu
blanket =PROX C/cost =PREP =PL =3D =3A twenty peso
This blanket cost them twenty pesos. {ii292a}

In the last example, 149b, the grammatical relations of the Zapotec sentence and its English translation are reversed. As indicated by the schematic, *=ca=nà* =PL=3D 'they' is the grammatical subject of the MacZ sentence. The evidence for this is provided in Chapter 5. In the English translation, *them* shows up as an object of *cost*. Similarly, *la'ri ittsani* 'this blanket' represents a topicalized object in the Zapotec that is coindexed with the clitic object pronoun *=nà* =3A. In the English, *this blanket* is rendered as the subject of *cost*.

I provide this translation over other alternatives, such as that in 150, for a number of reasons.

150. *They spent twenty pesos on this blanket.*

First, sentence 149b was not elicited with 150, but with the English given in 149b. In this dissertation, I give the English that was used to elicit the Zapotec sentence, if this is how the sentence was obtained. Helpful paraphrases or more literal renderings may be given as alternatives, but the first translation offered is the one used to elicit the sentence or conversely is the translation offered of a spontaneous or constructed Zapotec utterance. Sentences elicited with *spend* are translated with *ruuni gaastu* 'makes an expense' as illustrated below:

151. **Beentù' gaastu ttu mil peesu què' doctor.** {vi145}
beeni =tù' gaastu ttu mil peesu què' doctor
C/do =1EXCLN expense a thousand peso of doctor
We spent a thousand pesos at the doctor.

Second, 150 obscures the connection between the Zapotec sentences in 149a-b. It would seem either to require the verb root to be glossed differently in the two sentences or glossed the same, but given a different, non-transparent translation (*spend*) in the second case. This situation cannot be resolved by translating both Zapotec examples with *spend*. Attempting to render 149a with *spend* would yield *Twenty pesos is to be spent on this blanket*, which again has a mismatch in grammatical relations with the Zapotec and is almost impossible to render accurately in terms of tense and aspect.

Third, *spend* in 150 implies that the subject is an agent. While *=canà* 'they' is the subject of the MacZ sentence in 149b, it is not an agent. Instead, it has the same semantic role as the costee argument *them* in the English given in 149b.

Fourth, while the subjects may match between MacZ and English with the alternative translation in 150, the other grammatical relations do not. Thus in 149b, *la'ri ittsani* 'this blanket' and *gallia peesu* 'twenty pesos' appear as double objects of the verb (though recall that *la'ri ittsani* is topicalized). In 150, *twenty pesos* appears as a direct object while *this blanket* shows up as the object of the preposition *on*. Thus, 150 is no better than the translation in 149b in consistently matching grammatical relations.

Fifth, the translation in 150 obscures the parallels between MacZ and English in several ways. For example, for both *dacca'(ni)* and *cost*, it is the costee that is the optional argument while both the item and amount are required arguments. In the alternative translation in 150, it is the item, expressed in *on this blanket*, that is optional. The amount and spender are the required arguments. As a result, 150 does not parallel the Zapotec in 149b, but the Zapotec in 151 in which *què' doctor* is optional.

Furthermore, in these mismatched sentences, the experiencer argument in MacZ is licensed by a preposition, *=ni*, which incorporates into the verb with the result that the experiencer becomes the grammatical subject. In the English equivalents of such sentences, the experiencer is also usually licensed by a preposition, although it does not incorporate into the verb nor does its complement become subject. *Cost* is exceptional in that there is no (overt) preposition, but most mismatched sentences have one, as illustrated below:

152. a. **Lagoonì rtoottse'nà.** TOP_s V=s
lagoo =nì r-t-oo =ttse' =nà
food =PROX H-MID-eat =well =3N
This food tastes good. (lit. *This food eats well.*) {ii286d}

b. **Ìntè' rtoottse'ntè' lagooni.** TOP_s V=ni=s DO
ìntè' rtoo =ni =ttse' =ntè' lagoo =ni
IND/1s H/taste =PREP =well =1sD food =PROX
This food tastes good to me. {ii286e}

153. a. **¿Riyeenyà' duusi?** V=s...
riyeeni =ya' duusi
H/sound =1sN drunk
Do I sound drunk? {vi72f}

154. b. **¿Riyeenlù'ntè' duusi?** V=ni=s=do...
riyeeni =ni =lù' =ntè' duusi
H/sound =PREP =2sD =1sA drunk
Do I sound drunk to you? {vi72h}

In consideration of the points made above, the translation given in 149b still seems to me to be the best one, despite the mismatch in grammatical relations between the Zapotec and English. As a result, I will continue to follow the general practice adopted in this dissertation of giving the English that was used to elicit the MacZ sentences or that was offered in translation of Zapotec sentences. The surrounding text

and schematics should make it clear when the grammatical relations of the Zapotec and English do not match. In addition, when a reasonable alternative paraphrase is available and might be helpful, I will include it. Similarly, when talking about individual *=ni* verbs, I will provide glosses that reflect how they have been translated to and from Zapotec. Thus, *riyeeni=ni* translates both as 'sounds to' as in 153b above and as 'hears'.

Now that we have considered the grammatical relations licensed by *=ni*, we will consider its semantic contribution.

3.1.6.2 Semantic Functions

As could be seen in the example sentences in 138-149 above, the argument licensed by *=ni* may bear a variety of semantic roles, from instrument to experiencer to possessor.[30] These are summarized below in 155-159. (Except when licensing a subject, the syntactic/semantic contribution of *=ni* can generally correspond to an independent preposition in English. In the glosses below, this preposition is underlined.)[31]

155. **Instrument**

raadiani	rdiibia'ni
bathes with	measures with

[30] It is not the case that these semantic roles are uniquely associated with *=ni*. These semantic roles occur with other types of predicates and prepositions.

[31] Even in some cases in which *=ni* licenses a subject, there is a similar English verb in which the same argument is licensed by a preposition. For example, as illustrated above in 153, *riyeeni=ni* 'hears' can also be translated as 'sounds to'. The only difference is that the *=ni* argument surfaces as the grammatical subject of these verbs in MacZ whereas in the English verb/preposition pair, the prepositional argument remains an oblique.

156. **Recipient (IO)**

runnani[32]	rudeeni	rulliani	rutti'ni	rudiiani
gives to	throws to	kicks to	sells to	writes to

157. **Patient of Communication (DO/IO)**

ruyhiia'ni	rnneeni	rnaabatiisa'ni	rullani
barks at	calls (to)	asks (a question) of	sings/reads to

158. **Experiencer Perception/Psych (S)**

riseelani	riyeenini	rquiina'ni	arcani	rudigaasini[33]
finds	hears/sounds to	needs	believes	scares

159. **Possessor (S)**

teeni	ttse'eni	yù'úni	yhuuani
has	has scattered	has inside	has (something) on (something)

Apart from the instrumental role to be discussed below, these semantic roles are crosslinguistically all frequently associated with datives, and this readily accounts for the diversity of semantic functions associated with the *=ni* clitic. It is a dative marker and therefore naturally encodes everything from recipients to experiencers to possessors.

The *=ni* clitic encodes many of the functions associated with datives as observed, for example, by Blake (1994:145), who lists eight functions typically or frequently associated with datives across languages, half of which are exemplified by MacZ *=ni*. These functions are summarized below along with examples from MacZ:

160. **object of some two-place verbs low in transitivity**

ruyhiisini	rnneeni	ribeesiya'ani	ruyhiia'ni
laughs at	calls	yells at	barks at

[32] This verb, *runnani* 'gives to' is restricted to non-third person indirect objects.

[33] For a few verbs like *rudigaasini* 'scares', the experiencer or possessor semantic roles are assigned to an object instead of to the subject. This occurs when *=ni* subject verbs are causativized. For example, *rudigaasini* is the causativized form of *raasini* 'is scared'. The resulting agent of the causativized verb is realized as the subject, while the experiencer/possessor licensed by *=ni* appears as an object.

161. **indirect object of three-place verbs**

runnani	rutti'ni	rnaabani	rullani	rudiiani
gives to	sells to	asks (someone) for	sings/reads to	writes to

162. **possessor**

teeni	ttse'eni	yù'úni	yhuuani
has	has in an open area	has inside	has (something) on (something)

163. **subject of certain verbs**

arcasi'ni	rquiina'ni	dacca'ni	rlla'ani	resaani	rsa'ani	teeni
loves	needs	costs	smells[34]	gets tired of	is angry	has

The only expected dative function that *=ni* lacks is marking the roles of purpose and beneficiary, which in MacZ are handled via the preposition *què'* 'of'.[35]

Based on the distribution of *=ni* and this crosslinguistic comparison, it is natural to conclude that *=ni* is a dative marker in MacZ. As Blake (p. 145) suggests, the dative's "central function is to encode entities that are the target of an activity or emotion," and this certainly sums up the contribution of *=ni* in the verbs in 156-163. The only question remaining is how the limited instrumental use of *=ni* fits in with the general dative character of *=ni*, a question which we will now consider.

3.1.6.3 Origins of *=ni*

Although the *=ni* clitic is typically associated with dative functions, it also has a limited use in MacZ as an instrumental marker. Initially, the instrumental use of *=ni* may seem incongruous with its dative functions, but this usage actually provides clues as to the lexical source of the dative marker. It will lead us to the idea that all of the various

[34] Here, *=ni* licenses the experiencer of the smell.

[35] The other functions that Blake notes are not relevant in the grammar of MacZ since MacZ lacks certain constructions. For example, *=ni* cannot encode the indirect objects of a detransitivized construction as MacZ generally lacks such constructions.

functions of *=ni* may have arisen from some morpheme originally meaning something closer to 'with'. This source for *=ni* is supported both in comparisons with other Zapotec languages and within other parts of the grammar of MacZ.

3.1.6.3.1 Cognates of =ni

Some other Zapotec languages have morphemes cognate with *=ni* but which exhibit a different range of functions. For example, both Mitla Zapotec and Isthmus Zapotec have morphemes that appear to be cognate with *=ni* and which license comitative arguments:

Mitla (Stubblefield and Stubblefield 1991):

164. **Bidzunnäjnini.**
bi-dzujn -näj =ni =ni
C-arrive -with =3 =3
She arrived with him.

Isthmus (Pickett, Black and Marcial 1998):

165. **Bedanebe gunaa ni nadxii laabe.** {p. 124}
be-da -ne[36] =be gunaa ni nadxii laa-be
C-come -with =3 woman REL S/love BAS-3
He came with the woman who loves him.

In Mitla, the morpheme is defined as *con* 'with' and might be reasonably assumed to license instruments as well, though no examples are given. In Isthmus Zapotec, *ne* is restricted to comitatives (Velma Pickett, pc). In both languages, a phonologically independent version of the morpheme is used as the conjunction 'and.'[37]

[36] It is unclear if *ne* in this example is a suffix or clitic. I assume that *=be* is a clitic, however.

[37] MacZ has *=nna* 'and.' Possibly this is cognate with these morphemes and ultimately with *=ni* as well.

The connection between comitatives, instruments and datives is more clearly evident in San Lucas Quiaviní Zapotec (SLQZ), a language of the Tlacolula Valley of Oaxaca. It has an applicative suffix *–nèe* which expresses not only comitatives but also certain instruments and datives (data from Munro and Lopez et al. 1999):

SLQZ Examples of *–nèe*:

166. **Cadauwnèenn Gye'eihlly gueht.** Comitative
ca-dauw-nèe =nn Gye'eihlly gueht
PROG-eat-APPL =1p Mike tortilla
We're eating with Mike.

167. **Que'ity xi ngye'ehtnìdya'.**[38] Instrumental[39]
que'ity xi n-gye'eht-nì =dy =a'
not what SUB-play-APPL =PT =1SN
I didn't play with anything.

168. **Tu bruzhya'nèe Jwaany?** Dative
tu b-ruzhya'-nèe Jwaany
who PERF-yell-APPL Juan
Who did Juan yell at?

Unlike MacZ *=ni*, SLQZ *-nèe* encodes a comitative function and more robustly expresses instruments than *=ni* does, while its dative usage is more restricted. In SLQZ, *-nèe*'s dative use is limited to licensing the object of communication for verbs like *bruzhya'* 'yell' above in 168 (Pamela Munro, pc). In MacZ, as noted above in Section 3.1.6.2, *=ni* not only license such objects but also recipients, experiencers and possessors,

[38] This example makes a further interesting comparison with MacZ *=ni* in that we have an adverbial/degree clitic *=di'* (realized as *=dy* in this example) following the applicative suffix. In MacZ, *=ni* cannot appear before adverbial clitics but must always follow them as noted in Section 2.6.2.2.3.

[39] The SLQZ dictionary notes that the instrumental use of *–nèe* may be limited to questions and indefinite objects. The *–nèe* suffix's primary function is its comitative use and the instrumental and dative functions are more restricted.

the latter two of which are typically realized as (dative) subjects. In contrast, there are no dative subjects licensed by *–nèe*.

This overlap in functions between comitatives, instruments and datives in the SLQZ data suggests that there is some semantic connection between these uses. This connection was likely present historically in the Zapotec languages, given the MacZ data where *=ni* licenses primarily dative arguments and also a few instruments.

3.1.6.3.2 MacZ Internal Reconstruction

Within MacZ, the connection between dative *=ni* and instruments and comitatives can be seen not only in the few instances of instrumental *=ni*, but also in the independent preposition *làànì* 'with'. This preposition is related to the clitic form *=ni*, containing *=ni* plus the phonological base *làà-*, a morpheme which lacks semantic content but merely serves as a host for phonetically dependent morphemes to produce independent words (see Section 3.2.2 for other examples):

34. làà=ni
BAS=PREP
with

Together, *làà-* and *=ni* produce the independent preposition *làànì* 'with', which encodes both instrumental and comitative functions in MacZ:

Instrumental

169. **Làànà roonà dáà laaní ca yhubeenàá'nì.** {ii79h}
làà=nà roo =nà dáà laaní ca yhubee -nàá' =nì
BAS=3 H/eat =3N bean with PL digit -hand =3G
He eats beans with his fingers.

170. **Beyhiiti'cainnàntè' lààní nu' raacanà.** {v165d}
beyhiiti' =ni =ca =nà =ntè' lààní nu' raa =ca =nà
C/confuse =PREP =PL =3N =1SA with rel C/say =PL =3N
They confused me with what they said.

171. **Làànà nuainnà yhi'ninì lààní cwe'enì.** {v203c/d}
làà=nà nua=ni =nà yhi'ni =nì lààní cwe'e =nì
BAS=3 S/carry=PREP =3D child =3G with back =3G
She's carrying her child on (*with*) *her back.*

172. **Margaritá' reyuuinnà mesanà' lààní *diurex*.** {vi47c}
Margarita =à' reyuuni =nà mesa =nà' lààní diurex[40]
Margarita =DIST H/repair =3N table =DIST with tape
Margarita is fixing the table with tape.

Comitative

173. **Chi bèttsànàá'nì lààní bènnè'ánnà…** {Wedding Story.2}
chi bèttsà -nàà' =nì lààní bènnè' =á =nnà
already C/join -hand =3G with person =INVIS =and
C/get.married
She got married to (with) that person and…

174. **Ìntè' gwa'ayà' Enittha lààní Naachuni.** {vi43a}
ìntè' gwa'a =ya' Enittha lààní Naachu =ni
1S/IND C/go =1SN Atepec with Nacho =PROX
I went to Atepec with Nacho.

175. **Begwiia'yà' Felipeá lààní bènnè' nu' arcalaasi' icca gobernador què' Lola'a domingu guteeá.** {vi45a}
begwiia' =ya' Felipe =á lààní bènnè' nu' arcalaasi' icca
C/look.at =1SN Felipe =INVIS with person REL H/want P/be
gobernador què' Lola'a domingu gutee =á
governor of Oaxaca Sunday C/pass =INVIS
I saw Felipe with the person who wants to be governor of Oaxaca this past Sunday.

176. **Làànà ri'yanà café lààní xtìilànì.** {vi43c}
làà=nà ri'ya =nà café lààní xtìilà =nì
BAS=3 H/drink =3N coffee with breakfast =3G
He drinks coffee with his breakfast.

[40] This is a name brand for tape.

As the instrumental/comitative preposition is related to the dative licenser =*ni*, it suggests that in MacZ there is some connection between these functions. Since SLQZ, which belongs to a different branch of Zapotec, also exhibits similar relationships with its cognate morpheme, it suggests that in earlier stages of Zapotec there was overlap in the expression of certain comitatives, instruments and datives.

3.1.6.3.3 From Comitatives to Datives

Of course, encoding comitatives and instruments with the same morpheme is hardly surprising. Many languages use the same case ending, adposition or other grammatical device to mark both functions. In MacZ and SLQZ, or in some common ancestral language, the comitative/instrument morpheme has been extended to (certain) dative functions as well.

Such an extension could straightforwardly arise from the comitative uses of this morpheme. A comitative licenser will frequently add a co-argument to the predicate, usually providing another animate participant in the event. So in 174, *lààní* introduces a co-subject argument (both Nacho and I went to Atepec) while in 175 it introduces a co-object argument (I see both Felipe and the candidate). Of course, as an independent morpheme, the comitative preposition might also license an adjunct modifier of a VP or DP and thus, would not necessarily license a direct (co-)argument of the verb. But when the comitative licenser occurs as part of the verbal complex as it does in Mitla, Isthmus and SLQ Zapotec (as in 164-168) and presumably did in some ancestor of MacZ, it will necessarily license a (co-)argument of the verb. To shift to a dative function then, the

morpheme will have to change the licensed DP from a co-argument to an independent argument of the verb that receives a dative interpretation.

This shift from comitative to dative may happen quite easily with certain verbs, such as those where there is some understood reciprocity between the co-arguments of the verb. For example, a predicate like *talk with* expresses a co-subject argument which is typically understood not only as another agent of talking, but also as being a recipient of the talking event. If the co-argument restriction of the comitative marker is loosened or lost, the comitative marker will be understood as licensing the patient of communication, a prototypical dative function. This may have been precisely what happened in SLQZ (or its ancestor), since the dative functions of *–nèe* are restricted to precisely the class of verbs of communication.

This has also occurred in MacZ with various verbs of saying such as *rnnee lààní* 'talk with' and *ru'ee tiisa' lààní* 'talk with (lit. 'give words with'). In these expressions, the comitative semantics of *lààní* have been lost, and it can be used to express a pure dative, as evidenced below:

177. a. **Ìntè' gunneeyà' xtiisa'riu' lààní Victoriá.**
ìntè' gunnee =ya' xtiisa' =riu' lààní Victoria =á
IND/1s C/talk =1SN language =1INCLG with Victoria =INVIS
I spoke Zapotec to Victoria.

b. **Ttuttu saa rnneeyà' lààinnà, làbíí riyeeinnà chà'.**[41]
ttuttu saa rnnee =ya' lààní =nà làbíí riyeeni=ni =nà chà'
every day H/talk =1SN with =3A neg H/hear =3D of/1SG
Every day I talk to him, but he doesn't listen to me.

[41] Here *lààní* is undergoing a morphophonological alteration common to it, *=ni* and verb roots ending in [ni]. See Section 2.6.2 for discussion.

178. **Margarità' ru'enà tiisa' làànί ca iyya què'nià'.**
Margarita =à' ru'e =nà tiisa' làànί ca iyya què' =nì =à'
Margarita =DIST H/give =3N word with PL flower of =3G =DIST
Margarita talks to her plants.

In 177, *làànί* licenses pure dative arguments and not co-subject arguments. *Victoriá* 'Victoria' and *=nà* 'him' are not talking back, since the first refers to a pre-linguistic infant and the other an uncooperative participant in the speech act. Similarly in 178, while the plants may be talked to, presumably they do not talk back. These examples provide clear instances of a comitative/instrument marker licensing a dative argument.

From such initial expansions to licensing the dative objects of communication verbs, the comitative/instrument marker in MacZ could become reanalyzed as a general dative licenser and subsequently pressed into service in other dative environments. Ultimately, it expands from licensing recipients of the speech stream to licensing recipients in general and then eventually experiencers and possessors.

That the dative uses of *=ni* developed from some comitative licenser is further supported by the fact that dative *=ni* in MacZ is restricted to animate arguments (or to entities like the plants in 178 upon which animacy can be projected). Unlike English *to* or Spanish *a*, *=ni* is never used to express location or inanimate goals as the English and Spanish dative markers can be, as shown in 179a and 180a. Instead, *=ni* is restricted to only animate datives similar to those in 179b and 180b (Spanish examples from Blake 1994:173):

179.a. I went to his house.
b. He gave the money to his friend.

180. a. Juan vuelve a su hotel
Juan return.3SN to his hotel
Juan returns to his hotel.

b. Le expliqué el caso a mi hermano
3SN.IO explain.PAST.3SN the case to my brother
He explained the matter to my brother.

In contrast, *=ni* can never license a locative expression or inanimate goal. This is nicely illustrated in 181 below.

181. **Felipeá belliainnà pelota Edgar attianna Edgar bellianànà tuliite llè'è porteriá.**
Felipe =á bellia =ni =nà pelota Edgar attia =nna Edgar
Felipe =INVIS C/kick =PREP =3N ball Edgar then =and Edgar
bellia =nà =nà tuliite llè'è portería =á
C/kick =3N =3A straight in goal =INVIS
Felipe kicked the ball to Edgar and Edgar then kicked it straight into the goal.

The clitic *=ni* appears on the verb *bellia* 'kicked' to license the animate recipient of a kicked ball, but cannot appear to license the final location—the goal—where the ball is kicked. To do that, a locative preposition like *llè'è* 'in' must be used. Attempting to use *=ni* instead results in ungrammaticality:

182. *Edgar belliainnànà porteriá.
*Edgar kicked it to/toward/at the goal.

This difference between English and Spanish on the one hand and MacZ on the other can be explained by the fact that the English and Spanish dative prepositions have locative prepositions (*to* 'toward' and Latin *ad* 'toward') as their sources and still retain this usage. The MacZ dative licenser, *=ni*, arises instead from a comitative licenser.

A comitative argument is likely to be animate as it expresses accompaniment, often voluntary accompaniment (e.g. *went with*). And the chances of an animate argument increases when the comitative licenses a co-subject argument. Munro and

Lopez et al. (1999) note in the SLQZ dictionary that the SLQZ cognate morpheme *–nèe* almost always introduces a co-subject argument although it may occasionally license a co-object argument. If the precursor to MacZ dative *=ni* similarly licensed mainly co-subject arguments then it typically would be licensing animate arguments. As *=ni* then developed into a dative marker, it retained this tendency (and turned it into a requirement) and as result licenses animate recipients but not inanimate goals.

Finally, if comitative *=ni* in particular is the source for dative *=ni*, it explains why bound *=ni* only expresses datives and perhaps a few instruments but not comitatives. The comitative function of *=ni* has completely given over to dative *=ni*, leaving only the free form, *làànǐ,* to express comitatives in the modern language.

3.1.6.3.4 Ultimate Source of =ni

Both SLQZ and MacZ have related morphemes that license comitatives, instruments and datives. In SLQZ, all three can be licensed by the same morpheme *–nèe*, though the instrumental and dative licensing are more restricted than the comitative use. In MacZ, the functions have become split between a bound form, *=ni* (datives, some instruments), and a free form, *làànǐ* (instruments and comitatives). Based on this data, their likely historical source was some morpheme that licensed comitatives, instruments and a few certain dative-like arguments, such as objects of communication verbs. This would be a morpheme basically meaning 'with'. The English preposition *with* expresses a similar range, licensing comitatives, instruments and even a few datives, as suggested below:

183. I'm talking with/to John. patient of communication
I'm upset with/at you. target of emotion
Don't get smart with me. experiencer
It's fine with me. experiencer
What's wrong with you? experiencer

As a convenient shorthand, I will refer to this historical morpheme as Proto-Zapotec (PZ) **nai*. Such a reconstruction is consistent with the observed modern reflexes of the morpheme, but further work is needed to see if such a form is consistent with other postulated sound changes. Certainly, the morpheme consisted of [n] plus some unrounded vowel/diphthong.

In terms of lexical category, PZ **nai* was presumably a preposition or perhaps some type of adverb. Certainly, its semantic meaning is often encoded crosslinguistically via an adposition. In addition, cognate morphemes in both Isthmus Zapotec (*ne*) and MacZ (*làànɨ́*) appear as freestanding prepositions meaning 'with'.[42]

An adverbial identity is also possible for PZ **nai*. Both SLQZ and Mitla Zapotec have the freestanding variant of this morpheme as an adverb meaning 'also', as illustrated below (from Munro and Lopez et al. 1999 and Stubblefield and Stubblefield 1991, respectively):

184. **Nèe lìu' nga'abnèu' gru'p?** SLQZ
nèe lìu' n-ga'abnèe[43] =u' gru'p
also 2SN NEUT-belong.to =2SNgroup
Do you also belong to the group?

[42] The independent use of *ne* 'with' in Isthmus Zapotec seems to be restricted to elliptical uses (Velma Pickett, pc). In addition, it also occurs as an independent word meaning 'and'.

[43] Note here that *–nèe* 'with' contributes to the meaning of this verb *nga'abnèe* 'belongs to' < *nga'ab-nèe* 'is counted-with' and does not contribute to the 'also' meaning.

185. **Bidzujn Juan näjza Baad.** Mitla
bi-dzujn Juan näjza Baad
C-arrive Juan and.also Pedro
Juan arrived, and Pedro also.

MacZ, too, has a word 'also' which seems to be built around the *=ni* morpheme. It appears to be comprised of *làànî* 'with' plus the adverbial clitic *=gwa* 'also':

186. làà=ní=gwa → làngwa
BAS=with=also

Làngwa occurs clause-initially and immediately precedes the constituent it scopes over:

187. a. **Làngwa Pedruá rnnee(gwa)nà xtiisa'nì.**
làngwa Pedru =á rnnee (=gwa) =nà xtiisa' =nì
also Pedro =INVIS H/talk (=also) =3N language =3G
Pedro, too, speaks Zapotec (lit. *his language*).

b. **Làngwa ca bèllà raasigwantè'canà.**
làngwa ca bèllà raasi=ni[44] =gwa =ntè' =ca =nà
also PL snake H/be.afraid=PREP =also =1SD =PL =3A
I'm also afraid of snakes (in addition to being afraid of other things).

c. **Lù' rullattse'lù'. Làngwa ruya'attse'*(gwa)lù'.**
lù' rulla =ttse' =lù' làngwa ruya'a =ttse' *(=gwa) =lù'
2 H/sing =well =2 also H/dance =well *(=also) =2
You sing well. You dance well, too.

The connection between comitative 'with' and 'also' is another natural extension of the semantics of ***nai*** and is reminiscent of the adverbial use of *with* in certain dialects of English:[45]

188. "Yes," Celeste agreed, heading towards the door with Andaraheir. "I'll come with and we can await the others outside." Celeste left with her new friend and stopped beside Nightmare.

[44] Here *=ni* licenses the experiencer dative subject and does not contribute to the 'also' interpretation. The clitic adverb *=gwa* '=also', however, does, though its presence on the verb is optional in sentences like this one where *làngwa* is also present.

[45] Thanks to Pam Munro for bringing this to my attention. This quote was posted at http://www.surreal-news.com/showpost.php?p=46897&postcount=225. Accessed July 7, 2004.

Semantically, both 'with' and 'also' can introduce an additional argument of a predicate, one within a clause, the other between clauses. Perhaps then, via this connection, the 'with' meaning derived from an original adverb meaning 'also'. I feel the converse is more likely, however: the adverbial use came from the preposition. Certainly this seems to be the course followed in English. Further evidence supporting the semantic derivation WITH > ALSO is provided by the fact that certain varieties of Zapotec also use Spanish *con* 'with' to mean 'also', as shown in the following from SLQZ (Munro and Lopez et al. 1999) where *cwëhnn* is borrowed from *con*:

189. **Cwëhnn nàa' cha'a'.**
cwëhnn nàa' cha'=a'
also I IRR/go=1SN
I'm going along.

Whether ultimately of prepositional or adverbial origin, PZ **nai* must have already alternated between a free form and a dependent form attached to the verb in the linguistic predecessor of these languages (MacZ, SLQZ, Mitla, Isthmus). Though rather distantly related, each of these possesses both free and bound variants of this morpheme. Some do exhibit a semantic split between the free and bound forms, but MacZ, and apparently also Isthmus, shows some synchronic alternations between the free and bound variants.

Such variations could easily be the result of either an adverbial or prepositional origin. We have already seen in 187 how an adverbial clitic =*gwa* 'also' could show up preverbally attached to other morphemes and also as part of the verb. Such alternations represent a quite robust pattern in Zapotec.

With a prepositional origin, the existence of both free and bound forms could result from incorporation of the preposition. Incorporation of adpositions into verbs is a common crosslinguistic pattern, and Baker (1988) has argued it is the source for applicative morphology, which would account for the cognates of PZ **nai* bound to verbs.

Furthermore, for a very limited number of verbs in MacZ, it is still possible to get a synchronic alternation between the *=ni* clitic and the free preposition *lààní* 'with'. This occurs with the few instrumental instances of *=ni*:

190. a. **Ìntè' guudiaya' lààní beste'.** {ii117}
ìntè' guudia =ya' lààní beste'
1SN C/bathe =1SN with dust
I was bathed in dust.

b. **Ìntè' guudianíya' beste'.** {ii117}
ìntè' guudia =ní =ya' beste'
1 C/be.bathed =PREP =1SN dust
I was bathed in dust.

191. a. **Guxiibia'ya' dàá lààní ttu cuartu.**
guxiibia' =ya' dàá lààní ttu cuartu
C/measure =1SN bean with a cuarto
I measured the beans with a cuarto.

b. **Guxiibia'niya' ttu cuartu dàá.**[46]
guxiibia' =ni =ya' ttu cuartu dàá
C/measure =with =1SN a cuarto bean
I measured the beans with a cuarto.

In a few cases, this alternation can even occur with apparent dative arguments, as in the following:

[46] Interestingly, instrumental *=ni* appears to be resistant to the morphophonological processes often associated with dative *=ni* discussed in Section 2.6.2.2. We would generally expect the [i] to delete before =ya' but here it has not. My consultants do seem to find it acceptable to delete the [i] in this case, but did not spontaneously produce this.

192. a. **Ìntè' bèttí'yà' ittsicchánì làànì ca gwasá'àni.** {ii5}
ìntè' bèttí' =ya' ittsa-icchá làànì ca gwasá'à =ni
1IND C/sell =1SN hair-head with PL witch =PROX
I sold his hair to these witches.

b. **Bèttí'nyà' ca ittsicchánì ca gwasá'à'nà'.** {vi46g}
bèttí' =ni =ya' ca ittsa-icchá ca gwasá'à =nà'
C/sell =PREP =1SN PL hair-head PL witch =DIST
I sold his hair to those witches.

193. a. **Bittu gudaagwee' loolù' làànì naancho'nà'.**[47] {v261d}
bittu gudaa-gwee' loo =lù' làànì naan- cho' =nà'
NEG P/make?-stupid face =2SG with mother- of/2SG =DIST
Don't make faces at your mom.

b. **Bittu gudaagwee'loonlù' naancho'á.** {v262c}
bittu gudaa-gwee' -loo =ni =lù' naan- cho' =á
NEG P/make?-stupid -face =PREP =2SG? mother- of/2SG =INVIS
Don't make faces at your mom.

194. a. **Rsa'antè' làànì Felipeá.**
rsa'a=ni =ntè' làànì Felipe =á
H/be.angry=PREP =1SD with Felipe =INVIS
I'm angry at Felipe.

b. **Rsa'antè' Felipeá.**
rsa'a=ni =ni =ntè' Felipe =á
H/be.angry=PREP =PREP =1SD Felipe =INVIS
I'm angry at Felipe

In 192, *ca gwasá'àni* 'these witches' represents the indirect object recipient of *bèttí'* 'sold', while in 193 and 194 respectively, *naancho'á* 'your mother' and *Felipeá* 'Felipe' represent an experiencer and a target of an emotion. In all three cases, however, these dative arguments can be licensed by either *làànì* or *=ni*.

Note that 194b is something of an unusual example in that this verb would be expected to have two *=ni* clitics attached to it, one to license the experiencer subject and

[47] My consultant Ignacio Cano prefers 193 with *=ni* instead of *làànì*, finding that the preposition forces the comitative reading.

one for the unaffected patient object. However, only one of the *=ni* clitics is pronounced yielding *rsa'antè'* not *rsa'aninte'*. This is perhaps the result of haplology or maybe is just the natural result of the phonological reductions associated with *=ni* (the final [i] deletes before consonantal clitics giving *rsa'a=n=n=ntè'* which simplifies to *rsa'antè'*). In either case, similar reductions occur with *=ni* following [-ni] final verb roots as in *biyeeni=ni* 'heard' and *releeni=ni* 'is sad' (see Section 2.6.2.2). Therefore, it is not unreasonable to conclude that *rsa'antè'* underlyingly contains two *=ni* clitics even though only one is pronounced.

These examples of alternations between *=ni* and *lààní* suggest that incorporation is still an active pattern in MacZ and support the hypothesis that the modern free and bound forms of PZ **nai* result from incorporation of a preposition.

3.1.6.4 Overview of the History of *=ni*

In sum, the precursor of these languages had a morpheme, which originally may have been a preposition, but which already had at least three different realizations: a free preposition meaning 'with', an incorporated preposition also meaning 'with', and a free adverb meaning 'also'. The free and incorporated prepositions likely licensed comitative arguments, instruments (though perhaps not as robustly as comitatives) and certain dative arguments, probably datives of communication verbs. These realizations are summarized below:

195.

	*nai	
preposition 'with'	incorporated 'with'	adverb 'also'

A fourth realization of **nai* might be as the conjunction 'and'. The cognate morpheme *ne* in Isthmus Zapotec appears as the conjunction 'and', and this is also given as a definition for Mitla cognate *näj*. SLQZ has a morpheme, *nah* 'and', which is very close to Mitla *näj* in form ([n]+breathy low vowel) and meaning. But unlike Mitla, the SLQZ morph is distinct from the applicative 'with' morpheme *-nèe*. MacZ also has a conjunction *=nna* which could be cognate with the SLQZ and Mitla *nah* and *näj*, but again is distinct from applicative *=ni*. The Isthmus and Mitla data might suggest an historical connection between 'and' and 'with', which would require a split in these morphemes in SLQZ and MacZ. Another possibility is that there was a merger between 'and' and 'with' in Isthmus and Mitla, a conflation of two previously distinct morphemes.

These uses have varying reflexes in the modern languages. In SLQZ, the hypothesized free preposition has been lost; only the adverbial use and incorporated version of 'with' remain. The latter seems to match fairly closely the hypothesized semantics of PZ **nai*. Isthmus Zapotec retains bound 'with' and exhibits a free preposition 'with' in certain contexts. Its adverbial use is uncertain, though *ne* does also encode the conjunction 'and'.

In MacZ, this morpheme has undergone numerous changes. The remnants of PZ **nai* in 'also' have become rather obscured since it is not only supported with the phonetic stem *làà-*, but has also been reinforced by another, distinct adverbial morpheme *=gwa* 'also', yielding *làngwa*.

More importantly for our purposes, there has apparently been a semantic split between the free and bound prepositional forms of PZ **nai*. The free form, now attached

to the phonological base *làà-*, has become essentially restricted to being a licenser of comitatives and instruments. In a very few instances, such as that in 178, repeated below, those in 192-194 above and in 196 below, it is associated with dative arguments:

178. **Margaritàʼ ruʼenà tiisaʼ làànícaiyyaquèʼnìàʼ.** {vi69b}
Margarita=àʼ ruʼe=nà tiisaʼ lààní ca iyya quèʼ=nì=àʼ
Margarita=DIST H/give=3N word with pl flower of=3G=DIST
Margarita talks to her plants.

196. **Robin Hood rdiiʼnà biiyha quèʼ canuʼ riicuá attianna ritthianàcanà lààní bennеʼ pobre.**
Robin Hood rdiiʼ=nà bii-yha quèʼ ca nuʼ riicu=á
Robin Hood H/take=3N what-ever of PL rel rich=INVIS
attia=nna ritthia=nà=ca=nà lààní bennеʼ pobre
then=and H/distribute=3N=PL=3A with people poor
Robin Hood takes what belongs to the rich and then he gives it to the poor.

In contrast, the bound variant *=ni* has lost most of its connections with comitatives and instruments, *guudia=ni* 'bathed with' and *guxiibiaʼ=ni* 'measured with' being part of a small class of exceptions. It is not generally possible to introduce an instrument via the clitic *=ni*. So in 197a for example, it is impossible to replace *lààní* with *=ni* in 197b to introduce the instrumental argument:

197. a. **Lààyé bettiyé bèllànàʼ lààní machete quèʼyéá.**
làà=yé betti=yé bèllà=nàʼ lààní machete quèʼ=yé=á
BAS=3F C/kill=3FNsnake=DIST with machete of=3FG=INVIS
He killed the snake with his machete.

b. ***Lààyé bettinyé bèllànàʼ machete quèʼyéá.**
làà=yé betti=ni=yé bèllà=nàʼ machete quèʼ=yé=á
BAS=3F C/kill=PREP=3FNsnake=DIST machete of=3FG=INVIS

Instead, *=ni* has been grammaticalized as a dative licenser. Now, not only does it license objects of communication verbs as PZ **nai* might have, but it has expanded into

other areas associated with datives, such as licensing recipients and dative-subject experiencers and possessors. This split between *=ni* and *lààní* is summarized below:

198. **nai* 'with'
licensed comitatives, instruments, certain datives (of communication verbs)

=ni	*lààní*
dative marker	'with'
licenses	licenses
patient of communication	instruments
recipients	comitatives
experiencers	certain datives
possessors	
limited instruments	

As a result of this split, *=ni* and *lààní* are not usually interchangeable. Examples like those in 190-194 showing an alternation between *=ni* and *lààní* are not available with most *=ni* verbs, especially where *=ni* licenses a subject (as in 200-201):

199. a. **Béccú'nà' ruyhiiainnàntè'.**
béccú' =nà' ruyhiia =ni =nà =ntè'
dog =DIST H/bark =PREP =3N =1SD
That dog is barking at me.

b. **Béccú'nà' ruyhiianà lààntè'.**
béccú' =nà' ruyhiia =nà làànì =ntè'
dog =DIST H/bark =3N with =1SD
!*That dog is barking with me. (The dog and I are both barking.)*
**That dog is barking at me.*

200. a. **Naanchò'á beseelanyé ca llave chò'á.** {vi48c}
naan- chò' =á beseela =ni =yé ca llave chò' =á
mother of/2SG =INVIS C/be.found =PREP =3FD pl key of/2SG =INVIS
Your mother found your keys.

b. **Ca llave chò'á beseelacanà làànì naanchò'á.** {vi48d}
ca llave chò' =á beseela =ca =nà làànì naan- chò' =á
pl key of/2SG =INVIS C/be.found =PL =3N with mother- of/2SG =INVIS
Your keys were found with your mother.[48]
**Your keys were found by your mother.* **Your mother found your keys.*

201. a. **Duuni Felipà' chuppa carru ru'a yú'ùlaagwiá.** {ii106}
duu =ni Felipe =à' chuppa carru ru'a yú'ùlaagwi =á
S/stand =PREP Felipe =DIST two car at.the.edge.of municipio[49] =INVIS
Felipe has two cars by the municipio.

b. **Duu chuppa carru ru'a yú'ùlaagwià' làànì Felipeá.** {vi48b}
duu chuppa carru ru'a yú'ùlaagwi =à' làànì Felipe =à'
S/stand two car at.the.edge.of municipio =DIST with Felipe =DIST
There are two cars by the municipio with Felipe.
**Felipe has two cars by the municipio.*

The verbal clitic form *=ni* has taken on additional uses and meanings not shared with *làànì*, and as a result the two cannot always be interchanged. The clitic *=ni* has become grammaticalized as a dative marker and can license not only patients of communication and recipients as *làànì* occasionally can, but also experiencers and possessors.

In MacZ and its precursors, bound PZ **nai* developed its range of uses from 'with' licensing comitatives and instruments and dative objects of communication verbs to a dative-marker licensing a full range of semantic roles frequently expressed by a dative including recipients and eventually experiencers and possessors. The expansion and grammaticalization of *=ni* from 'with' to dative marker was probably aided by the fact that MacZ and its precursors most likely lacked other overt grammatical devices to mark datives.

[48] My consultants were uncertain as to whether this means your mother was also lost or if the keys were merely found near her.

[49] The municipio is the town hall building.

MacZ, like most Zapotec languages, makes relatively few overt case distinctions (see Section 3.2.1). (Actually compared to some, like Quiegolani Zapotec (Black 2000) which has no case distinctions, MacZ has a relatively rich system with its few distinct pronominal forms.) In addition, MacZ and most other Zapotec languages have a relatively small system of native prepositions. As is typical of Zapotec languages, MacZ, for example, has a fair number of locative prepositions, most of which are derived from or related to body part nouns, e.g. *loo* 'face/on' and *lle'e* 'stomach/in', or other inherently possessed nouns, such as *laagwi'* 'middle/in the middle of' (Lillehaugen 2003). Apart from these locative prepositions, the only native prepositions in MacZ are *lààní* 'with' and *què'* 'of'.[50]

It is not surprising then that some of these elements might be conscripted into marking various grammatical functions, which were not otherwise overtly marked. In fact, many Zapotec languages have borrowed several Spanish prepositions to mark grammatical functions or have similarly grammaticalized various native morphemes. For example, Lillehaugen (2004) reports how Tlacolula Zapotec employs *lohoh* 'face, on' in a range of dative object contexts and how historically this use was also apparently wide-spread in Colonial Valley Zapotec.

[50] It seems possible that *què'* itself might be influenced by or even borrowed from the Spanish complementizer *que* 'that'. MacZ uses *què'* and *què'ní* as complementizers meaning 'that' in addition to *porquè'ní* 'because' which is clearly derived from Spanish. Perhaps *que* was borrowed as a complementizer and eventually expanded into a prepositional role.

3.2 Pronouns

MacZ has various classes of pronominal elements. Definite pronouns include both clitic and free personal pronouns along with demonstrative pronouns. The first group, clitic pronouns, is of particular interest in that they exhibit the only overt morphological case distinctions found in the language. These are discussed below.

3.2.1 Clitic Personal Pronouns

Personal pronouns in MacZ most often appear as phonologically weak forms which must cliticize to some preceding word. The clitic pronouns in MacZ vary according to person, number, level of respect, and case. The pronouns distinguish singular from plural forms across three persons—first, second and third—with the first plural pronouns showing a distinction between exclusive and inclusive forms. These clitic pronouns are given below:

202.	Nominative		Dative/Accusative		Genitive (Inalienable)	
	singular	plural	singular	plural	singular	plural
1st inclusive		=riu'		=riu'		=riu'
exclusive	=ya'	=tù'	(=/ì)ntè'[51]	(=/ì)ntù'	=ya'	=tù'
2nd informal	=lù'	=li	=lù'	=li	=lù'	=li
formal	=ccwa'	=ccwa'li	=ccwa'	=ccwa'li	=ccwa'	=ccwa'li
3rd nonformal	=nà	=canà	=nà	=canà	=nì	=canì
formal	=yé	=cayé	=yé	=cayé	=yé	=cayé
child	=bí	=cabí	=bí	=cabí	=bí	=cabí
animal	=ba	=caba	=ba	=caba	=ba	=caba

Distinctions in level of respect are made in the second and third person pronouns. Second person forms are divided between informal and formal pronouns with the former

[51] In fast speech, the initial [*i*]- in *=(i)nte'* and *=(i)ntu'* deletes and the pronouns cliticize to the preceding word. In more careful speech, the [*i*] is pronounced and the pronouns do not cliticize.

used in address to familiar individuals while the latter is required with address to older or unfamiliar individuals or those in some position of respect.

The third person pronouns exhibit an even more complex respect hierarchy. The third person formal pronouns are used to refer not only to those individuals with whom formal second person address would be used but also to refer to culturally important entities, such as the sun, various food and drink items, and money. The *=ba* animal pronouns are used only to refer to animals (and perhaps insultingly or jokingly towards people). Interestingly, this pronoun is not mentioned in Nellis and Nellis 1983 or Bartholomew 1983, appearing to be absent in Atepec Zapotec. The child pronouns are used to refer to (small) children. In Atepec, this form is used as a more general familiar form and is much more widespread in its use and distribution. Finally, the non-formal pronouns are used to refer to any entities that do not fall into any of the other categories and can also be used in place of the child and animal pronouns. Thus while using non-formal or informal pronouns instead of formal pronouns may be considered insufficiently respectful, there is no prohibition against using the nonformal pronoun for children or animals. Additional research, particularly of their use in extended discourse, is needed to understand the full range of uses for these hierarchically complex pronouns. For comparison with pronominal systems in other Zapotec languages, readers are referred to Marlett 1993 and Munro 2002.

The last overt distinction among the clitic pronouns is case. With clitic pronouns, but not full DPs or even independent pronouns, MacZ exhibits three case forms: nominative, dative/accusative and genitive. As can be seen in 202, these cases are not

robustly represented but occur in just two types of pronouns: first person exclusive forms (both singular and plural) and third person nonformal pronouns. The first person exclusive pronouns distinguish dative/accusative forms from nominative and genitive pronouns. In contrast, the third person nonformal pronouns exhibit a distinct genitive form while the nominative and dative/accusative forms are identical.

In overt morphological form, dative and accusative cases are almost completely identical. Only first singular pronouns show a possible overt distinction between these cases. When appearing as a dative subject licensed by *=ni*, the *=ni=ntè'* sequence may be realized as *=tè'* (see Section 2.6.2.2.2). Accusative first singular clitic pronouns (and non-subject first singular dative pronouns) always retain the *n* (*=ntè'*). This difference is sensitive to the syntactic position (grammatical relation) of the pronoun, but it is unclear if it necessarily reveals a distinction in morphological case. Regardless of whether an overt morphological distinction can be established, it is helpful in understanding the distribution of the clitic pronouns to distinguish dative from accusative case. The justification for treating them as distinct cases is discussed in Chapter 5. Below, I take this as given and outline their separate distributions along with that of genitive and nominative cases.

3.2.1.1 Dative Case

Dative case occurs on objects licensed by the clitic *=ni*. This morpheme usually attaches to verbs licensing an additional argument, but also occurs as part of the prepositions *làànì* 'with' and *ibi'ini* 'around'. The verbal argument licensed by *=ni* and the object of these prepositions receive dative case.

As discussed in depth in Chapter 5, the *=ni* applicative clitic may license a direct or indirect object and, with certain verbs, may even license a dative subject. Regardless of grammatical function, the argument licensed by *=ni* shows dative case, as exemplified in the following sentences (*=ni* and the argument it licenses are both underlined):[52]

203. **Ruyhiisi'<u>ni</u> Felipeà'<u>ntù'</u>.** {mm}
ruyhiisi' <u>=ni</u> Felipe =à' <u>=ntù'</u>
H/laugh <u>=PREP</u> Felipe =DIST <u>=1EXCLD</u>
Felipe is laughing at us.

204. **Gunaaba<u>ni</u> Felipeà'<u>ntè'</u> ttu libru.** {mm}
gunaaba <u>=ni</u> Felipe =à' <u>=ntè'</u> ttu libru
C/ask.for <u>=PREP</u> Felipe =DIST <u>=1SD</u> a book
Felipe asked me for a book.

205. **Ìntè' rtoottse'<u>ntè'</u> lagooni.** {ii286e}
ìntè' r-t-oo =ttse' <u>=ni</u> <u>=ntè'</u> lagoo =ni
IND/1s H-MID-eat =well <u>=PREP</u> <u>=1SD</u> food =PROX
This food tastes good to me./I like the taste of this food.

Dative case also occurs with the object of the preposition *làànì* 'with', a free preposition related to *=ni* (see Section 3.1.6 above).

206. **Felipeà' rue'nà tiisa' <u>lààntè'</u>.**
Felipe =à' ru'e =nà tiisa' <u>làànì</u> <u>=ntè'</u>
Felipe =DIST H/give =3N word <u>with</u> <u>=1SD</u>
Felipe is talking with me.

207. **Béccú'nà' ruyhiianà <u>lààntè'</u>.**
béccú' =nà' ruyhiia =nà <u>làànì</u> <u>=ntè'</u>
dog =DIST H/bark =3N <u>with</u> <u>=1SD</u>
That dog is barking with me. The dog and I are barking.

208. **Ttsa'ayà' <u>lààncanà</u>.** {vi131}
ttsa'a =ya' <u>làànì</u> <u>=ca</u> <u>=nà</u>
P/go =1SN <u>with</u> <u>=PL</u> <u>=3D</u>
I went with them.

[52] On the phonology of *=ni*, see Section 2.6.2.2 above.

Similarly, the preposition *ibi'ini* 'around' also licenses dative case. This is evidenced not only by first person exclusive arguments, but also by the phonological interactions between *ibi'ini* and its complement which are characteristic of words containing *=ni* as discussed in Section 2.6.2.2. (Although I have argued in Section 3.1.6, that *=ni* derives from a free preposition meaning 'with', it is unclear why it should also appear in *ibi'ini*.)

209. **Béccú'á beyhunnianà ibi'inintè'.** {vi128}
béccú' =á beyhunnia =nà ibi'ini =ntè'
dog =INVIS C/run =3N around =1SD
The dog ran around me.

210. **Béccú'á beyhunnianà ibi'inincainnà.** {vi129}
béccú' =á beyhunnia =nà ibi'ini =ca =nà
dog =INVIS C/run =3N around =PL =3D
The dog ran around them.

3.2.1.2 Accusative Case

The accusative clitic pronouns typically appear as direct objects as seen below in 211 and 212 with the first person accusative forms *ìntè'* and *ìntù'*:

211. **Ca béccú'nà' betegoocanà<u>ntè'</u> náàyá'.** {i90'}
ca béccú' =nà' betegoo =ca =nà <u>=ntè'</u> náàyá'
PL dog =DIST C/chase =PL =3N <u>=1SA</u> yesterday
Those dogs chased me yesterday.

212. **¿Begwiia'lù'<u>ntù'</u> náàyá'?** {ii97'}
begwiia' =lù' <u>=ntù'</u> náàyá'
C/see =2 <u>=1EXCLA</u> yesterday
Did you see us yesterday?

In a few rare instances, accusative clitics can also appear as indirect objects. While most indirect objects are licensed by a preposition or the applicative clitic *=ni* and receive case from these elements, a few verbs directly license two objects with both

showing accusative case. This can be seen, for example, below in 213 with the verb *ruee'* 'gives (to a third person indirect object)':

213. **Bee'yà'canà ttu footu.** {mm}
bee' =ya' =ca =nà ttu footu
C/give =1SN =PL =3A a photo
I gave them a photo.

3.2.1.3 Genitive Case

As expected by their name, genitive clitic pronouns primarily function as possessors. However, they also appear in a number of related environments, including as the objects of most prepositions and as genitive subjects of verb-noun compound verbs.

Adnominal possessor clitic pronouns appear in genitive form with both inalienable and alienable possessums.[53] With the former, the possessor pronoun cliticizes to the possessum NP (which may or may not be marked with the possessed prefix *x*-), and in the latter case, the possessor is introduced by the preposition *què'* 'of'. In both instances, the genitive form of the pronoun appears, as can be seen in the following examples where the pronominal forms *=(ca)nì* =(PL)3G are used to mark possessors instead of the non-genitive forms *=(ca)nà*:

---

[53] Predicative possessors also appear in genitive case, but only in certain restricted contexts. For example, when the possessum is indefinite, the predicative possessor may appear in the genitive as in the following:
i. **Duu què'nì ttu carru.** {mm}
duu què' =nì ttu carru
S/stand of =3G a car
He has a car.
However, in other contexts, such as when the possessum is definite, the existential verb combines with the applicative clitc *=ni*, which licenses the possessive subject and assigns it dative case:
ii. **Làànà duuinnà carruá liisinì.** {mm}
làà=nà duu =ni =nà carru =á liisi =nì
BAS=3 S/stand =PREP =3D car =INVIS home =3G
He has the car at his home.

214. **Felipeà' begaadianà ca chuppa yhi'ninìá.** {ii14}
Felipe =à' begaadia =nà ca chuppa yhi'ni =nì =á
Felipe =DIST C/bathe(tr.) =3N PL two child =3G =INVIS
Felipe bathed his two kids.

215. **Ìntè' betti'yà' ittsicchanì làànì ca gwasá'àni.** {ii5}
ìntè' betti' =ya' ittsa-iccha =nì làànì ca gwasá'à =ni
1SN C/sell =1SN hair-head =3G with PL witch =PROX
I sold his hair to these witches.

216. **Àbíí rteeliintè' xtiisa'canì.**
àbíí rteelii=ni =ntè' x-tiisa' =ca =nì
NEG H/understand=PREP =1SD PSSD-word =PL =3G
I don't understand their language.

217. **Bembia'yà' xcwaananìá.**
bembia' =ya' xcwaana =nì =á
C/meet =1SN uncle =3G =INVIS
I met her uncle.

218. **Bettsi'yà' beya'anà llè'è yú'ù què'nìá.** {ii77}
bettsi' =ya' beya'a =nà llè'è yú'ù què' =nì =á
man's.brother =1SG C/dance =3N in house of =3G =INVIS
My brother danced in his house.

219. **¿La'unni taa' béccú' què'canì?** {i117'}
la'unni taa' béccú' què' =ca =nì
this FOC dog of =PL =3G
Is this their dog?

The preposition *què'* always takes a genitive complement whether it introduces a possessor as in 218-219 above or serves some other function. For example, *què'* is also used to introduce benefactives (as in 220) and to license arguments of certain verbs (as in 221).[54] In all instances, it licenses a genitive complement as can be seen by the third person genitive clitic pronoun *=nì* as opposed to the non-genitive form *=nà*:

[54] Although *=canì* corresponds to the subject of the English translation of 221, it is unclear if it is the syntactic subject of the Zapotec sentence. As it appears to be the complement of *què'* this seems unlikely, although it is possible that the preposition has in fact incorporated into the verb. Further investigation is needed.

220. **Chi guthellayà' libru chà'á què'nì.** {ii15/mm}
chi gutthela =ya' libru chà' =á què' =nì
already C/send =1SN book of/1SG =INVIS of =3G
I already sent the book for him.

221. **Gwacca què'canì guuncanànà.** {mm}
gwacca què' =ca =nì guuni =ca =nà =nà
P/be of =PL =3G P/do =PL =3N =3A
They will be able to do it.

Presumably, *què'* has inherited its genitive case assigning property from its use in possessive contexts. However, it is also a possibility that only *què'* and its hypothesized null counterpart used in inalienable contexts can assign genitive case in MacZ and that all instances of genitive case in MacZ are due to one of these two elements.

Apart from the few prepositions like *lààní* 'with' and *ibi'ini* 'around', which allow the dative licensing *=ni* morpheme, native prepositions in MacZ generally take genitive complements. A few representative examples are illustrated below in 222-228:

222. a. **Ttu yaa gubixxinà icchá yú'ùnà'.** {ii98}
ttu yaa gubixxi =nà icchá yú'ù =nà'
a tree C/fall =3N on.top.of house =DIST
A tree fell on the house.

b. **Ttu yaa gubixxinà icchánì.** {ii98}
ttu yaa gubixxi =nà icchá =nì
a tree C/fall =3N on.top.of =3G
A tree fell on it.

223. **Ìntè' bèchúúyà' loonì.** {i49}
ìntè' bèchúú =ya' loo =nì
1SN C/cough =1SN before =3G
I coughed in front of him.

224. **Ittsi'nà' yuuanà luita'canì.** {iv87'}
ittsi' =nà' yuua =nà luita' =ca =nì
paper =DIST S/lie =3N beside =PL =3G
The paper is lying beside them.

225. **Ttu bènné' suttsiayé yhaani'anì.** {iv81'}
ttu bènné' suttsia =yé yhaani'a =nì
a person S/be.trapped =3FN under =3G
A person is trapped under it.

226. **Edgarnà' becattsi' loonì li'ucanì.** {vi6'}
Edgar =nà' becattsi' loo =nì li'u =ca =nì
Edgar =DIST C/hide face =3G inside =PL =3G
Edgar hid his face inside them.

227. **Béccú'nà' duunà chuuba'canì.** {vi129}
béccú' =nà' duu =nà chuuba' =ca =nì
dog =DIST S/stand =3N between =PL =3G
The dog is standing between them.

228. **Béccú'á beyhunnianà laagwi'canì.** {vi129'}
béccú' =á' beyhunia =nà laagwi' =ca =nì
dog =INVIS C/run =3N in.the.middle. of =PL =3G
That dog ran through the middle of them.

These prepositions are derived from (and frequently identical to) inherently possessed nouns as seen in pairs like *llè'è* 'stomach/in(side)', *luita'* 'side/beside', *ru'a* 'mouth/at the edge of', *laagwi'* 'center, middle/in the middle of' and *loo* 'face/on'. Both uses of *loo* are nicely illustrated in the following sentence:

229. **Felipeà' begwiianà loonì loo espejuà'.** {i4}
Felipe =à' begwiia =nà loo =nì loo espeju =à'
Felipe =DIST C/see =3N face =3G on mirror =DIST
Felipe saw his face in the mirror.

These inherently possessed nouns take genitive possessors and the derived prepositions inherit this case property, assigning genitive case to their complements.

One final environment requiring the genitive form of clitic pronouns is found with genitive subject verbs. These are compound verbs consisting of a verb root and an inalienable noun root which licenses the genitive case of the subject, as illustrated below

in 230-231. Additional examples are also given in Section 3.1.4 above and the structure of these verbs is extensively discussed in Chapter 6.

230. **Ribiisilaasi'nì.** {mm}
ribiisi -laasi' =nì
H/get.dry -body =3G
H/be.thirsty
He is thirsty.

231. **Felipeà' làànì Emilià' bettsanàá'canì.** {ii93}
Felipe =à' làànì Emili =à' bettsa' -nàá' =ca =nì
Felipe =DEM with Emily =DEM C/join -hand =PL =3G
C/get.married
Felipe and Emily got married.

3.2.1.4 Nominative Case

Except in those instances when *=ni* verbs require a dative subject or when a compound verb requires a genitive subject, subjects of finite clauses appear in nominative form. This is illustrated with the verb *betti* 'killed' in the sentences in 232. In 232a, the first person singular nominative *=ya'* appears and in 232b, the third person nominative form *=nà* occurs.

232. a. **Ìntè' bettiyà' ttu coneeju.**
ìntè' betti =ya' ttu coneeju
1SN C/kill =1SN a rabbit
I killed a rabbit.

b. **Felipeà' bettinà ttu coneeju.**
Felipe =à' betti =nà ttu coneeju
Felipe =DIST C/kill =3N a rabbit
Felipe killed a rabbit.

While nominative case usually occurs on subjects bearing an agent thematic relation, it is not restricted to such subjects as illustrated below:

233. a. **Àbíí, ìntè' naaya' doctor.** {i167}
àbíí ìntè' naa =ya' doctor
NEG 1SN S/be =1SN doctor
No, I am a doctor.

b. **Felipeà' naanà ttu doctor.** {i32}
Felipe =à' naa =nà ttu doctor
Felipe =DIST S/be =3N a doctor
Felipe is a doctor.

234. a. **Ìntè' illaanyà' gùxéé.** {ii19}
ìntè' illaani =ya' gùxéé
1SN P/arrive =1SN tomorrow
I will arrive tomorrow.

b. **Libru què' Lupeà' illaainnà attu semana.** {ii39}
libru què' Lupe =à' illaani =nà attu semana
book of Lupe =DIST P/arrive =3N another week
Lupe's book will arrive next week.

In 233, nominative case is assigned to the subject of a predicate nominal which does not assign an agent thematic relation. Similarly, example 234 provides an example of a nominative subject with an unaccusative verb, which again does not bear an agent thematic relation.

Nominative pronouns also occur with most quantifiers. This is true regardless of whether the DPs are subjects as in 235-237 or objects as in 238-240:

235. a. **Salle'yà' bitéé.** {vi132}
salle' =ya' bitéé
half =1SN C/get.burned
Half of me was burned.

b. **Salle'nà bitéé.** {mm'}
salle' =nà bitéé
half =3N C/get.burned
Half of it got burned.

236. a. **Ituuteyà' bitéé.** {vi132}
ituute =ya' bitéé
whole =1SN C/get.burned
All of me was burned.

b. **Ituutenà bitéé.** {vi132}
ituute =nà bitéé
whole =3N C/get.burned
All of it was burned.

237. a. **Ttuuteyà' gwa'a(yà') Lola'a.** {vi132}
ttuute[55] =ya' gwa'a[56] (=ya') Lola'a
alone =1SN C/go (=1SN) Oaxaca
I went alone to Oaxaca.

b. **Ttuutenà gwiia Lola'a.** {vi133}
ttute =nà gwiia Lola'a
alone =3N C/go Oaxaca
He went by himself to Oaxaca.

238. a. **Lùù' suatte' beseelanlù' ttuchúppátù'.** {vi133}
lùù' suatte' beseela =ni =lù' ttu- chúppá =tù'
2SIND only C/be.found =PREP =2SD one- two =1EXCLN
You only found a few of us.

b. **Lùù' suatte' beseelanlù' ttuchúppácanà.** {vi133}
lùù' suatte' beseela =ni =lù' ttu- chúppá =ca =nà
2SIND only C/be.found =PREP =2SD one- two =PL =3N
You only found a few of them.

239. a. **Àbíí nabia'innà niidittutù'.** {vi141}
àbíí nabia'=ni =nà niidittu =tù'
NEG H/know=PREP =3D none =1EXCLN
He doesn't know any of us.

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[55] It seems reasonable to treat *ttute* 'alone' as a quantifier in MacZ since it patterns with the other quantifiers being presented here and appears to be derived from the numeral *ttu* 'one'. In fact, its connection to *ttu* appears to still be synchronically active in the minds of MacZ speakers unlike the relation between *one* and *alone* in English. For instance, 'alone' can also be expressed as *ttu=ba* 'one=EMP' in MacZ, and even more interestingly, it is restricted to combining with singular DPs. Thus, **ttute=ca=nà* 'alone=PL=3N' cannot mean 'they alone' or 'they by themselves'. Instead, *suatte'* 'only', which appears to occur with free pronominal forms, must be used to express similar meanings with plural DPs.

[56] Note that 'go' has a special first person exclusive form. Cf. 237b.

b. **Làànà niidittunà laa rulaa'nì.** {vi141}
làà=nà niidittu =nà laa rulaasi' =nì
BAS=3 none =3N NEG H/like =3G
He doesn't like any of them.

240. a. **Iyhee(*n)tù' rexxattse'lù'ntù'.** {vi131}
iyhee =tù'/*=ntù' rexxa =ttse' =lù' =ntù'
many =1EXCLN/*=1EXCLA H/please? =well =2SN =1EXCLA
Many of us like you. (lit. *You please many of us.*)

b. **Iyheecanà rexxattse'lù'canà.** {vi132}
iyhee =ca =nà rexxa =ttse' =lù' =ca =nà
many =PL =3N H/please =well =2SN =PL =3A
Many of them like you. (lit. *You please many of us.*)

A few quantifiers, such as *iyaate* 'all', occur with accusative/free pronominal forms as seen below:

241. a. **Iyaatentù' chi billatù' libru chò'á.** {vi131}
iyaate =ntù' chi billa =tù' libru chò' =á
all =1EXCLA already C/read =1EXCLN book of/2SG =INVIS
All of us have already read your book.

b. **Iyaate ìntù' chi billatù' libru chò'á.** {vi131}

242. **Iyaatecanà chi billacanà libru chò'á.** {vi131}
iyaate =ca =nà chi billa =ca =nà libru chò' =á
all =PL =3A already C/read =PL =3N book of/2SG =INVIS
All of them have already read your book.

The nominative case-assigning property of quantifiers is likely related to the fact that quantifiers in Zapotec frequently exhibit verbal properties. For example, Munro and Lopez et al. (1999:26) note that in San Lucas Quiaviní Zapotec, a Valley Zapotec language, not only do quantifiers combine with pronominal subject clitics, but many also combine with aspectual prefixes. Thus, the numeral *tyo'p* 'two' in SLQZ may occur with an irrealis prefix *y-*, definite prefix *s-*, or habitual prefix *r-*, as shown below (from p. 26):

243.

aspect prefix	meaning with quantifiers	example	translation
neutral ∅-[57]		tyo'p-rëng	'(being) two of them'
irrealis *y-*	collective	y-ro'p-rëng	'(being) the two of them'
definite *s-*	'more'	s-tyo'p	'two more'
habitual *r-*	ordinal	nih r-rohp	'the second'

Munro and Lopez et al. also suggest that the verb-like nature of quantifiers may account for other properties of quantifiers in SLQZ, including their tendency to be clause initial. This tendency is also found in MacZ as can be seen in 235-240. However, additional research is needed to determine what other verbal properties quantifiers exhibit in MacZ besides their nominative case-assigning properties and clause-initial preference. (See Section 4.2.7 for a discussion of the movement of quantifiers in MacZ.)

3.2.2 Independent Personal Pronouns

The independent personal pronouns are given below in 244. As can be seen, they generally seem to be related to the accusative clitic pronouns. The first person pronouns and the second singular informal pronoun are identical to the accusative clitic forms except that the free forms bear stress. The second person plural informal pronoun has a unique independent form, *libi'i*.

[57] Munro and Lopez et al. surmise that the unprefixed form of the quantifier may represent the neutral aspect stem, which typically lacks an overt prefix.

244.	Independent Pronouns	
	singular	plural
1st inclusive		riu'
exclusive	ìntè'	ìntù'
2nd informal	lùù'	libi'i
formal	(l)àccwa'	(l)àccwa'li
3rd informal	(l)àànà	(l)ààcanà
formal	(l)ààyé	(l)ààcayé
child	(l)ààbí	(l)ààcabí
animal	(l)ààba	(l)ààcaba

The remaining independent pronouns are all formed by combining the accusative clitic pronouns with (*l*)*àà*-, a semantically null phonetic base used to support phonologically and syntactically weak morphemes, turning them into independent words. This phonological base is found in a variety of words including demonstratives pronouns like (*l*)*à'unni* 'this', the negative word (*l*)*àbíí* 'not' and the adverb (*l*)*angwa* 'also'. As indicated by the parentheses, the [l] of this morpheme is generally optional and there seems to be no semantic difference between the words with the [l] and those without. My two primary consultants freely vary in leaving off or inserting the [l] in words like (*l*)*àbíí* and (*l*)*angwa*, but they generally have been consistent about using the [l] with the independent pronouns. However, the [l]-less forms have been observed with other speakers and even within the speech of my primary consultants when interacting with such speakers.[58]

As would be expected, the independent pronouns are typically used in environments in which the clitic pronouns cannot occur, such as in the elliptical response in 245 below, an environment which lacks phonological support for the dependent clitics:

[58] Several instances of [l]-less personal pronouns have been documented and based on this observation and the behavior of words like (*l*)*àbíí*, I have generalized the [l]-less forms to all of the personal pronouns. However, the entire paradigm needs to be verified with a speaker who produces the *l*-less forms.

245. **¿Núúní gutoo iyaate ca etta? Ìntè'.** {vi130}
núú =ní gutoo iyaate ca etta ìntè'
who =COMP C/eat all PL tortilla 1SIND
Who ate all the tortillas? Me.

Within sentences, the independent pronouns are most commonly found preverbally in topic position with a corresponding clitic pronoun appearing postverbally:

246. **Ìntè' àbíí tee iyheeni belliu chà'.** {mm}
ìntè' àbíí tee iyheeni belliu chà'
1SIND NEG S/exist a.lot money of/1SG
I don't have a lot of money.

247. **Lùù' ibixxilù'.** {ii107}
lùù' ibixxi =lù'
2SIND P/fall =2SN
You're going to fall.

248. **Libi'i begwiia'lintù' nààyá'.** {ii97}
libi'i begwiia' =li =ntù' nààyá'
2PIND C/look.at =2PN =1EXCLA yesterday
Y'all saw us yesterday.

249. **Àànà raanàntè'.** {green}
àà=nà raa =nà =ntè'
BAS=3 Pr/tell =3N =1SA
He's telling me.

250. **Làànàni rugoonà ca binnià'.** {iv57}
làà=nà =ni rugoo =nà ca binni =à'.
BAS=3 =PROX H/feed =3N PL bird =DIST
He feeds the birds.

Again in this position, there is no preceding word for the clitic pronouns to attach to and the independent pronouns must be used. However, in some cases, even when there is a preceding word, the independent pronouns must still be used:

251. **Suate *(làà)canà gwiia Lola'a.** {vi133/mm}
suate *(làà-) =ca =nà gwiia Lola'a
only *(BAS-) =PL =3N C/go Oaxaca
Only they went to Oaxaca.

252. **Angwa *(làà)nà àbíí rulaa'nì guya'anà.** {mm'}
angwa *(làà-) =nà àbíí rulaasi' =nì guya'a =nà
also *(BAS-) =3N NEG H/like =3G P/dance =3N
She, too, doesn't like to dance.

Independent pronouns are also required following borrowed prepositions:

253. **Unto'á uccwa què'bí thaabí de *(làà)canà para *(ì)ntè'.** {vi130}
unto' =á uccwa què' =bí thaa =bí de *(làà-)=ca=nà para *(ì)ntè'
child =DIST C/be of =3CG P/walk =3C from *(BAS-)=PL=3 toward 1SIND
The child was able to walk from them to me.

In addition to these environments in which only the independent pronouns can appear, there are some environments where either may be used. For example, although postverbal argument positions are typically occupied by clitic pronouns, free forms may occur in these positions as well. This is particularly common with first person exclusive objects, which freely alternate between free and bound forms, *ìntè'/ìntù'* versus *=ntè'/=ntù'* 1SA/1EXCLA:

254. **Begwiia'nà (ì/=)ntè'.** {mm'}
begwiia' =nà (ì/=)ntè'
C/look.at =3N 1S(IND/A)
He saw me.

Independent pronouns that are formed via the addition of *làà-* can also appear in object position, though they are not typically volunteered in this position:

255. **¿Banaabianlù' lààcayé nàà'?** {mm}
ba= naabia'=ni =lù' làà=ca=yé nàà'
EMP= S/know=PREP =2SG BAS=PL=3FN there
Do you know them over there?

Somewhat surprisingly, the independent pronouns can also sometimes appear as postverbal subjects:

256. **¿Daani ttsia' làànà?** {mm'}
daani ttsia' làà=nà
should P/go BAS=3
Should he go?

257. **Quittiala ìntè'.** {i17}
quittia =la ìntè'
P/play =instead 1SIND
I'm going to play instead.

Further investigation is needed to determine precisely what restrictions there are on independent pronouns in postverbal subject position.

3.2.3 Demonstrative Pronouns

MacZ has a set of six demonstrative pronouns, occurring in singular/plural pairs as given below in 258:

258.

là'unni	*this*	làcunni	*these*
là'unnà'	*that*	làcunnà'	*those*
là'(u)gwa'	*that (not visible)*	làcuugwa'	*those (not visible)*

As can be seen, they all contain *làà-* BAS, the phonological base discussed in the previous section. In addition, the visible demonstratives clearly include the demonstrative determiners *=ni* 'this here' and *=nà'* 'that there' (It is unclear "determiner" is the best label for these elements. See Section 3.3.1 for more discussion). Surprisingly, the third demonstrative determiner, *=n(á)* 'that (not visible)' does not appear to form an independent pronoun in MacZ. Note, however, that the expected demonstrative pronoun is found in Atepec Zapotec (Bartholomew 1983:357). Instead in MacZ, the forms *là'(u)gwa'* and *làcuugwa'* are used. These apparently also exist as bound pronominal forms as illustrated below:

259. **Niiba yù'úcugwa' llè'è bolsa chà'ni.** {iv64}

nii	=ba	yù'ú	=cugwa'	llè'è	bolsa	chà'	=ni
here	=ÈMP	S/be.in	=3pINVIS	in	pocket	of/1SG	=PROX

Here they are in my pocket.

Additional research is required to fully understand the use and derivation of these distal/invisible pronouns.

The other four demonstrative pronouns consist of one additional element, the relative pronoun *nu'*. The phonological base, *làà-*, does not directly combine with the demonstrative determiners, but instead, the demonstrative determiners combine first with the relative pronoun, which may be singular or plural. Thus for example, the meaning of the proximate pronoun is something like 'that which is here'.

Within the demonstrative pronouns, the relative pronoun undergoes metatheis of the *n-u* sequence as can be seen in comparison with the Atepec cognates and as discussed in Section 2.6.1.2.2. Representative derivations are given below:

260. **là'unni** < **làà-** **nu'** **=ni** (cf. AZ *la̲nùi*)
this (pronoun) BAS- REL =PROX

261. **làcunni** < **làà-** **ca** **nu'** **=ni** (cf. AZ *la̲canùi*)
these (pronoun) BAS- PL REL =PROX

Examples of the demonstrative pronouns are given below. As seen in 266, the use of the distal pronouns *là'unnà'/làcunnà'* overlaps with that of the distal/invisible pronouns. This is in contrast to the demonstrative determiners where *=nà'* =DIST can only refer to distal, visible entities while *=á* =INVIS can only refer to invisible entities.

262. **¿Nuu carru què' taa' là'unni?**

nuu	carru	què'	taa'	la'unnì
who	car	of	FOC	this

Whose car is this?

263. **¿Là'unnà' taa' béccú' chò'?**
là'unnà' taa' béccú' chò'
that FOC dog of/2SG
Is that your dog?

264. **Là'unnà' taa' libru cho'.** {i233}
là'unnà' taa' libru cho'
that FOC book of/2SG
That one's your book.

265. **¡Bittu goolù' là'unnà'!** {v21}
bittu goo =lù' là'unnà'
NEGIMP P/eat =2SN that
Don't eat that!

266. **Àbíí yuuyà' là'unnà'/là'gwa'.** {mm}
àbíí yuu =ya' là'unnà'/là'gwa'
NEG S/know =1SN that/that.INVIS
I didn't know that.

3.3 Noun Phrases

Elements within the DP occur in the following order:

267. plural quantifiers N Adj possessors/PPs/RCs demonstrative

Quantifiers, including the plural marker *ca*, precede the noun:

268. ca béccú'
PL dog
dogs

269. chúppá tiisa'
two word
two words

270. iyhéé benne'
many person
many people

271. niidittu liibru
no book
no books

Ca precedes numerals in definite/specific DPs:

272. ca ttsúnná unto' =ni
PL three child =PROX
these three children

Quantifiers may precede *ca*, yielding a partitive interpretation:

273. ttsúnná ca unto' =ni
three PL child =PROX
three of these children

274. iyaate =ca =nà
all =PL =3A
all of them

Restrictive modifiers—adjectives, possessors, prepositional phrases and relative clauses follow the noun, preceding the demonstrative. (Non-restrictive modifiers follow the demonstrative):

275. béccú' sittsi
dog white
white dog

276. béccú' què' bettsi' =ya'
dog of man's.brother =1SG
my brother's dog

277. ttu playera què' UCLA
a t-shirt of UCLA
a t-shirt from UCLA

278. bestiidu yaayhi nu' guyo'o =ya' =ni
dress expensive REL C/buy =1SN =PROX
this expensive dress that I bought

There are two areas of nominal syntax that need more detailed treatment as they will be important later in understanding other key areas of MacZ syntax and our understanding of grammatical subjects. These are demonstratives and possessors. The

former provides a crucial DP constituency diagnostic while possessors are crucial in understanding genitive subject verbs and the Covert Subject Binding construction, both of which are discussed in Chapter 6. Demonstratives and possessives are discussed in detail below.

3.3.1 Demonstratives[59]

Macuiltianguis Zapotec has a set of three demonstrative enclitics which might roughly be translated as *this, that,* and *that* (invisible). Nellis and Nellis (1983) identify the cognate morphemes in the closely related language of Atepec Zapotec with *este, ese* and *aquel* in Spanish. The MacZ demonstrative clitics are given below in 279, along with a gloss and grammatical abbreviation:

279. =ni =PROX 'this here'
=à'/=nà' =DIST 'that there'
=á/=ná =INVIS 'that far away' (not perceivable)

The clitics are unstressed and attach to the last word of the DP:

280. **carru<u>ni</u>** **ca i'ya<u>nà'</u>** **ùntó'<u>á</u>**
this car *those mountains* *that child (unseen)*

There are some phonological interactions between the deictic particles and the preceding word which are worth noting. The main conditioning factor for those particles that have allomorphs is whether or not the preceding word ends in a consonant (including glottal stop). If the word does not end in a consonant then usually the forms *=à'* and *=á* are used. If the word does end in a consonant then the forms *=nà'* and *=ná* are preferred. This accounts for the predominant pattern, but variation is possible and occasionally

[59] This is an update of Foreman 2002.

speakers will use *=à′* and *=á* where *=nà′* and *=ná* would be expected or vice versa. In addition, if the host word is a borrowed word ending in a consonant, then frequently the *=ná* particle is realized as a zero morpheme, where it otherwise would be expected.

The conditioning environments of these allomorphs seem to be the reverse of what might be expected. The onsetless forms, *=à′* and *=á*, occur following vowels while the forms *=nà′* and *=ná* follow consonant final words. This results in rampant hiatus and seemingly unnecessary consonant sequences, both of which are proposed to be dispreferred to a straightforward (…)VCV type structure. Just such a desirable structure could be obtained if *=nà′* and *=ná* followed vowel final words and *=à′* and *=á* followed consonant final words, the opposite of the observed pattern.

The attested system, however, can be understood if we assume that *=à′* and *=á* represent the underlying forms. Hiatus is not sufficient to motivate an epenthetic consonant, but preservation of syllable structure is. The *=nà′* and *=ná* forms are employed so the final consonant is uniformly syllabified as a coda consonant in all instances, whether followed by a deictic particle or not.

Finally, it should be noted that if the host word ends in [a], the final vowel is generally deleted before *=à′* and *=á*. I have generally tried to avoid such examples as it can be difficult to ascertain if in fact the deictic particles are present.

3.3.1.1 Semantics of the Demonstratives

MacZ demonstratives are absolute not relative. This is most easily seen with the proximate clitic *=ni*. It is possible to use English *this* to refer to objects that are closer to the speaker than some other reference point. In contrast, the MacZ proximate clitic

indicates that the referent is adjacent to the speaker at utterance time. This can be taken to be roughly within arm's length.

Another difference involves proper nouns. With certain classes of exceptions, the deictic clitics are obligatory with all non-pronominal definite NPs. This includes proper names:

281. **Gwa'aya' gwenee Cristiá ttu saa mierculi nna**
gwa'a =ya' gwennee Cristi =á ttu saa mierculi =nna
C/go =1SN I/talk Cristina =INVIS a day Wednesday =and
I went to call Cristina one Wednesday and

282. **belanya' nna attianna rpaaya' Taa Laani...**[60]
bellani =ya' =nna attia =nna rpaa =ya' Taa Laa =ni
C/go.back =1SN =and then =and C/tell =1SN Sr. Braulio =PROX
I returned and then I told Sr. Braulio,

For comparison, in Spanish and English not only are the demonstrative determiners not obligatory with proper names, their inclusion leads to presuppositions not present in the Zapotec. Compare 282 to the equivalent Spanish (283-284) and English (285-286) translated with and without a demonstrative with the proper name (underlined):

283. …y cuando regresé, le dije al Sr. Braulio, "Vamos a tomar un poco de café, porque el tiempo se va rápido."

284. …y cuando regresé, le dije a este Sr. Braulio, "Vamos a tomar un poco de café, porque el tiempo se va rápido."

285. …and when I came back, I told Sr. Braulio, "Let's drink a little coffee, because it's already getting late."

286. …and when I came back, I told this Sr. Braulio, "Let's drink a little coffee, because it's already getting late."

[60] In 282, *=ni* could only be used here because the referent was with the speaker at the time of utterance.

In the Spanish and English cases, if *este* and *this* are interpreted deictically then *Sr. Braulio* is interpreted as a common noun and the implication is that the referent is being distinguished from others named *Sr. Braulio*. That is, they imply the existence of other *Sr. Braulio*s in the relevant discourse context.

However, the MacZ use of =*ni* does not have such implications. It merely locates the referent in space with respect to the speaker. There are no implications that other individuals of the name *Sr. Braulio* are present in the relevant discourse context or that others so named even exist. Even if *Sr. Braulio* is a uniquely named entity, the MacZ version is still felicitous while the Spanish and English ones are not. The MacZ demonstrative does not pick out subsets of objects with the property of being named *Sr. Braulio*.

3.3.1.2 Syntactic Distribution

As noted, the deictic clitics occur as the last element in a DP. In MacZ, the demonstrative do not just cliticize to the noun, but can attach to post-nominal adjectives, possessors and even entire relative clauses providing a clear indication of DP constituency. In 287, we see examples of the demonstrative clitics following adjectives. Example 288 shows instances of the clitic after possessors and 289 provides instances of the demonstrative clitics with relative clauses:

Following adjectives:

287. a. **lííbrú gwéndi xeen<u>ini</u>**
lííbrú gwéndi xeeni <u>=ni</u>
book very big <u>=PROX</u>
this very big book

b. **bestíídú yhínaa yaayh<u>ià'</u>**
bestíídú yhínaa yaayhi <u>=à'</u>
dress red expensive <u>=DIST</u>
that expensive red dress

Following possessors:

288. a. **bettsí'yà'ni**
bettsí =ya' =ni
brother(of a man) =1SG =PROX
my brother here

b **carru què'nìá**
carru que' =nì =á
car of =3G =INVIS
that car of his, his car

Following relative clauses:

289. a. **yú'ù nu' laata sè'éríu'ni**
yú'ù nu' laata sè'é ríu' =ni
house rel where S/be.in 1INCLN =PROX
this house we're in

b. **béccú' què' Felíípéà' nu' guttíá**
béccú' què' Felíípé =à' nu' guttí =á
dog of Felipe =DIST rel C/die =INVIS
that dog of Felipe's that died

c. **nu' Áán Pánfilani raayéá**
nu' Áán Pánfila =ni raa =yé =á
rel Sra. Pánfila =PROX C/say =3FN =INVIS
what Sra. Pánfila said or *that which Sra. Pánfila said*

d. **Bènnè' nu' Taa bexuudià' begwia'yéá naanà bettsí'yà'.** {iv40}
bènnè' nu' Taa bexuudi =à' be- gwia' =yé =á
person REL Mr. priest =DIST C- see =3FN =INVIS
naa =nà bèttsì' =ya'
S/be =3N brother =1G
The person who the priest saw is my brother.

In the case of non-restrictive relative clauses, the demonstrative clitic precedes the non-restrictive relative as shown below:

290. **Felíípéà', nu' bembia'yà' nàáyá', naanà nu' Lóóla'á**
Felíípé =à' nu' bembia' =ya' nàáyá' naa =nà nu' Lóóla'á
Felipe =DIST REL C/meet =1SN yesterday S/be =3N REL Oaxaca
Felipe (there), who I met yesterday, is from Oaxaca.

The demonstrative clitics of the modified DP cannot follow possessors and relative clauses if those subconstituents end in full DPs. It can only follow them if they

end in clitic pronouns or non-nominal constituents. This is due in part to the fact that it is not possible to have two (or more) demonstrative clitics in a row, even if the semantics should allow it. Thus, a phrase like 291 is blocked:

291. ***carru què' Feliipeà'ni**
carru què' Feliipe =à' =ni
car of Felipe =DIST =PROX
**this car of Felipe (there)*

Although *Felipe* and *carru* should both license a clitic demonstrative, they cannot occur in sequence. In this case, the outermost demonstrative is blocked/deleted. Only the innermost (linearly first) demonstrative can be overtly realized:

292. **carru què' Feliipeà'**
carru què' Feliipe =à'
car of Felipe =DIST
(the) car of Felipe (there) **that car of Felipe*

Similarly, demonstrative clitics cannot follow indefinite DPs even when the demonstratives are licensed by some higher, containing DP:

293. **beyùú' nu' guyo'o ttu carru(*ni)**
beyùú' nu' guyo'o ttu carru (*=ni)
man REL C/buy a car (*=PROX)
*(*this) man who bought a car*

Speakers judge such constructions as 293 ungrammatical with an overt demonstrative clitic. This is because the preference is to interpret the demonstrative with the smallest DP possible. *Carru* provides the first available nominal, but it is part of an indefinite DP, *ttu carru* 'a car'. Since the demonstratives are inherently definite, they are incompatible with such DPs and the sentences are judged ungrammatical.

The demonstrative clitics can follow clitic pronouns, however, because they can never be interpreted as indicating the position of the pronominal referent. Clitic pronouns

never license the demonstrative clitics. Attempts to use a demonstrative clitic to modify a clitic pronoun result in ungrammaticality. Compare the sentences in 294, for example.

294. a. **Naabianlù' bènnè'ni?** {iv56}
naabia'ni =lù' bènnè' =ni
S/know =2A person =PROX
Do you know this person?

b. **Naabianlù'nà(*nì)?** {iv56}
naabia'ni =lù' =nà (*=ni)
S/know =2A =3A (=PROX)
*Do you know him (*here)?*

In 294a, the proximate demonstrative clitic, *=ni*, can be used to modify the object noun *bènnè'* 'person'. However, as shown in 294b, if we attempt to replace the full object NP in 294a with a clitic pronoun, the demonstrative clitic cannot modify the pronoun. The result is ungrammatical. Presumably this is because the pronoun does not substitute for just the smaller NP inside the DP but for the full DP including the deictic enclitic.

Since demonstrative clitics appear at the right-edge of a DP, they provide a wonderful constituency test for DPs.

3.3.2 Possession

In MacZ, possessors follow the nouns they modify. MacZ distinguishes between inalienable and alienable possession. With inalienable possessees, the possessive relationship is indicated by simple juxtaposition with the possessor immediately following the possessed noun phrase.

295. ìcchá béccú' =ni
head dog =PROX
this dog's head

296. ca xiila Margarita =ni
PL woman's.sister Margarita =PROX
Margarita's sisters

297. yhoo etthia bexuudi =à'
clothes black priest =DIST
the priest's black clothes

In cases of alienable possession, the possessor is preceded by the preposition *què'*, 'of'.[61]

298. yú'ù què' benné' =ni
house of person =PROX
this person's house

299. bèyùú' què' Pánfila =ni
man of Pánfila =PROX
Pánfila's husband

300. ca béccú' síttsì' què' Felipe =à'
PL dog white of Felipe =DIST
Felipe's white dogs

In the case of pronominal possessors, clitic pronouns are used in place of the full nominals.

301. ca xiila =ya'
PL woman's .sister =1SG
my sisters

302. yhoo etthia =lù' =ni
clothes black =2SG =PROX
these black clothes of yours / your black clothes

303. béccú' què' =ccwà' =ni
dog of =2FG =PROX
this dog of yours / your dog

[61] *Què'* is the most common form of this word, though in certain instances the variant *qui'* is used.

304. ca bèyùú'què' =ca =yé =á
PL man of =PL =3FG =INV
their husbands

As discussed above in 3.2.1, the pronominal possessors are identical to the nominative subject clitics, with one exception. The third person nonformal possessive clitic is *=nì* instead of the expected *=nà*. Similarly, the corresponding plural form is *=canì* instead of *=canà*.

305. bèttsì' =nì
man's.brother =3G
his brother

306. yú'ù què' =ca =nì =á
house of =PL =3G =INV
their house

With first person alienable possession, the preposition *què'* and the first person pronoun *=ya'* have coalesced into the fused word *chà'*. This is the result of a regular sound change whereby a [kiV] sequence undergoes palatalization of the consonant, becoming [tʃV] (cf. AZ *ìqquíá*, 'head' with MacZ *ìcchá*).[62] On analogy with the first person possessor *chà'*, the expected second person form **què'lù'* has been replaced with *cho'*.

307. ca miiyhi chà' =ni
PL cat of/1SG =PROX
these cats of mine

[62] Note that the AZ cognate of *què'* is *quì'*. This form of the preposition is also found in MacZ with certain lexical items. This suggests that *quì'* may well have been the original form of the preposition and thus fits with the established sound change (though it is possible that the sound change involved all front vowels, not just *i*, but *ea* sequences are rare, making it difficult to determine if the broader characterization is correct.

308. bia cho' =á
horse of/2SG =INV
your horse

The forms of the pronominal possessors are summarized below in 309.

309.	Genitive (Inalienable)		Genitive (Alienable)	
	singular	plural	singular	plural
1st inclusive		=riu'		què'riu'
exclusive	=ya'	=tu'	chà'	què'tu'
2nd informal	=lù'	=li	cho'	què'li
formal	=ccwa'	=ccwa'li	què'ccwa'	què'ccwa'li
3rd informal	=nì	=canì	què'nì	què'canì
formal	=yé	=cayé	què'yé	què'cayé
child	=bi	=cabi	què'bi	què'cabi
animal	=ba	=caba	què'ba	què'caba

The inalienable possessees belong primarily to two main semantic classes. Most either refer to body parts or to familial relations:

310. lasto' =ya'
heart =1SG
my heart

311. ca nàá' =ca =nì
PL hand =PL =3G
their hands

312. dàànà =nì
sibling.of.opposite.sex =3G
his sister/her brother

313. ca yhìthúúá =ca =yé
PL grandchild =PL =3FG
their grandchildren

In addition, a few other words closely associated with a possessor are treated as inalienables, including *yhóó* 'clothes' *liisi'* 'home' and *láàsi* 'hometown'. The latter two contrast with *yú'ù* 'house' and *yéèsi* 'town', which are treated as alienables:

314. liisi' =ya'
home =1SG
my home

315. yú'ù chà'
house of/1SG
my house

316. láàsi =ca =nì
hometown =PL =3G
their hometown

317. yéèsi què' =ca =nì
town of =PL =3G
their town

Pragmatically, the difference in these pairs is not always clear, especially in the latter two.

MacZ also has a small set of words which show an *x-* possessed prefix. This prefix indicates that the word to which it is attached is possessed by an immediately following noun phrase. There is no intervening preposition between possessor and possessee. The possessors have the same form as in the inalienable construction.

While this prefix is used productively in other Zapotec languages, SLQZ for example, in MacZ it is restricted to a small set of lexical items, most of which denote inalienable concepts.[63]

318. *xcwaan =lù'*
uncle =2SG
your uncle[64]

[63] Indeed, *yhóó* 'clothes' and *yhìthúúá* 'grandchild' may contain this prefix, though in somewhat modified form.

[64]That the *x* in *xcwaan* represents the *x-* prefix is supported by comparison with Atepec Zapotec. In AZ, the word for 'uncle' is *tácuaná*, where the *tá* portion of the word is related to *táá* 'father'. This indicates a morpheme boundary in the word *tá-cuaná*. Furthermore, in AZ the possessor must be preceded by a preposition, whence *tácuaná quì' bi* 'his uncle'. In MacZ, however, the *x-* prefix has been attached to the

319. *xcwáádi =nì*
nest =3G
its nest[65]

320. xtiisà' =riu'
language =1EXCLG
our language

321. xtìttsí' =ya'
butt =1sG
my butt[66]

Many of the words, such as *xcwáádi, xcwaan(á), xtìttsí'* and *xchuulá* 'pit, seed', represent frozen forms, showing no alternation between prefixed and unprefixed forms. Some words, however, do have alternate unprefixed forms (or at least historically related words that lack the prefix). Such pairs are given in 322-323:

322.	tiisà'	yè'è	naan	néèda
	word	*excrement*	*mother*	*road*
323.	xtiisà'	xquè'è	xnáá	xnèèda
	word	*excrement*	*mother*	*trail, tracks*

Not only do *x-* prefixed words represent a closed class in MacZ, but inalienable nouns in general appear to be part of a closed set. Borrowed words, as in 324-327,

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cuaná morpheme(s) and the resulting noun may be directly followed by a possessor, as in the example above. Interestingly, the recognition of the *x-* as a separate morpheme in this word has been lost. When used as a vocative or as a title, the *x-* is still retained, indicating that it has been bleached of its possessed meaning. Indeed, a different modification of the stem seems to have developed to distinguish between the relational sense and the title. When used to denote a relation, the form *xcwaan* is used, as in *xcwaan Felíipéá* 'Felipe's uncle.' As a title, the original final *á* vowel, still present in the AZ forms, is retained, *xcwaaná Felíipéá* 'Uncle Felipe.'

[65]Although this word can metaphorically be extended to refer to the place where a person sleeps, inalienable possessive marking is disprefered (and perhaps impossible) with first and second person. Instead, the *què'* possessive forms must be used, as in *xcwaadi cho'nà'* 'that nest of yours.' Note that the *x* is retained, even with *què'*. Again, this indicates that the *x-* is not sufficient to mark the word as possessed and that recognition of *x-* as a separate morpheme is being lost.

[66] For some speakers, this means 'my anus'.

derived words, as in 328, and metaphorical and figurative extensions, as in 329-330, although denoting objects of the correct semantic types, do not receive inalienable possession. Rather, they exhibit alienable possession with the characteristic *què'* preposition.

324. ca príímú què' =nì
PL cousin of =3G
his/her cousins < Sp. *primo*

325. sobrina què' =yé
niece of =3FG
his/her niece < Sp. *sobrina*

326. pulmón chà' =ni
lung of/1SG =PROX
my lung

327. ca musculo chà' =ni
PL muscle o/1SG =PROX
my muscles

328. yeeru -yè'è chà'
hole -excrement of/1SG
my anus

329. ca íyyá chà'
PL rock of/1SG
my testicles (lit. *my rocks*)

330. xtoo' =tó' què' =nì
old.man =DIM of =3G
his penis (lit. *his little old man*)

In other words, meaning alone is not a sufficient condition for including a word in the class of inalienably possessed nouns. Although the words in 324-330 refer to familial relations and body parts, metaphorically in some cases, they are treated as alienable

nouns with respect to possession. In general, inalienables represent a restricted class with all borrowed words and newly coined words being added to the alienable class.[67]

Two notable exceptions to the semantic generalizations involving inalienable possession are the nouns *táá* 'father' and *naan* 'mother'. Although denoting basic family relationships, these words, and those derived from them, surprisingly receive alienable possessive marking:

331. naan cho' =á
mother of/1SG =INV
your mother

332. antííá què' =ca =nì
aunt of =PL =3G
their aunt[68]

333. táá què' =tù' =á
father of =1EXCLG =INV
our father

334. *tá-guula* chà' =á
father-old of/1SG =INV
my grandfather

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[67] One exception is derived words which are composed of one or more inalienable nouns. Such words inherit the inalienable possessive marking of their component part(s). For example, the word for 'eye' *íyyáló* is composed of *íyyá* 'rock' and *lóó* 'face'. The resulting compound word takes inalienable possession, *íyyálóyà'* 'my eye' as *lóó* does (*lóóyà'* 'my face') but unlike *íyyá* (*íyyá chà'* 'my rock'). This is presumably a very old coinage, so it is not completely certain if a more recently derived word would be similarly treated. In addition, one might wonder if the order of inalienable and alienable component words within the compound might influence possessive marking. Thus, the inalienable root comes last and would generally be contiguous with the possssor (unless there is an intervening adjective). Interestingly, though *íyyá* is the head of the compound, it does not decide possessive marking. Thus far, however, I have not encountered compounds of the opposite order which might test the influence of ordering. (Nellis and Nellis (1983) do list an excellent candidate in the AZ word for 'anus' *ru'aye'e* from *rú'a* 'mouth' plus *yè'è* 'excrement', but they do not indicate what kind of possession the word takes.)

[68] The word for 'aunt' is derived from *Aan*, a title akin to *Señora, Ms., Mrs.*, plus the Spanish loan word, *tía* 'aunt'. *Aan* itself appears to be a metathesis of *Ná* (Atepec for 'Señora') which in turn is the unreduplicated form of *naan*(*á*) 'mother'. This latter word is still the form used for 'mother' in AZ while the final vowel has been dropped in MacZ.

In addition, with the first person singular possession of *táá* and *naan* (but not related words), the linking preposition usually takes on the special form *quí* before the first person pronoun *=ya'*. In other persons and numbers, the regular alienable possessive forms appear.

335. táá-quí =ya'
father-of =1SG
my father

336. táá cho' =á
father of/2SG =INV
your father

337. naan-quí =ya'
mother-of =1SG
my mother

338. ca naan què' =riu' =á
PL mother of 1INCLG =INV
our mothers

Note that words derived from *táá* and *naan*, such as *táguula* in 334 and the words below in 339-340 do not show a special form of the first person singular possessor:

339. anguula chà' =ni
grandmother of/1SG =PROX
my grandmother

340. ca antíiá chà' =á
PL aunt of/1SG =INV
my aunts

The *chà'* form of the first person possessor can be used with *táá* and *naan*, but those forms are not very common.

That these words exhibit the unexpected alienable form of possession is probably due in part to the fact that they are not overtly marked as taking inalienable possession. In other words, they do not contain the *x-* possessed prefix.

The majority of familial terms that exhibit inalienable possession could be argued to contain the possessed prefix. Most of these words start with either *x* or *yh*, a plausible reflex of the *x-* prefix. For example, in addition to the clear possessed *x-* case in *xcwaan*(*á*) 'uncle', MacZ also has the following terms: *yhi'ni* 'son, daughter,' *yhiilá* 'woman's sister,' *yhithúúá* 'grandchild,' *yhiuusi* 'son-in-law,' and *yhualiisi'* 'daughter-in-law.'[69] The only exceptions are *bettsi'* 'man's brother', *dàànà* 'sibling of the opposite sex', and *lattseela* 'spouse'.[70] In general, then, kinship terms do not inherently take direct possession but it must be licensed through *x-* prefixation. (This is apparently true for a large subset of body part nouns as well, many of which begin with *x* or *yh*, though the majority are not overtly marked.) In fact, MacZ has two additional words for 'mother'

[69] Some of these words are very old, appearing in essentially all varieties of Zapotec. As a result, for certain words, such as *yhi'ni*, the initial sibilant fricative can be reconstructed as part of the Proto-Zapotec word. This makes it difficult to determine if the *yh* historically did represent the possessed prefix or was just part of the original root. In either case, the modern form looks overtly marked for inalienable possession. For other words, we can more clearly see the spread of the *x-* prefix. In addition to the clear case of *xcwaan*(*á*) 'uncle', there is the word *yhiilá* 'woman's sister'. Fernández de Miranda (1995) reconstructs the Proto-Zapotec word as *[beLa]. As no regular *[b] to *yh* sound change between PZ and MacZ is posited, then *yhiilá* most likely either acquired the initial *yh* through analogy with other inalienably possessed nouns or via direct prefixation of *x-* and subsequent cluster simplification. This latter change is attested, though not as a regular sound change, in Sierra Juárez Zapotec (cf. AZ *xpírú'* and MacZ *yhíirú'* 'navel').

[70] Instead of MacZ *lattseela*, Nellis and Nellis (1983) give the Atepec word for 'spouse' as *tsèlà* and Merrifield (1981:116) gives *[ča?la] as its Proto-Zapotec reconstruction. As this this word is not currently widely-known in MacZ, it is presently unclear if the initial [la] is a misremembrance or represents a genuine innovation.

and 'father', *xnáá* and *xúúdi* respectively, which are *x*- prefixed and do take inalienable possession.[71]

341. ca xnáá =riu'
PL mother =1INCLG
our mothers

342. xúúdi =ya'
father =1SG
my father

Perhaps another reason that these words do not show the inalienable possessive pattern is that these words have derived from titles (or come to be used as titles) with *táá* meaning 'mister, señor' and *aan* (a metathesized from of *naa*) meaning 'Ms./Mrs., Señora'. Thus, when followed immediately by a name, they represent titles, not familial terms.

3.4 Conclusion

In this chapter, I have presented a descriptive overview of various aspects of MacZ grammar that will be relevant for the syntactic discussion in the remaining chapters of the dissertation. Now, we can turn to the main focus of the dissertation: the realization of grammatical subjects in MacZ. In Chapter **4**, we will look at the basic properties of

[71] The origin of *xnáá* 'mother' and the fact that the *x* represents the possessed prefix is readily seen (cf. *naan*(*á*)). In the case of *xúúdi* 'father', it is not immediately obvious that the *x* is not just part of the stem. Merrifield (1981:106-7) does give the Proto-Zapotecan word as *[š-yu-zi] stating that the *[š-] represents the possessed prefix. This conclusion is supported by internal evidence from MacZ that indicates that the *x* in *xúúdi* represents a separate morpheme. The stem appears unaffixed in certain compound words such as *xcurúúdi* 'rooster' and *berúúdi* 'male turkey.' The latter word provides particularly clear evidence. It derives from *béèra* 'chicken, domestic bird' plus *-úúdi*. Deletion of the unstressed final vowel, in this case *a*, is a regular process in compounding. If the *x* were part of the stem, then neither deletion of the *a* nor of *x* would be expected. The simplest conclusion, then, is that *x* is not part of the stem, but represents a distinct morpheme, the possessed prefix.

prototypical, nominative subjects. In Chapter **5**, dative subjects are considered. Finally in Chapter 6, genitive subjects and the Covert Subject Binding construction are analyzed.

4 Nominative Subjects

Now that we have developed a grammatical foundation of MacZ, we can turn our attention to the second focus of this dissertation: investigating the common properties and structure of different subject types. Subject DPs (of finite clauses) in MacZ do not have a uniform surface realization. They can appear in nominative, dative or genitive case, and the subject argument may be licensed directly by the verb stem or through some intermediary: an incorporated preposition or an incorporated noun. As the morphological realizations and licensing conditions of potential subjects do not form a cohesive picture of subjects, it is important to determine what, if any, grammatical properties subjects have in common and how they can be distinguished from non-subjects.

This chapter focuses on canonical nominative subjects to discover the range of properties that are associated with indisputable subjects. This will provide a basis of comparison for identifying other types of subjects.

The first fact to be established is the surface syntactic position that nominative subjects occupy. Subjects can occur both preverbally and postverbally. In this chapter, I establish that it is the postverbal position that represents the canonical subject position; DPs exhibiting subject properties must either overtly appear in the position immediately following the verb or must be coindexed with a movement trace occupying this position. Preverbal subjects are derived in two ways: either via movement from the postverbal position or via base generation as topics within the (expanded) CP and obligatory coindexation with a pronoun occupying the postverbal subject position.

After establishing the ordering facts, I then provide a survey of other nominative subject syntactic properties that can be used as diagnostics to test potential non-nominative subjects. These properties include case facts, word order restrictions, movement restrictions, behavior in imperatives and with non-finite forms, and omission in the Covert Subject Binding construction. Ultimately in later chapters, we will see that these diagnostics do confirm that there are three different subject types (nominative, dative and genitive). In addition, these diagnostics provide important evidence supporting the existence of null subjects in Covert Subject Binding.

4.1 Syntactic Position of Subjects and Topics[1]

Most Zapotec languages are classified as VSO languages as evidenced for example by the data available in the Ethnologue (Gordon 2005). These languages generally also have several different mechanisms which can place various arguments of the verb in a preverbal position. For example, both Quiegolani Zapotec and San Lucas Quiaviní Zapotec have preverbal topic and focus structures as well as negative indefinite fronting and *wh*-fronting (see Black 2000 and Lee 1999 respectively).

In this regard, MacZ is a typical Zapotec language, exhibiting VSO word order, along with various permutations derived via topicalization/dislocation and movement (including *wh*-movement, focus movement, and overt quantifier raising). In this section, I investigate these various word orders to determine which ones are uniquely associated with subjects and can be used as a diagnostic for subject.

[1] The material in this section is an update of Foreman 1999.

Of particular interest is the most common alternative order, SV=s(O) (where =s represents a subject clitic). The VSO/SV=sO alternation has two likely sources which will be considered below. One possibility is that the VSO order has the subject in VP-internal position while the SV=sO is derived by moving the subject overtly to [Spec,TP]), triggering agreement on the verb, represented here as =s. If this account is correct, then in MacZ there are two overt positions uniquely associated with subject which might be used as subject diagnostics and which might exhibit different subject properties. Another possible mechanism for deriving these word order variations is that the VSO order alone has the subject in the canonical subject position and that the alternative order is actually a topicalization/dislocation structure in which the preverbal DP is base-generated in the left-periphery and requires a coindexed clitic pronoun (=s) to occur in a postverbal argument position in order to be licensed in the structure. As argued below, we will ultimately conclude that this latter account is the correct one. The SV=sO order should be more aptly rendered as TopV=sO (where Top=Topic). As such, the sole syntactic position uniquely associated with subjects is the position immediately following the verb; DP subjects in MacZ must either overtly appear in this position or must have moved from (or through) this position.

4.1.1 VSO and SVO Ordering

VSO order in MacZ is illustrated below in examples 1-3 (sentences 2-3 are natural language examples, produced in conversation):

1. **Bellia bia'nà'ntè'.** {vi4j}
bellia bia' =nà' =ntè'
C/kick horse =DIST =1SA
That horse kicked me.

2. **Ruuni naanquí'yà' yíínató'.**
ruuni naan quí' =ya' yíína =tó'
H/do mother of =1G chili =DIM
yellow mole
My mother is making yellow mole.

3. **Raa beyuu' chà'nintè' què' dùálù' taarí'á.**
raa beyuu' chà' =ni =ntè' què' dùá =lù' taarí' =á
H/say man of/1G =PROX =1SA of H/live =2SNfar.away =INVIS
My husband tells me that you live far away (i.e. in the U.S.).

As noted, a common alternative order, particularly with definite subjects, is an SV=sO order (where =s represents a subject clitic). The SVO counterparts of the sentences of 1-3 are given below:

4. **Bia'nà' belliabá'ntè'.** {vi75b}
bia' =nà' bellia =bá' =ntè'
horse =DIST C/kick =3ANIM =1SA
That horse kicked me.

5. **Naanquí'yà' ruunyé yíínató'.**
naan quí' =ya' ruuni =yé yíína -tó'
mother of =1G H/do =3FN chili =DIM
My mother is making yellow mole.

6. **Beyuu' chà'ni raanàntè' què' dùálù' taarí'á.**
beyuu' chà' =ni raa =nà =ntè' què' dùá =lù' taarí' =á
man of/1G =PROX H/say =3N =1SA COMP H/live =2SN far.away =INVIS
My husband tells me that you live far away.

In such sentences, a morpheme agreeing with the subject must appear on the verb. These morphemes agree with the preverbal DP in person, number and respect. They are listed below for the sentences in 4-6:

7.

Preverbal DP	**Subject Morpheme on Verb**
bia'nà' 'that horse'	=bá' =3 Animal
naanquí'yà' 'my mother'	=yé =3 Formal
beyuu' chà'ni 'my husband'	=nà =3 Non-Formal

Note too that *=lù'* =2SN also appears in 6 in the embedded clause on the verb *dùá* 'live' though without a corresponding preverbal DP. Independent, preverbal pronouns can appear in the SV=sO structure, but they are not required.

With the SVO order in 4-6, the subject clitics are required. Omitting them from the verb results in ungrammaticality, as shown below:

8. **Bia'nà' bellia*(bá')ntè'.**

9. **Naanquí'yà' ruun*(yé) yíínató'.**

10. **Beyuu' chà'ni raa*(nà)ntè' què' dùálù' taarí'á.**

With the postverbal subject sentences in 1-3, no additional subject morphemes appear on the verbs. The verbs *bellia* 'kicked,' *ruuni* 'make,' and *raa* 'say,' all are inflected for tense/aspect but carry no information about the identity of the subject, nor can they. Inserting the subject clitics into the VSO word order produces an ungrammatical result as shown below:

11. **Bellia(*bá') bia'nà'ntè'.**

12. **Ruuni(*yé) naanquí'yà' yíínató'.**

13. **Raa(*nà) beyuu' chà'nintè' què' dùálù' taarí'á.**

There are at least two plausible analyses for the observed variation in word order. The first is that the VSO/SVO alternation stems from an overt VP-internal subject (VSO) alternating with the subject overtly moving to [Spec, TP] producing the SVO order. In this scenario, not only does this result in a word order difference, but it also triggers

agreement. The subject clitics then should be regarded as agreement morphemes, and as can be seen in the embedded clause in 6, pro-drop would also occur.

The second analysis is that the postverbal DP occupies the canonical subject position, whether a VP-internal position or the specifier of some inflectional position ([Spec, TP], [Spec, AgrSP], etc.). In this analysis, the subject clitics are clitic pronouns presumably occupying the same position as the full DP postverbal subjects. The alternate word order represents a topicalization/dislocation structure in which the preverbal DP is base-generated within the (expanded) CP. In order to be licensed in the structure, the topicalized DP must be coindexed with a clitic pronoun occupying the normal postverbal argument position. These two alternatives are evaluated below.

4.1.2 A Possible SVO Structure

Under the first analysis, the [Spec, TP]-SVO analysis, the subject clitics represent agreement morphemes, and agreement is only triggered with the SVO order. This is reminiscent of well-known agreement asymmetries found in a variety of languages, such as Irish (McCloskey and Hale 1984), Welsh (Sadler 1988), Arabic (Mohammad 1989) and Romance languages (Kayne 1989).

For example, Standard Arabic has a VSO/SVO alternation with the differences in word order corresponding to differences in agreement. The SVO word order in Arabic results in complete agreement between the verb and subject with respect to person, number and gender. The VSO word order, however, lacks complete agreement between the subject and the verb: only person and gender agreement is preserved, but number

agreement is not. The verb shows default singular agreement. This is illustrated below (examples from van Gelderen (1996:756) citing Khalaily (1993)):[2]

14. a. Darab-at/*na l-banaat-u Zayd-an VSO
hit-PAST-3FS/*3FP the-girls-NOM Zayd-ACC

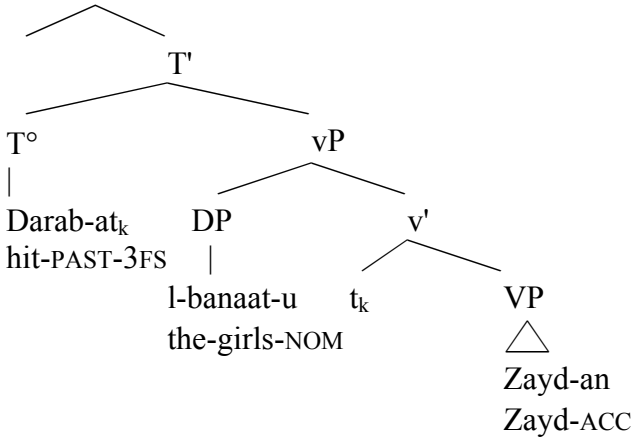
b. al-banaat-u Darab-na/*at Zayd-an SVO
the-girls-NOM hit-PAST-3FP/*3FS Zayd-ACC
The girls hit Zayd.

In Zapotec, if the subject clitics represent agreement morphemes, then the SVO/VSO alternation does not produce a system of complete and partial agreement, but one of complete agreement and zero agreement.

To account for the facts of Arabic, Mohammad (1989) proposes that the SVO word order derives from the subject raising into a functional projection such as [Spec,IP] ([Spec,TP]). Full agreement obtains there via Spec-Head agreement between the subject and verb. The VSO word order is obtained when the subject fails to raise to IP and default number agreement appears. In such clauses, case is assigned through government (Koopman and Sportiche 1991) or at LF (Chomsky 1992). This analysis produces a structure like that given below for the examples in 14 (I have adopted more recent terminology such as TP, DP and vP) :

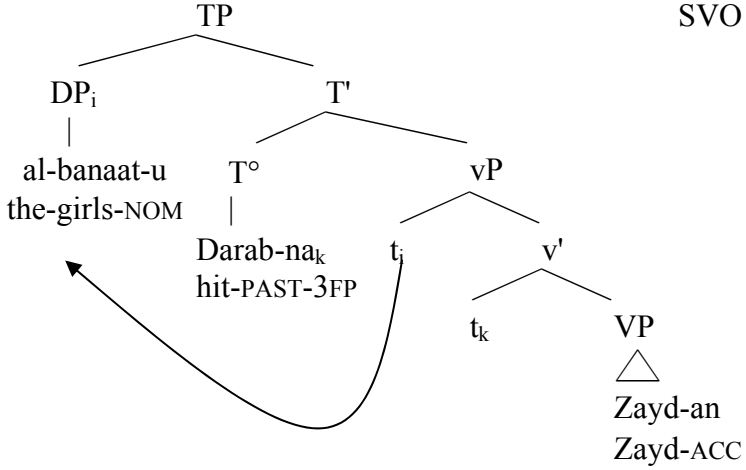
[2] In these examples, *D* stands for the letter *Daad*. The abbreviations F, S and P stand for feminine, singular, and plural, respectively.

15. a. VSO



The girls hit Zayd.

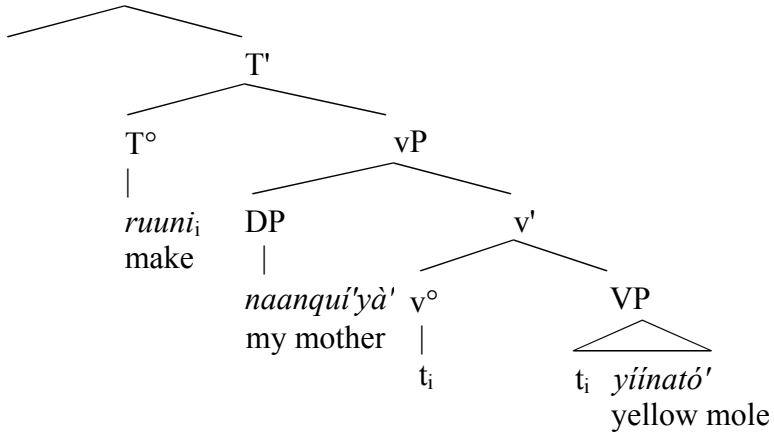
b. SVO



The girls hit Zayd.

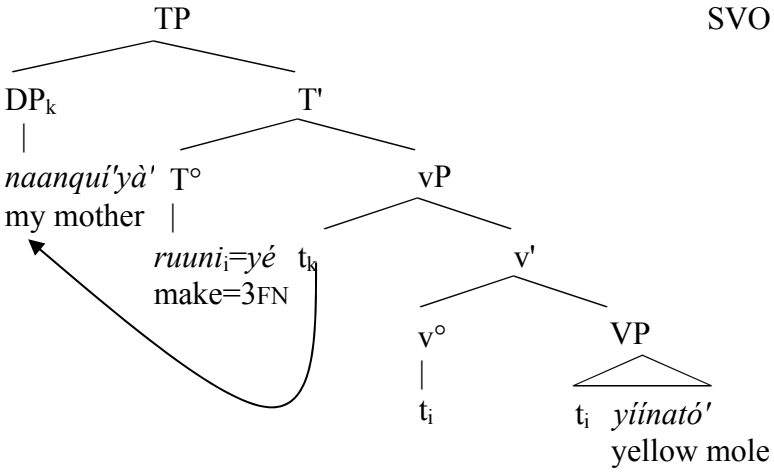
If the subject clitics in 4-6 of MacZ are taken as agreement suffixes then a similar analysis could be put forth for MacZ. In the SVO order, the subject is in [Spec,TP] and there is agreement in person, number and respect between the subject DP and verb. In the VSO order, the subject has not raised and in this case, the verb shows no agreement marking at all. A VSO sentence like 2 and its SVO counterpart as in 5 would have the following structures:

16. VSO



Ruuni naanquí'yà' yíínató'.
'My mother is making yellow mole.'

17. SVO



Naanquí'yà' ruunyé yíínató'.
'My mother is making yellow mole.'

Despite this plausible analysis, a more complete range of data suggests that this is not the correct structure as will be shown below. Instead, MacZ is like the vast majority of other Zapotec languages in which the postverbal subject occupies the canonical subject position. The subject clitics are in fact clitic pronouns occupying the same structural position as the full DP postverbal subjects. The preverbal DPs are topics that are co-

indexed with the bound pronouns. The frequent occurrence of the SV=sO order stems from the fact that subjects are frequently topics.

4.1.3 Against The [Spec,TP]-SVO Analysis

Below, I show that the analysis presented in Section 4.1.2 cannot be the correct structure for the MacZ word order alternations we have been considering. Instead, the preverbal DPs represent instances of left dislocation, while the subject clitics are not agreement morphemes but rather are clitic pronouns which must be co-indexed with the preverbal DP that is base generated within the (expanded) CP. This analysis is supported by existence of non-"agreeing" preverbal subjects, the parallel behavior of dislocated objects, and by evidence from the structure of the CP indicating that the dislocated DP occurs in the left-periphery, high above [Spec, TP].

4.1.3.1 Non-"Agreeing" Subjects

One problem for [Spec,TP]-SVO analysis is that certain types of subjects can appear preverbally without triggering "agreement". Only definite preverbal DPs like those in 4-6 require an agreeing subject clitic to appear after the verb. Many quantified, indefinite DPs can appear preverbally, however, without the subject clitics (an underline marks the position of the absent subject clitics):[3]

18. **Ànúúdi betti___ conééjúà'.**
    ànúúdi betti ___ conééjú=à'
    nobody C/kill ___ rabbit =DIST
    Nobody killed the rabbit.

[3] The subject clitics are not required in this case, though they still may occur. When they do occur they seem to be functioning as resumptive pronouns, an overt spell-out of a trace. See Section 4.2.7.

19. **Ttu yaa gubixxi___.**
ttu yaa gubixxi ___
a tree C/fall ___
A tree fell.

20. **Nààyá' ìyhéé bènnè' gutoo___ ca etta chà'á.**
nààyá' ìyhéé bènnè' gutoo ___ ca etta chà' =á
yesterday many people C/eat ___ PL tortilla of/1SG =INVIS
Yesterday, many people ate my tortillas.

Surprisingly for the [Spec,TP]-SVO analysis, "agreement" is also not required with *wh*-, relative pronoun, and focused subjects, even though all of these appear within the CP, above [Spec,TP]:

21. **¿Núúní guxxi___ libru chà'á?** ***wh*-subject**
núú =ní guxxi ___ libru chà' =á
who =COMP C/take ___ book of/1G =INVIS
Who took my book?

22. **Nabiia'tè' bènnè' nu' gucchu___ ittsicchálù'.** **relative pronoun**
nabiia'=ni =tè' bènnè' nu' gucchu ___ ittsa-icchá =lù'
S/know=PREP =1SD person REL C/cut ___ hair-head =2SG
I know the person who cut your hair.

23. **Àbíína, motocicleta chà'la taa' bitappa___ nààyá'.** **focused subject**
àbíína motocicleta cha' =la taa' bitappa ___ nààyá'.
no motorcycle of/1G =instead FOC C/break.down ___ yesterday
No, MY MOTORCYCLE broke down yesterday.

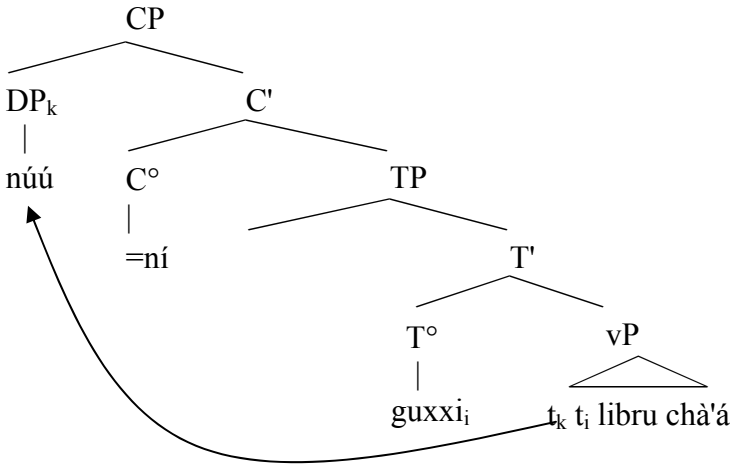
24. **¿Làà'unnà' taa' uccwa___ béccú' chò'?** **focused subject**
làà-'un=nà' taa' uccwa ___ beccu' cho'
BAS-INDEF.PRO=DIST FOC C/be ___ dog of/2SG
Was that your dog?

Each of these movement processes (*wh*-movement, relative pronoun movement, focus movement) targets [Spec,CP] (or some expanded CP projection) landing site for the moved subject. This is not merely a theoretically motivated conclusion, but there is evidence within the language that these phrases do overtly occupy some projection within

the expanded CP. For example, there is evidence that the *=ní* morpheme in 21 is a complementizer head while the *taa'* focus marker in 23-24 is the head of a Focus projection. For instance, *=ní* also combines with non-*wh*-words to form complementizers: *què'ní* 'that' < *què'* 'of' + *=ní* COMP and *porquè' ní* < *porque* 'because (<Spanish)' + *=ní* COMP. The focus marker *taa'* evidently occupies a position similar to *=ní* as it can be interchanged with *=ní* in *wh*-questions. Thus, *núúní* 'who' in 21 can also appear as *núú taa'*. This evidence then indicates that the *wh*-word and the focused constituents are indeed in some higher position within the (expanded) CP.

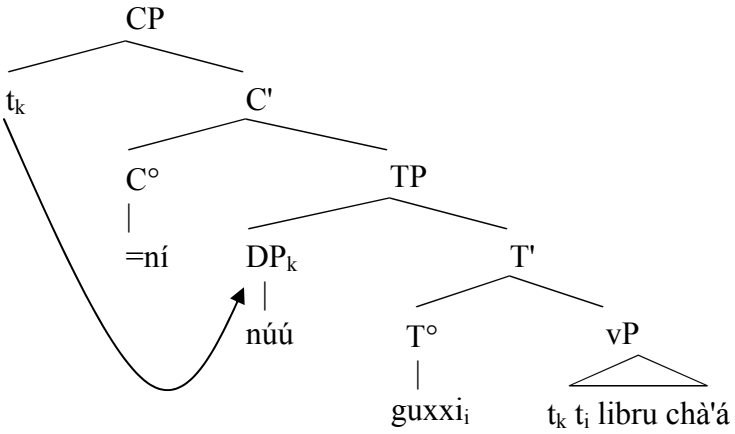
If this is the case, however, it poses a problem for the [Spec,TP]-SVO analysis. It seems that the preverbal DPs in 21-24 have arrived within the CP without going through [Spec,TP], since under that analysis, no "agreement" has been triggered. This leaves the problem of how the features usually associated with TP, such as agreement features, nominative case features, and EPP features, are to be satisfied. Unlike the postverbal subjects, these preverbal DPs are not in a position to raise at LF to [Spec,TP] to satisfy these features. Instead, they would need to undergo lowering, as shown below in 25-26 for sentence 21, where 25 represents the proposed spell-out structure under the [Spec,TP]-SVO analysis, and 26 the LF lowering that would be required to satisfy the features associated with TP:

25.



¿Núúní guxxi___ libru chà'á
'Who took my book?'

26.

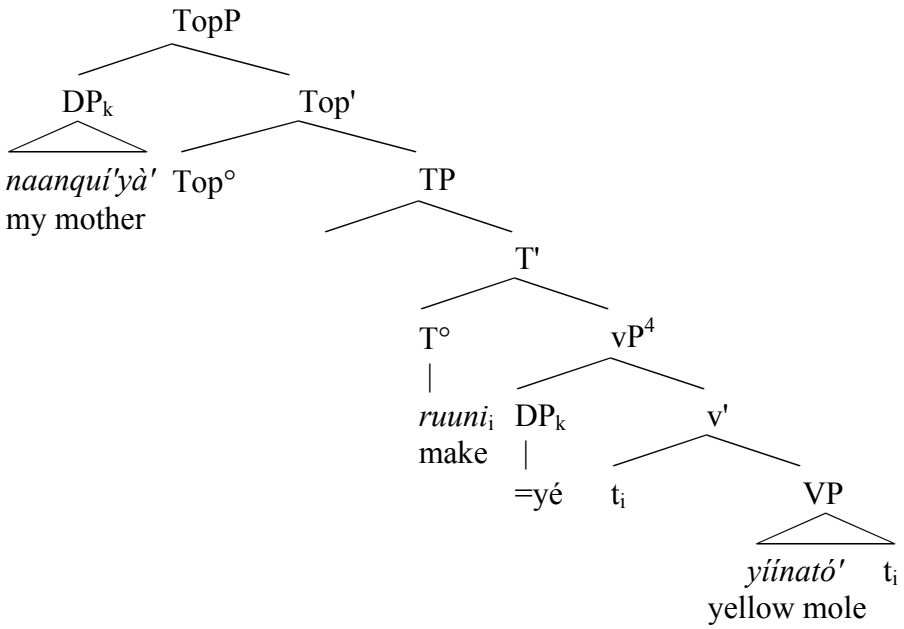


Note that this hypothesized LF-lowering is not due to reconstruction; the *wh*-phrase is lowering to a position, [Spec,TP], it did not previously pass through, as evidenced by the lack of agreement. This represents not only movement to a non-c-commanding position but to a position actually c-commanded by the trace. This presents a problem for this analysis since such movement is not compatible with most recent syntactic literature.

The movement facts represented in 18-24, however, are not a problem for the second analysis offered of a topicalization/dislocation structure. Under this analysis, the

subject clitics crucially represent pronouns, not agreement morphemes. The definite preverbal DPs are base-generated topics and must occur with the coindexed pronouns to be licensed, as shown below in 27 for sentence 5 above.

27.

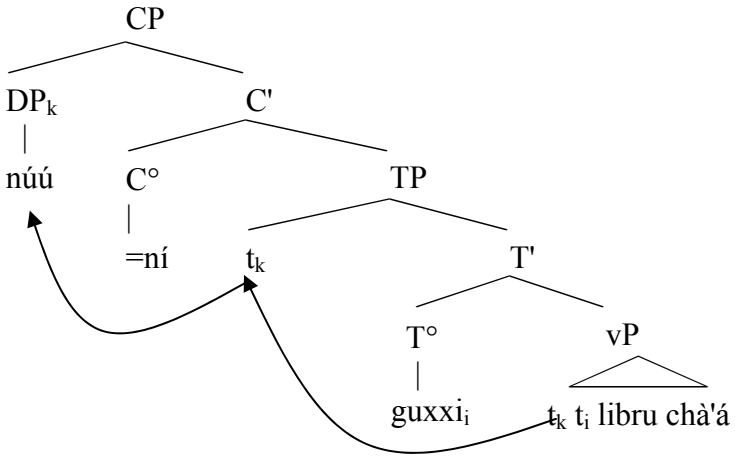


Naanquí'yà' ruunyé yíínató'.
'My mother is making yellow mole.'

The preverbal DPs in 18-24, however, have undergone movement from the postverbal subject position and thus do not require the coindexed pronouns. But they have presumably passed through [Spec,TP], checking the features associated with TP. The revised movement structure is presented below in 28. Of course, there is little to overtly mark the subject's passage through [Spec,TP] if the subject clitics represent pronouns and not agreement morphemes.

[4] For a discussion of the position of the postverbal subject, see Section 4.1.4

28.



¿Núúní guxxi___ libru chà'á
'Who took my book?'

Not only does this analysis account for the differences between definite preverbal DPs and preverbal DPs derived via movement, it is also supported by other independent evidence. The topicalization account proposed above in 27 is also supported by the parallel behavior of dislocated definite objects and by syntactic evidence indicating that such preverbal DPs are syntactically high up in the structure, within the CP and above [Spec,TP].

4.1.3.2 Fronting of Objects

The structure proposed above in 27 is further supported by the parallel behavior of objects. Definite objects can also appear preverbally and must be coindexed with a postverbal object clitic, just as the subject must be with a subject pronoun. This is shown below in 29 along with other permutations generated by dislocation: the object can front alone (29a) or with the subject (29b-c), or as we have already seen the subject may front alone (29d), or nothing may front and we can get the VSO order (29e).

29. a. [Etta chà' =á]$_i$ gutoo taa chà' =à' =nà$_i$ OVS=o
[tortilla of/1SG =INVIS] C/eat father of/1SG =DIST =3A

b. [Etta chà' =á]$_i$ [taa chà' =à']$_k$ gutoo =yé$_k$ =nà$_i$ OSV=S=o
[tortilla of/1SG =INVIS] [father of/1SG =DIST] C/eat =3FN=3A

c. [Taa chà' =à']$_k$ [etta chà' =á]$_i$ gutoo =yé$_k$ =nà$_i$ SOV=S=o
[father of/1SG =DIST] [tortilla of/1SG =INVIS] C/eat =3FN=3A

d. [Taa chà' =à']$_k$ gutoo =yé$_k$ etta chà' =á SV=SO
[father of/1SG =DIST] C/eat =3FN tortilla of/1SG =INVIS

e. Gutoo taa chà' =à' etta chà' =á VSO
C/eat father of/1SG =DIST tortilla of/1SG =INVIS

My father ate my tortilla

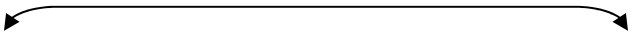
As 29b-c show, the preverbal definite subject and object can occur in either order, without changing the meaning. Crucially, it is the clitics which remain fixed. The order of the clitics cannot be changed without changing the meaning, as 30 below, demonstrates:

30. [Taa chà' =à']$_k$ [etta chà' =á]$_i$ gutoo =nà$_i$ =yé$_k$ *SOV=O=S
[father of/1SG =DIST] [tortilla of/1SG =INVIS] C/eat =3A =3FN
!*My tortilla ate my father.*
**My father ate my tortilla*

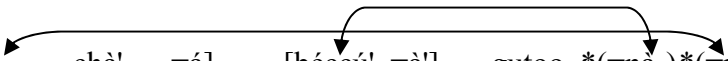
Even the oddity of the only available interpretation of 30 cannot force the intended meaning. Postverbal subjects, whether subject clitics or full DPs, must precede objects. The order of the clitics, and of postverbal DPs in general, is crucial.

Definite preverbal objects also show the same restrictions and distribution that we observed with the definite preverbal subjects in 4-6. For example, the definite fronted objects must be associated with a postverbal clitic. Failure to do so for the sentences in

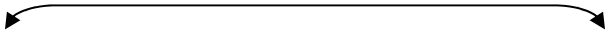
29 or the ones below in 31-32 results in ungrammaticality (note that 32 shows that preverbal definite indirect objects show the same pattern):



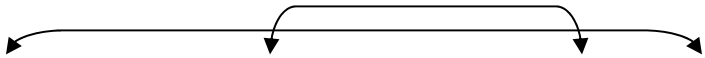
31. a. [Tarea chà' =á]$_i$ gutoo béccú' =à' *(=nà$_i$) OVS=*(o)
[homework of/1SG =INVIS] C/eat dog =DIST *(=3A)



b. [Tarea chà' =á]$_i$ [béccú' =à']$_k$ gutoo *(=nà$_k$) *(=nà$_i$)
[homework of/1SG =INVIS] [dog =DIST] C/eat *(=3N) *(=3A)
The dog ate my homework. OSV=*(s)=*(o)



32. a. [Felipe =à']$_i$ bee taa chà' =à' *(=nà$_i$) ttu libru IOVS=*(io)O
[Felipe =DIST] C/give father of/1SG =DIST *(=3A) a book



b. [Felipe =à']$_i$ [taa chà' =à']$_k$ bee *(=yé$_k$) *(=nà$_i$) ttu libru
[Felipe =DIST] [father of/1SG =DIST] C/give *(=3FN) *(=3A) a book
My father gave Felipe a book. IOSV=*(s)=*(io)O

It is impossible to extend the agreement analysis to definite, preverbal objects. Although they too must be coindexed with a postverbal clitic, the distribution of the clitics indicates that the object clitics are not agreement morphology but rather (phonologically weak) pronouns. Consider, for example, (29-32)a where the object pronouns do not attach to the verb, but instead cliticize to the subject. Agreement morphology would be expected to appear on some verbal element and not to attach to a postverbal subject. Since the object clitics do follow a postverbal subject and apparently occupy the same position as any DP object, we can conclude that they are in fact pronouns.

The pronominal nature of the subject clitics is a little more difficult to establish, since no phonologically independent morphemes can appear between the verb and a postverbal subject (whether full or pronominal). However, the parallel behavior of

definite preverbal objects and subjects suggests that the subject clitics are pronouns as well. This is further supported by the fact that except for the first person singular and first plural exclusive pronouns, the subject and object clitics have identical forms. For example, 31 above illustrates the subject and object use of *=nà*, the third person non-formal pronoun.

These subject and object pronouns are clitics in the phonological sense; that is, they are phonologically dependent elements like *'ll* and possessive *'s* in English that attach to a preceding word regardless of its lexical category. They do not appear to be syntactic clitics that occupy some syntactic position distinct from full DP arguments. There is no evidence that the two occupy distinct syntactic positions. Instead, full DPs and pronouns freely alternate in postverbal position, rigidly maintaining the VSO word order:[5]

33. a. **Ruuni naanquí'yà' yíínató'.**
ruuni naan quí' =ya' yíínató'
H/do mother of =1G yellow.mole
My mother is making yellow mole.

b. **Ruunyé yíínató'.**
ruuni =yé yíínató'
H/make =3FN yellow.mole
She is making yellow mole.

c. **Ruuni naanquí'yà'nà.**
ruuni naan quí' =ya' =nà
H/make mother of =1SG =3A
My mother is making it.

[5] The only observed word order differences between full DPs and pronouns involves direct and indirect object arguments. If both the DO and IO are pronominal they appear in a fixed =io=do order. If one or both are full DPs, they can freely appear in either order. It is not clear that this indicates that pronominal object pronouns occupy different positions than full DPs; it may just be that full DPs have positions open to them that are not available to pronouns.

d. **Ruunyénà.**
ruuni =yé =nà
H/make =3FN =3A
She is making it.

The subject clitics, then, are not agreement suffixes but rather clitic pronouns that obligatorily co-occur with definite preverbal subjects. Instead of moving to [Spec,TP] and triggering agreement, preverbal subjects like those in 4-6 and (31-32)b are base-generated in Top(ic)P. This structure is supported by various pieces of syntactic evidence showing that the preverbal definite DPs (both subject and object) occupy high structural positions within the CP.

4.1.3.3 The Left Periphery and Preverbal Subjects

Finally, the topic analysis is supported by independent structural evidence. The ordering of the definite preverbal DPs relative to other constituents indicates that they do not occupy [Spec,TP], but instead, some higher position within CP. For example, the definite preverbal DPs can precede temporal adverbs, which presumably adjoin to TP (or above it), and can even precede *wh*-words which appear in some specifier within CP.

The preverbal definite DPs can precede temporal adverbs, which are generally argued to occur quite high in the syntactic structure, above nominative case-licensing positions (Cinque 1999, Rizzi 2004). Furthermore, Aissen (1992) uses the ability of topicalized DPs to precede temporal adverbs to identify external topics in Mayan. If temporal adverbs do adjoin to TP or appear in some position above TP, then the possibility of the definite subject appearing before the temporal adverb, as in 34, indicates that subject must be in a position preceding [Spec,TP]:

34. a. **Taa chà'à' <u>nààyá'</u> begwiia'yé Felipeà'.** S nààyá' V=s O
taa chà' =à' <u>nààyá'</u> begwiia' =yé Felipe =à'
father of/1SG =DIST <u>yesterday</u> C/see =3FN Felipe =DIST
My father saw Felipe yesterday.

b. **Felipeà' <u>nààyá'</u> begwiia'nà ìntè'.** S nààyá' V=s O
Felipe =à' <u>nààyá'</u> begwiia' =nà ìntè'
Felipe =DIST <u>yesterday</u> C/see =3N 1SIND
Felipe saw me yesterday. (Felipe, yesterday he saw me).[6]

This ordering is predicted by the TopP analysis, which suggests that preverbal definite DPs are base-generated in TopP, above both [Spec,TP] and the position in which temporal adverbs are argued to appear.

As expected, preverbal definite objects which are also base-generated in [Spec,TopP] can also precede temporal adverbs as shown below in 35a. Indeed, both a topicalized subject and object may appear before the temporal adverb as in 35b:

35. a. **Etta chà'á <u>nààyá'</u> gutoo taa chà'à'nà.** O nààyá' V S=o
etta chà' =á <u>nààyá'</u> gutoo taa chà' =à' =nà
tortilla of/1SG =INVIS <u>yesterday</u> C/eat father of/1SG =DIST =3A
Yesterday, my father ate my tortilla. (My tortilla, yesterday my father ate it.)

b. **Etta chà'á taa chà'à' nààyá' gutooyénà.** O S nààyá' V=s=o
etta chà' =á taa chà' =à' nààyá' gutoo =yé =nà
tortilla of/1SG =INVIS father of/1SG =DIST yesterday C/eat =3FN =3A
Yesterday, my father ate my tortilla. (My tortilla, my father, yesterday he ate it.)

Not only can the preverbal definite subject precede temporal adverbs, but it can even precede *wh*-words in questions as seen in 36 below:[7]

[6] The alternative translation is given to more accurately reflect the word order found in MacZ and to reflect the topicalization/dislocation analysis. However, it is not necessarily the case that the English and MacZ structures are the same. Also intonationally, the two languages behave very differently; a heavy intonation break separates the English dislocated DP off from the rest of the sentence, but there is no such break in the Zapotec.

[7] Word orders like those in 36-37 are not very common. Usually the *wh*-element occurs at the beginning of the sentence and the other arguments remain postverbal.

36. **¿Felipeà' <u>núúní</u> begwiia'nà?** {mm}
Felipe =à' <u>núú</u> <u>=ní</u> begwiia' =nà
Felipe =DIST <u>who</u> <u>=COMP</u> C/see =3N
Who did Felipe see? (Felipe, who did he see?)

The preverbal definite object again shows parallel behavior. It, too, can precede *wh*-words:

37. **¿Ca ettaguu chà'á <u>núúní</u> gutoonàcayé?** {mm}
ca ettaguu chà' =á <u>núú</u> <u>=ní</u> gutoo =nà =ca =yé
PL tamale of/1SG =INVIS <u>who</u> <u>=COMP</u> C/eat =3N =PL =3FA
Who ate my tamales? (My tamales, who ate them?)

As discussed above in Section 4.1.3.1, *núúní* 'who?' in 36-37 consists of the indefinite pronoun *nuu* 'who' and a complementizer *=ní*. The presence of the overt complementizer *=ní* in theses sentences indicates then that the *wh*- word is within the CP and any constituents preceding the *wh*-word must also be within the left periphery. This is consistent with the idea that the preverbal definite DPs appear in [Spec,TopP], since this position is argued not only to be within the expanded CP, but high in the CP, above Foc(us)P, the likely landing site of the *wh*-pronoun (Rizzi 1997, 2001).

Interestingly, it is also possible for the *wh*-word to precede the preverbal definite DPs as shown below in 38-39:

38. **¿Núúní Felipeà' begwiia'nà?** {mm}
núú =ní Felipe =à' begwiia' =nà
who =COMP Felipe =DIST C/see =3N
Who did Felipe see?

39. **¿Núúní ca ettaguu chà'á gutoonàcayé?** {mm}
núú =ní ca ettaguu chà' =á gutoo =nà =ca =yé
who =COMP PL tamale of/1SG =INVIS C/eat =3N =PL =3FA
Who ate my tamales? (My tamales, who ate them?)

The availability of these alternative word orders suggests possibly *wh*-phrases can also be topicalized. This is a little surprising since topics both in MacZ and other languages are generally restricted to [+definite] or at least [+specific] phrases. Possibly, the *wh*-phrases in this position receive a specific interpretation. Another possibility is that these sentences indicate the existence of multiple Topic Phrases, both above and below the FocP landing site of the *wh*-expressions. Further work is needed to decide between these two possibilities.

In light of the existence of non-"agreeing" subjects, the parallel behavior of definite objects, and the ordering of preverbal definite subjects before temporal adverbs and *wh*-words, we are justified in rejecting the idea that the preverbal definite subjects occupy [Spec,TP] and that the subject clitics represent agreement morphemes. Instead, the full range of data is most consistent with the definite preverbal DPs being base-generated in [Spec,TopP] with a required coindexed argument clitic pronoun. These pronouns, then, and other postverbal DPs correspond to the syntactic subject in MacZ.

In the next section, we will consider the position of the postverbal subjects. I argue that they remain VP-internal and thus, may overtly occupy any of the lexical projections associated with the verb. At LF, however, these subjects occupy a single position, [Spec,TP]. Afterwards, we will more fully develop and explore the Topicalization analysis, and then, other preverbal positions.

4.1.4 The Postverbal Subject Position(s)

We have now seen evidence that preverbal subjects like those in 4-6 and (31-32)b do not appear in [Spec,TP] at Spell-Out, but occupy a much higher position, [Spec,TopP].

In such sentences, a clitic pronoun co-indexed with the DP topic occupies the postverbal syntactic subject position. The next question to consider is what is this postverbal position?

Within the literature, there have been numerous proposals given to account for VSO word order. Even within the recent Zapotec syntax literature, several different accounts have been offered. For example, Lee (1999, 2000) argues that VSO word order in San Lucas Quiaviní Zapotec involves overt movement of the subject to [Spec,AgrSP] (and the object to [Spec,AgrOP]) and remnant movement of the VP to [Spec,TP] above AgrSP. For Quiegolani Zapotec, Black (2000) proposes that the verb undergoes head movement to IP (TP) and the subject remains VP-internal. Finally, Broadwell (2002), working on San Dionicio Ocotopec Zapotec within an LFG framework, proposes a flat-VP structure, which he labels S, with no additional derivations required to produce the VSO order. The question for MacZ is whether the subject remains VP-internal or moves into some higher functional projection with subsequent raising of the verb (or VP-remnant) to some still higher functional projection.

In MacZ, an analysis along the lines of Black's (2000) verbal head-movement account seems most appropriate. There is evidence that the verb has moved out of the VP, but no evidence that the subject has moved from its VP-internal position. Furthermore, as we will see, for a variety of theoretical reasons it is beneficial for the subject to remain VP-internal.

Evidence of verb movement comes from the interaction of the verb with clitic adverbs. Various VP adverbs may attach to the verb, appearing between the verb root

and subject clitic pronoun when the latter is present as shown below in 40-42 (the adverbs are underlined):

40. **Pam illangwanà retíín ttsúnná.** {v71b}
Pam illani =gwa =nà retíín ttsúnná
Pam P/arrive =also =3N o'clock three
Pam will also arrive at three o'clock.

41. **Bèttóòxìàyà' puertà'.** {i172a}
bèttóò =xìà =ya' puerta =à'
C/close =quickly=1SN door =DIST
I quickly closed the door.

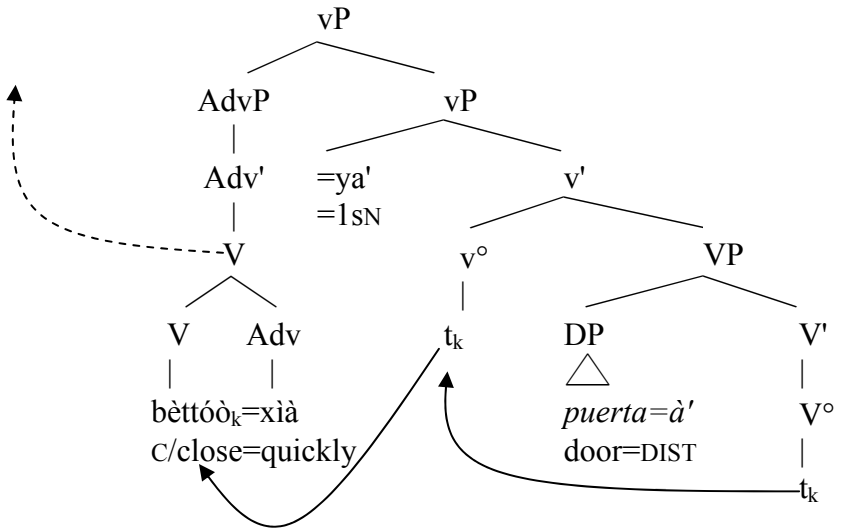
42. **Reenrunà Estadus Unidus.** {i191g}
reeni =ru Estadus Unidus
H/be.located =still United States
He is still in the United States.

These are not second-position clitics as are found in other Zapotec languages such as San Lucas Quiaviní Zapotec (Munro and Lopez et al. 1999) and San Dionisio Ocotopec Zapotec (Broadwell 2000). Instead, they appear to be phonologically weak adverbs.

These are VP adverbs that are generated relatively low in the structure (cf. Cinque 1999). If we take these adverbs to be adjoined to the (highest) VP projection, then we can account for the position on the verb if we posit verb raising and head adjunction of the adverb, as shown below in 43, a partial structure for 41 above.[8]

[8] One question not answered by this structure is why the adverbs in this position are restricted to clitic lexical heads. No free adverbs or adverbial phrases may appear between the verb and the postverbal subject. Possibly this is a relic of the adverbs' origin as second-position clitics (assuming the languages like San Lucas Quiaviní and San Dionicio Ocotopec are taken as conservative in this respect). Another possibility is that the subject does in fact move to a higher position and the verb subsequently raises over it. In such a case, then only adverbs that head-adjoin to the verb would raise along with it, above the subject. Full adverbial phrases and independent adverbs would remain in their base position, adjoined to the VP. If an analysis along these lines is correct, then objects would have to overtly move as well, since adverbs also cannot intercede between the subject and object. Again though, there is little additional support for such movements and further evidence suggests that the subject remains VP-internal.

43.



Bèttóòxiàyà' puertà'.
'I quickly closed the door.'

This raises the questions of what triggers movement of the verb and what is its ultimate landing site. As suggested by the dotted arrow in 43, the verb presumably continues to move beyond the adverbial projection. The verb certainly does not move as high as C° as was proposed in some earlier analyses of VSO word order (for example, in Emonds 1980, Sproat 1985, and Haider and Prinzhorn 1986). As Black (2000) notes, VSO order in Zapotec co-occurs with overt complementizers (p. 92, fn. 48). This is true in MacZ as well, as seen below in 44-45 (the embedded clauses are enclosed in brackets):

44. **Ìntè' ircantè' [què'ní goolù' na'a].** {ii118}

ìntè'	irca=ni	=ntè'	què'	=ní	goo	=lù'	na'a
1SIND	H/think=PREP	1SD	of	=COMP	P/eat	=2N	now

I think you will eat now.

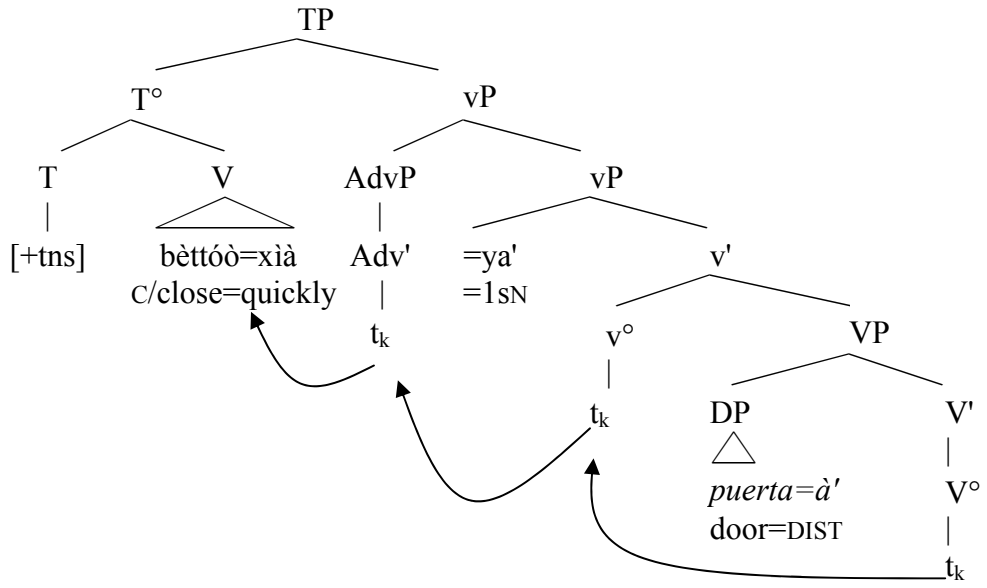
45. **Arcalaasayà' [què'ní quii Edgarnà' ca trasteá].** {mm}

arcalaasi	=ya'	què'	=ní	quii	Edgar	=nà'	ca	traste	=á
R/want	=1SG	of	=COMP	P/wash	Edgar	=DIST	PL	dish	=INVIS

I want Edgar to wash the dishes.

Instead, the likely landing site for the verb is TP. All verbs in MacZ obligatorily carry some tense/aspect prefix (even the non-finite form is marked with a prefix). It is reasonable to assume that these prefixes either originate in TP and require the verb to move up and adjoin to them (as Black (2000) suggests) or that the inflected verb enters the derivation carrying some strong tense feature which must be overtly check at the T° head. Thus, the derivation in 43 is finished as shown below in 46. (In keeping with the general Minimalist approach adopted in this dissertation, I am representing the T-head as an abstract head which checks the tense features associated with the inflected verb.)

46.



Bèttóòxiàyà' puertà'.
'I quickly closed the door.'

Now that we have determined a reasonable landing site for the verb, we can consider the next question of the position of the postverbal subject. Does the subject remain in its VP-internal position or move to some functional projection below TP? Unfortunately, there is little in the way of actual language data which would decide between these possibilities. As a result, our discussion will necessarily hinge on

theoretical considerations. The answer will depend on what features would motivate movement from the VP-internal position. Of course, if the movement will be string vacuous anyway, then the simplest hypothesis is that there is no movement, that the subject remains VP-internal. And this in fact seems to be the correct analysis of MacZ.

There are a variety of syntactic features which have been proposed in the literature that could potentially drive movement of the VP-internal subject to some functional projection, and we will now consider which of these might apply in MacZ. The features that could drive overt movement of the subject to some functional projection include agreement, nominative case, and EPP/D-features.

One feature that might drive movement of the subject is subject-verb agreement features. However, since we have established that the subject clitics that attach to the verb represent pronouns and not agreement morphology, it means that MacZ verbs show very little inflectional agreement with their subjects. There are two phenomena which might possibly be analyzed as agreement, although both are open to other analyses.

The first potential instance of agreement is the floating high tone associated with the first singular pronoun *=ya'*. When this pronoun is attached to the verb a high tone appears on the stressed syllable of the verb, cf. 47a and b below (for a more complete description of this process and the resulting tonal interactions, see Broadwell and Zhang 1999 for MacZ and Nellis and Nellis 1983, Bartholomew 1983 and Broadwell and Bickmore 1999 for Atepec Zapotec):

47. a. àbíí yúú =ya'
NEG S/know =1SN
I don't know.

b. àbíí yùù Felipe =à'
NEG S/know Felipe =DIST
Felipe doesn't know.

It is unclear, however, if this should be treated as an instance of agreement or if it is merely part of the phonological specification of *=ya'* that the morpheme contains a floating high tone. This latter analysis has been put forth in Broadwell and Bickmore 1999 and Broadwell and Zhang 1999.

The second potential type of agreement is exhibited by certain verb roots that undergo suppletion with certain subjects. For example, *rpaa* 'said' occurs with first person exclusive subjects while *raa* 'said' occurs with other subjects.[9] Similarly, the verb root *-a'a* 'go' occurs with first person exclusive subjects (except in the stative aspect) while *–iia* 'go' is used with all other persons and in the stative with all persons. Special verb forms are not restricted to subjects. The verb 'give' exhibits special forms based on the indirect object: *-ee'* is used with third person indirect objects and *–nna=ni* (containing the incorporated applicative preposition *=ni*) with non-third person indirect objects. As can be seen, this "agreement" is irregular and suppletive and is restricted to a limited number of roots. It is not part of a broader pattern of regular inflectional agreement. These facts suggest that this "agreement" is completely lexical in nature. It therefore seems unlikely that it would require the licensing of a functional projection.

In the absence of any robust inflectional agreement morphology it seems unlikely that the subject must overtly move to check any φ-features associated with the verb. The few apparent instances of agreement in MacZ have other, more profitable analyses.

The next feature that might drive overt movement is the need for the subjects to receive nominative case. MacZ exhibits a few different pronominal forms which I have

[9] *Rpaa/raa* is highly irregular. Not only does it have a distinct first person exclusive form, but it also shows apparent habitual morphology in the form of the *r-* prefix but receives a completive interpretation.

analyzed as reflecting case distinctions. For example, the first person exclusive forms distinguish nominative/genitive from dative/accusative: thus, nominative/genitive forms *=ya'* =1SN/G and *=tù'* =1EXCLN/G versus dative/accusative *(=/ì)ntè'* (=)1SD/A and *(=/ì)ntù'* (=)1EXCLD/A (genitive case is distinct with third person non-formal pronouns. See Section 3.2.1). Thus, movement for case reasons is supported to some extent by the morphology.

However, subjects in MacZ are not consistently realized with nominative case. Certain verbs take dative subjects as will be discussed in Chapter 5, while others have subjects marked with genitive case (see Chapter 6). If nominative case drives movement by the checking of a feature in a functional projection, then in the case of the non-nominative subjects this projection must either be absent or the nominative case feature can go unchecked. If the former, then grammatical subjects are overtly realized in different structural positions. This removes, in my opinion, one of the main benefits of assuming that the subject overtly moves, since overt movement to a single functional projection would provide a single position to be identified as the grammatical subject position in MacZ. If subjects are realized in different projections, then different functional projections offer no benefits over different theta positions within the VP and have the deficit of requiring additional movement.

If nominative case is simply not overtly checked/assigned with non-nominative subjects, this suggests that the nominative case feature is not a strong feature, but a weak one. If it is a weak feature, then it alone cannot drive overt movement of the subject. If there are no other strong features requiring the movement of the VP-internal subject, then

it will remain VP-internal. Furthermore, in light of Covert Subject Binding, discussed below with respect to the EPP and more extensively in Chapter 6, it seems to be the correct conclusion that the nominative case feature is weak.

A final requirement/feature that could trigger overt movement of the subject is the EPP/D-feature. However, there is no positive evidence of EPP effects in MacZ. For instance, there is no evidence of expletive subjects in MacZ. In addition, there is some evidence to suggest that the EPP does not apply or is associated with weak features in MacZ.

This conclusion is based on Covert Subject Binidng to be discussed in detail in Chapter 6. This construction would seem to require weak EPP/D-features. Telegraphing the discussion of Chapter 6 to some extent, MacZ, along with several other Zapotec languages, exhibits an unusual backward binding construction in which a subject may be null when it is coreferential with the possessor of another DP in the same clause. An example is given below in 48, where an underline represents the missing postverbal subject.

48. **Beyuuni ___ carru què' Felipeà'.** V ~~S~~$_i$ [$_{DP}$ N of Poss$_i$]
beyuuni ___ carru què' Felipe =à'
C/repair ___ car of Felipe =DIST
Felipe$_i$ repaired his$_i$ car. (Repaired car of Felipe)

In the analysis put forth in Chapter 6, this is derived by positing covert LF movement to occur, moving the possessor DP to the VP-internal subject position to acquire the subject theta-role (along with any subsequent movement that the postverbal subject would undergo). Such an analysis, however, will require that such movement not be overt and that no other null element occupy the VP-internal subject position, receiving

the subject theta-role. As such, the EPP features in MacZ (as well as the nominative case features) must be weak.[10] If these features were strong, then they would not be checked in the overt structure in 48, and the derivation would crash. The existence of Covert Subject Binding in MacZ provides strong evidence that EPP features, nominative case features, and any similar features requiring A-movement of the subject DP must be weak. We are safe in concluding then that subject DPs remain in VP-internal position.

Of course, nominative case is still overtly realized by a few pronouns in MacZ. Presumably, it is licensed in a particular structural configuration, although this configuration may only hold at LF. Likewise, although the EPP feature may be weak, it must still be checked at LF. It is reasonable to assume that both of these weak features are associated with TP. An overt, VP-internal subject then must raise covertly at LF to [Spec,TP] where the nominative and EPP features can be checked. If the VP-internal subject does overtly move to some still higher projection due to some other strong feature (such as a [+wh] feature), then presumably it passes through [Spec,TP], checking the EPP and nominative features overtly. Failure to do so, would leave the features unchecked at LF (assuming DP-lowering is banned), and the derivation would fail to converge.

[10] McCloskey (1996) provides evidence that the EPP does not apply (or is associated with weak features) in Irish, another VSO language. He argues that this derives from a weak nominal feature associated with the tense head in Irish. He also suggests that the weak EPP features in Irish may explain the availability of definite VP-internal subjects in certain constructions. This is something that needs to be considered for the MacZ data as well since definite postverbal subjects are well-attested. McCloskey suggests that if the restriction for VP-internal subjects to be indefinite (see Diesing 1992, for example) stems from the properties of chains between expletives and subjects (Safir 1985, Reuland and ter Meulen 1987), then Irish may allow VP-internal subjects because it lacks expletives due to weak EPP features (p. 261). If the EPP is weak, then expletives will not be required (and cannot be used under economy principles) and therefore, cannot form expletive-argument chains. This results in no definiteness restriction on VP-internal subjects. The same approach can be taken in MacZ to explain the availability of definite VP-internal subjects.

With these considerations in mind, we can now formulate a statement identifying the syntactic subject in MacZ. This is given below in 49. Such a statement is important for MacZ since as described below in Section 4.2, syntactic subjects are associated with a number of VP-internal syntactic properties.

49. **The Syntactic Subject in Macuiltianguis Zapotec**
The syntactic subject in Macuiltianguis Zapotec is that DP which at Spell-Out has received a theta-role from the verb/predicate and has either moved through [Spec,TP] or will move there at LF to satisfy the EPP/D-feature associated with T.

The definition in 49 contains an extra clause which has not been previously discussed: *which at Spell-Out has received a theta-role from the verb/predicate*. A statement along these lines seems necessary in light of Covert Subject Binding as in the example in 48. The analysis put forth in Chapter 6 argues that the possessor (*Felipeà'* in 48) does covertly move up to the VP-internal subject position and then to [Spec,TP] to provide the sentence with the correct interpretation in which the subject and possessor are coreferential. However, in the overt syntax, the possessor shows no grammatical subject properties that would be expected based on the definition in 49 sans the extra clause. *Felipeà'* in 48 behaves syntactically as a possessor and can be shown to be a subconstituent of the object DP *carru què' Felipeà'* 'Felipe's car'. Thus, while the semantic interpretation of the subject is provided by the possessor, the possessor does not exhibit any of the expected syntactic properties. As 49 provides a definition for the syntactic subject, *Felipeà'* must be ruled out as being the syntactic subject. The additional clause in 49 provides a reasonable way of doing this by stating that the overt syntactic subject of a clause must be an argument of the verb/predicate in the clause.

If, in the overt syntax, the subject remains within the lexical projection of the verb, then grammatical subjects in MacZ do not overtly occupy a unique grammatical position, but may originate from several distinct positions within the extended projection of the verb. As a result, we will need to identify these positions and determine which DP in which projection will be in the privileged position to move to [Spec,TP] at LF.

In light of the Unaccusativity Hypothesis (Perlmutter 1978) and the VP-Internal Subject Hypothesis (McCloskey 1991, Koopman and Sportiche 1991), there are at least two positions within the extended VP-projection from which grammatical subjects may derive. Adopting an analysis along the lines of Hale and Keyser 1993, we can identify the position that unaccusative subjects originate in as a lower VP-shell in [Spec,VP], while subjects of other verbs, particularly agentive subjects, originate in a higher VP-projection, [Spec,vP] to adopt the terminology of Chomsky (1995).

Both of these projections appear to be relevant for MacZ as both agentive and unaccusative arguments in the language can surface as the grammatical subject, as evidenced by their ability to take nominative case. This is exemplified below in 50-51. In 50 the agentive/causer subject is *=ya'*, the first person singular nominative pronoun, with the object *ca llaveá* 'those keys'. In 51a, *ca llaveá* is the grammatical subject and receives nominative case, as evidenced by the nominative subject clitic *=ya'* in 51b.

50. **Ttuteba runitti'yà' ca llaveá.**

ttuteba	runitti'	=ya'	ca	llave	=á
always	H/lose	=1SN	PL	key	=INVIS

I always lose those keys.

51. a. **Ttuteba rinitti' ca llaveá.** {mm}
ttuteba rinitti' ca llave =á
always H/get.lost PL key =INVIS
Those keys are always getting lost.

b. **Ttuteba rinitti'yà'.** {mm}
ttuteba rinitti' =ya'
always H/get.lost =1SN
I always get lost.

Additionally in Chapter 5, I propose another extended VP projection (labeled dat(ive)P) for dative/experiencer arguments, positing that it occurs between vP and VP. A dative subject, which is licensed by the dative applicative morpheme *=ni*, is exemplified below in 52. Compare it with 53a, which lacks the dative/experiencer subject and instead has an unaccusative subject. Again, we can see that the theme arguments in 53 represent the grammatical subjects in these sentences since we have the nominative clitic form *=ya'* in 53b.

52. **Rquiina'ntè' ttu libru.**
rquiina' =ni =ntè' =à' ttu libru
H/be.needed =PREP =1SD =DIST a book
I need a book.

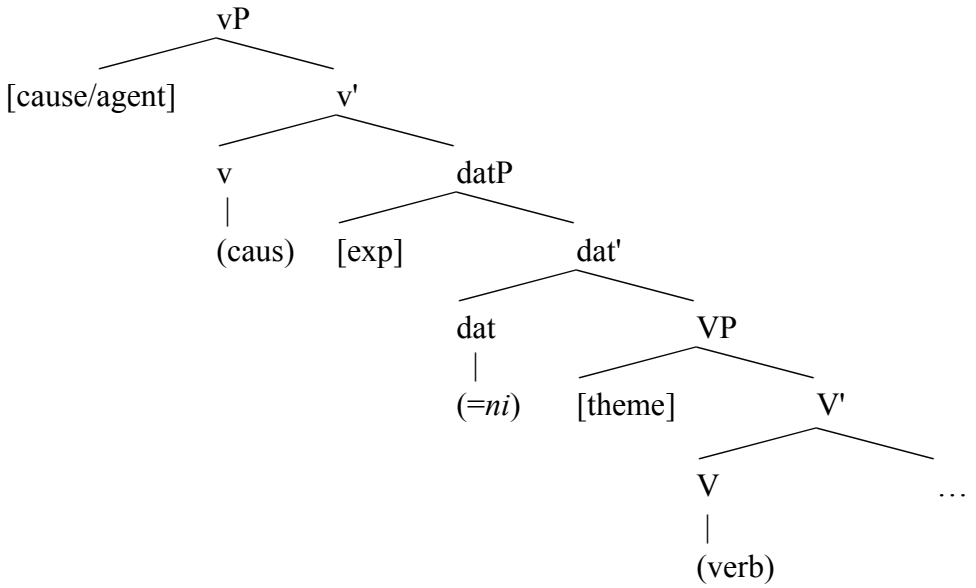
53. a. **Nii rquiina' ttu libru.**
nii rquiina' ttu libru
here H/be.needed a book
A book is needed here.

b. **Nii rquiina'yà'.**
nii rquiina' =ya'
here H/be.needed =1SN
I am needed here.

Together, vP, datP and VP produce the following hierarchical lexical projection of the verb as represented in 54. The theta-roles generally associated with each projection are given in brackets; the head of each projection, which is not always overtly

realized, is given in parentheses. The verb undergoes head movement through each projection before moving overtly to TP.

54.



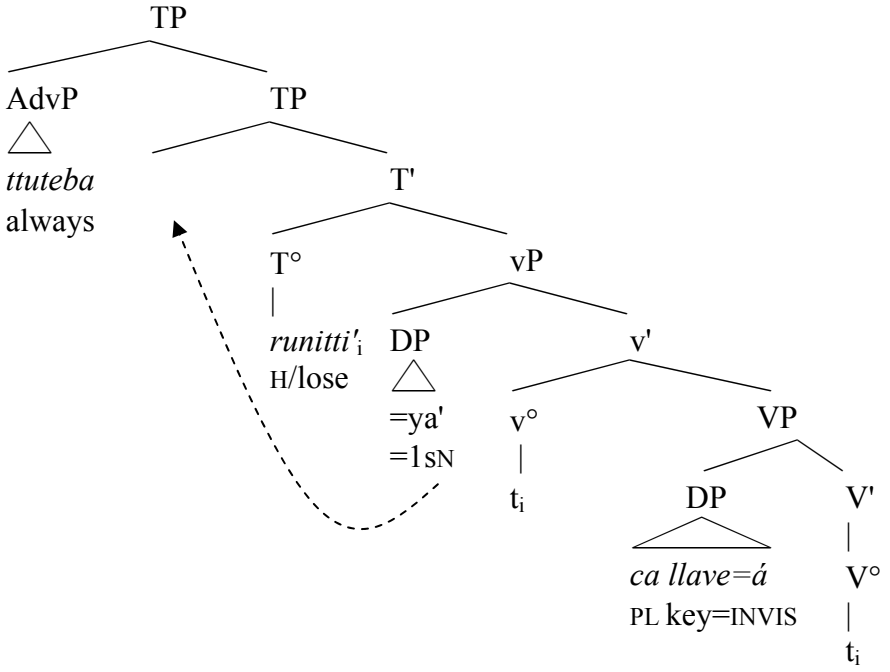
The DP in the highest shell that is projected for any predicate will be the one to raise at LF to [Spec,TP] (or must raise through [Spec,TP] if it undergoes overt movement) and be realized as the syntactic subject of the clause. Thus, if vP is projected then the DP in [Spec,vP] will be the grammatical subject. If there is no vP projected, but there is a datP then the DP in [Spec,datP] will be realized as the grammatical subject. Finally, if neither vP nor datP is projected, then the theme argument in [Spec,VP] will be realized as the subject. The Minimal Link Condition will ensure that an argument lower on the hierarchy will not raise to [Spec,TP] over some higher argument. See Chapter 5 for a more extensive discussion and implementation.

Since the postverbal grammatical subject DP does not overtly raise to [Spec,TP] but remains VP-internal, then in the surface syntax the postverbal subjects will occupy different positions depending on which VP projection they are licensed in. Thus,

transitive subjects will overtly occupy either [Spec,vP] or [Spec,datP]. Intransitive subjects may appear in any of the three verbal projections. These three possibilities are illustrated below in 55-57.

The tree in 55 represents the structure for 50 above, which has a causer/agentive subject originating in [Spec,vP]. The dotted line represents the additional LF movement that the subject undergoes to [Spec,TP].

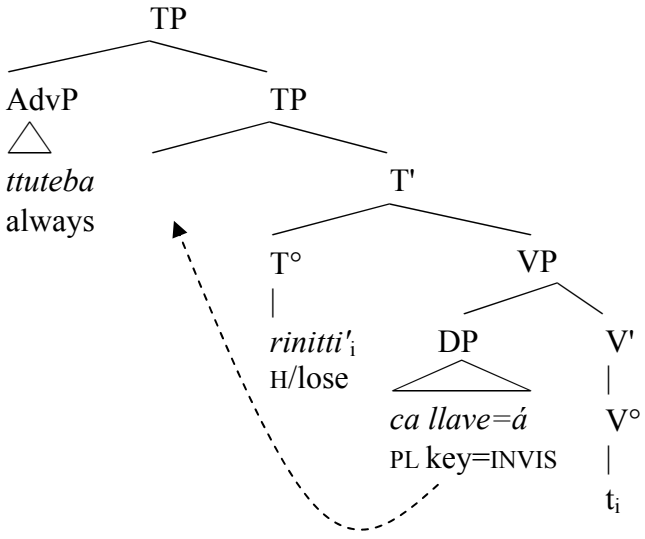
55.



Ttuteba runitti'yà' ca llaveá.
I always lose those keys.

The structure in 56 corresponds to the sentence presented in 51a with a theme subject originating in [Spec,VP].

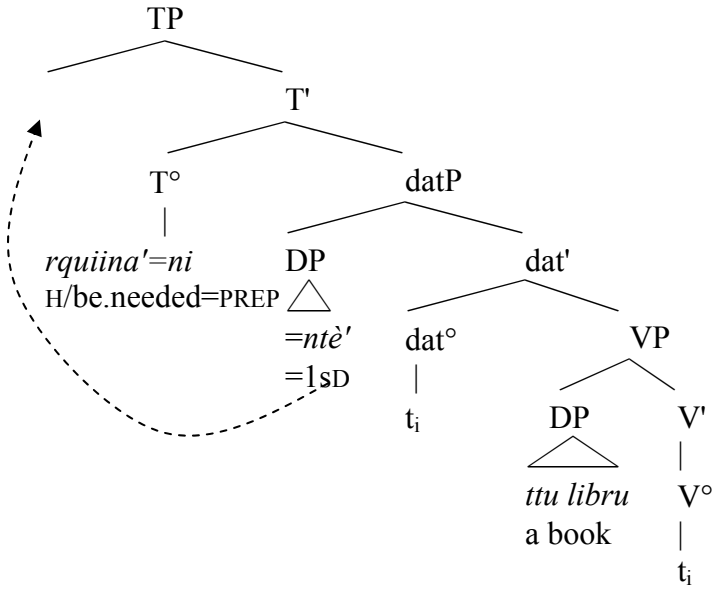
56.



Ttuteba rinitti' ca llaveá.
Those keys are always missing.

The tree structure of 52 above is presented below in 57. In this structure, the experiencer subject originates in [Spec,datP].

57.



Rquiina'ntè' ttu libru.
I need a book.

Now that we have identified the position of postverbal subjects, we can return to considering preverbal positions in which DPs may also appear. In the next section, we return to Topicalization, providing a fuller treatment. Afterwards, we will consider other preverbal constructions involving movement.

4.1.5 Topicalization

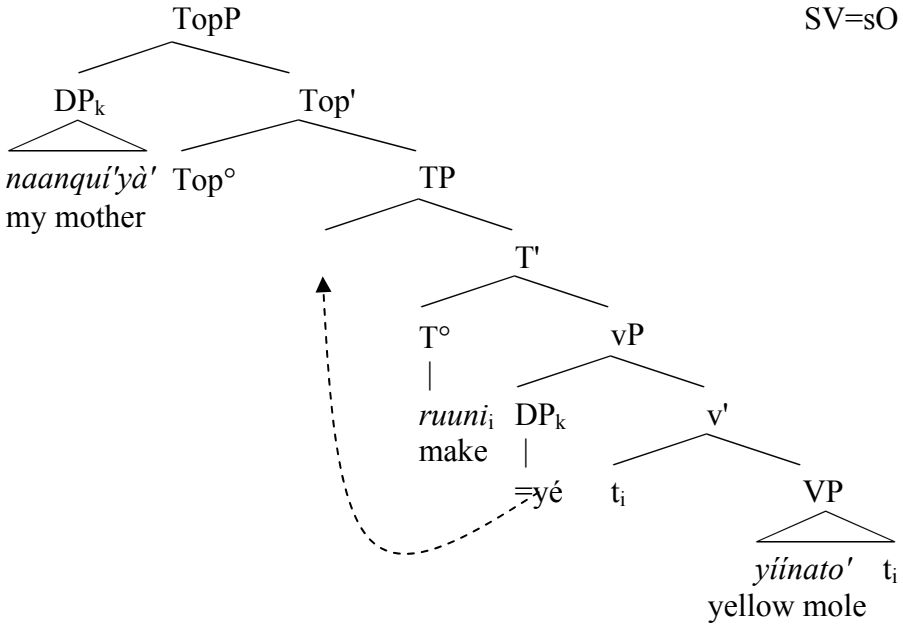
As we saw previously, the SV=s(O) word order that obtains in MacZ does not lend itself to an analysis in which the preverbal subject occupies [Spec,TP] and the =s clitic represents agreement. Instead, this ordering is best analyzed as being an instance of topicalization with the preverbal subject being base-generated within the CP as a topic

and with =s representing a coindexed clitic subject pronoun in a postverbal subject position.

Following Rizzi (1997), I will assume that the preverbal order of definite constituents (both subjects and objects) like those in 31-32 appear within the expanded CP projection, TopP. These definite DPs, which are base-generated in [Spec,TopP] must be coindexed with a pronoun in argument position which licenses the DP. Thus in 58 below, the structure for 5 above, the topic DP *naanquí'yà'* 'my mother' is base generated in [Spec,TopP] and must be coindexed with some postverbal pronoun. In this case, it is the clitic subject pronoun *=yé*, which occupies [Spec,vP], the same position as the full DP subject in the corresponding VSO sentence in 59. As discussed in the previous section, the postverbal subject undergoes movement at LF to [Spec,TP] in both sentences. This is represented below by dotted arrows:[11]

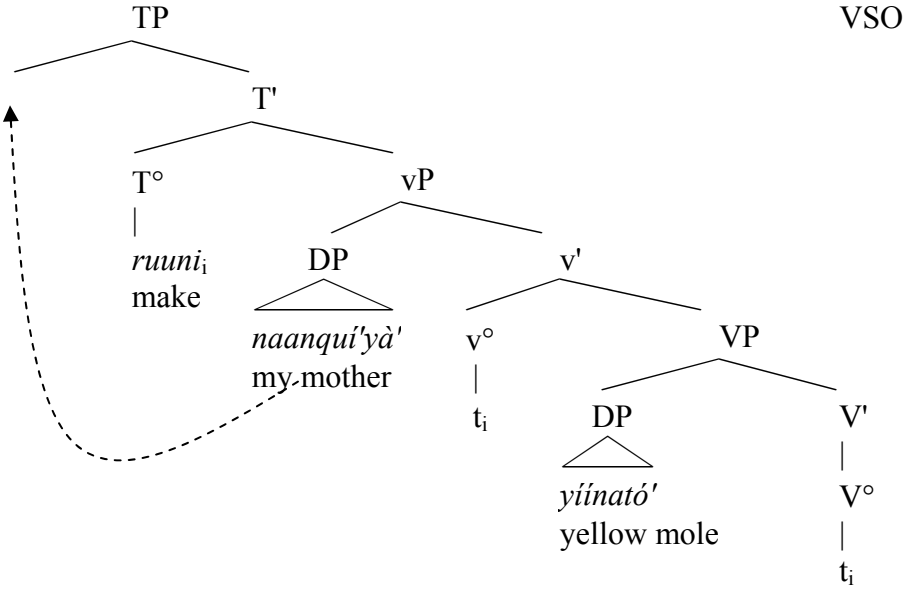
[11] This construction with a fronted argument and coreferent pronoun is reminiscent of left dislocation (LD) as discussed for example by Ross (1967) and Chomsky (1977) among others. However, in certain respects, the MacZ construction resembles clitic left dislocation (CLLD) as described for Italian by Cinque (1990:56-60). Cinque observes that CLLD can occur at the beginning of almost any subordinate clause type, which seems to also be true of MacZ topics. LD is more restricted. Italian CLLD has no (theoretical) limit to the number of left-dislocated phrases, but LD is restricted to one. As we have seen, MacZ, too, allows multiple topics; see 31-32 for example. Cinque also notes that CLLD requires the coreferent pronoun to be a clitic; independent pronouns are not allowed. This also seems to be true for MacZ, but again is not for LD. There are some differences between the MacZ and Italian, however. Cinque states that a pronoun is generally optional (except for object pronouns), which differs from MacZ which always requires a pronoun in this construction (recall 8-10 above). Furthermore, CLLD has the ability to left-dislocate any maximal projection irrespective of category, while LD is restricted to DPs. The MacZ construction seems restricted like LD, though this needs further verification. Cinque also notes some additional properties of CLLD that distinguish it from LD, which I have not been yet been able to test for MacZ: there is obligatory Connectivity between the CLLD dislocated phrase and the IP internal position, and CLLD is sensitive to island constraints. Both of these claims need to be studied more thoroughly for MacZ. Since the MacZ structure seems to fall between CLLD and LD, it seems reasonable to label the MacZ structure a dislocation structure, but it is not clear whether it is more similar to CLLD or LD.

58. SV=sO



Naanquí'yà' ruunyé yíínató'.
'My mother is making yellow mole.'

59. VSO

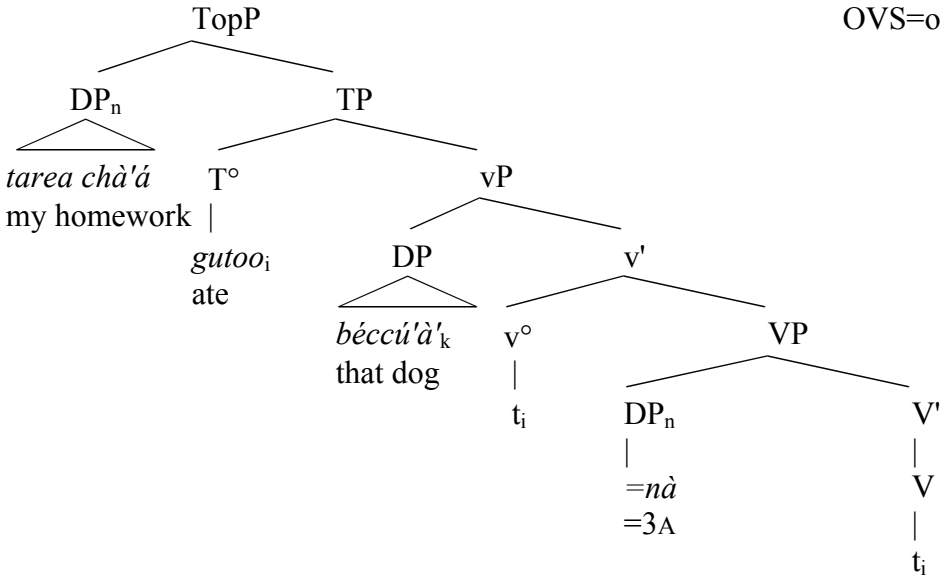


Ruuni naanquí'yà' yíínató'.
'My mother is making yellow mole.'

Similarly, an object DP may be base-generated in TopP as long as it is coreferential with a following object pronoun. Thus in 60 below, the object *tarea chà'á*

'my homework' appears preverbally, coindexed with the object clitic pronoun *=nà*, which remains *in situ*:

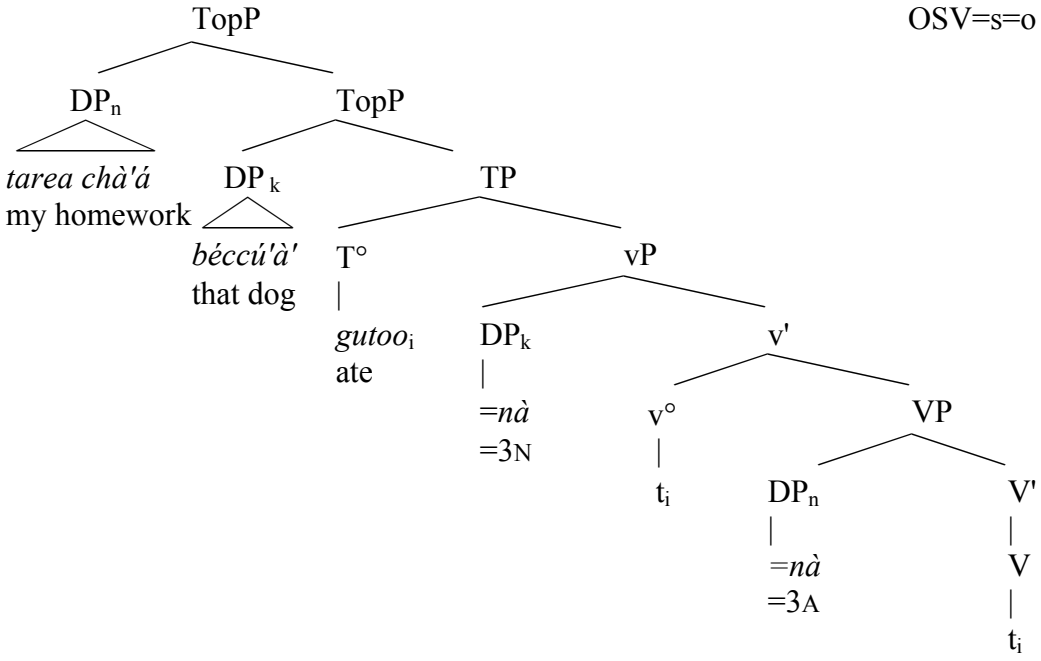
60. OVS=o



Tarea chà'á gutoo béccú'à'nà.
'My homework, the dog ate it.'

Rizzi (1997) observes that the TopP in Italian can be reiterated, allowing multiple dislocated topics. This structure can also account for the ability of multiple dislocated phrases in MacZ as in 31b, whose structure is given below:

61. OSV=s=o



Tarea chà'á béccú'à' gutoonànà.
'As for my homework, the dog, he ate it.'

In 61, both a dislocated object *tarea chà'á* 'my homework' and a dislocated subject *béccú'á* 'the dog' are base generated in recursive TopPs and coindexed with postverbal pronouns. Since both dislocated elements agree with identical third singular non-formal pronouns (=*nà*), the structure is syntactically ambiguous. However, the grammatical relations between the two full DPs can be recovered from pragmatic/real-world knowledge and the fact that *gutoo* 'ate' selects for an animate eater. If *tarea chà'á* refers to a Science Fair project that has gone awry, this same sequence could refer to a situation in which my homework has in fact eaten the dog.[12]

This proposed dislocation structure accounts for several properties of this construction in MacZ. For example, Rizzi (1997) places TopP in a high structural

[12] It generally seems to be the case that multiple topics do tolerate ambiguity. However, additional work is needed to test this further.

position not only above TP, but also above other structural positions related to the expanded CP, such as Foc(us)P. This can explain why preverbal subjects (and objects) can precede temporal adverbs (presumably adjoined to TP) as in 34 above and even *wh*-phrases as in 36a, which target FocP.

Base-generation of the dislocated DPs also explains the requirement that a coindexed pronoun be present in the normal argument position. Otherwise, there would be a DP which bears no thematic relation to the verb and is not licensed in the structure (by a verb or preposition or any other DP-licenser). The coindexed pronoun is necessary for interpreting the dislocated DP.

Adapting Rizzi's analysis to MacZ is also supported by the fact that Italian and MacZ share similar restrictions on what types of phrases can be dislocated topics. Thus far, we have only seen definite DPs dislocated to TopP. In both languages, indefinite DPs generally work less well as topics, as shown below for MacZ:

62. **Ttsúnná manzana$_i$ gutoo Felipeà'(?*canà$_i$).**
ttsúnná manzana$_i$ gutoo Felipe =à' (?*=ca =nà)
three apple C/eat Felipe =DIST (?*=PL =3A)
*Felipe ate three apples. ?*Three apples, Felipe ate them.*

63. **Ànúúdi$_i$ rulaasi'yà'(*nà$_i$).**
ànúúdi$_i$ rulaasi' =ya' (*=nà$_i$)
nobody H/like =1SG (*=3A)
*I don't like anybody. *Nobody, I don't like him/them.*

64. **¿Núúní$_i$ begwiia' Felipeà'(*nà$_i$)?** {v144g'}
núú$_i$ =ní begwiia' Felipe =à' (*=nà$_i$)
who =COMP C/look.at Felipe =DIST (*=3A)
*Who did Felipe see? *Who did Felipe see him/them?*

In 62-64, the indefinite DPs *ttsúnná manzana* 'three apples', *ànúúdi* 'nobody' and *núúní* 'who?' can appear preverbally, but they generally do not tolerate a coindexed postverbal

pronoun.[13] This indicates that these expressions are not base-generated in TopP, since as discussed, such phrases require a coindexed pronoun (cf. 31-32 for example).

The crucial property distinguishing DPs that can be dislocated from those that cannot seems to be specificity. Only specific DPs can appear in TopP. Conversely, specific DPs can generally only appear preverbally if they are in TopP (or if they have been focused and undergone movement to FocP). This explains why negative indefinite pronouns as in 63 and *wh*-pronouns as in 64 are not licit topics: they are not specific. Other quantified expressions may serve as topics if they can be understood to be [+specific]. As a result, examples like 62 are not as degraded on the topic interpretation as those in 63-64 are, and quantified topics can be found as in 65-66 below.[14] Here, the quantified expressions receive a [+specific] interpretation.

65. **Ttu ettaxtiila Felipeà' gutoonàyé.**
ttu ettaxtiila$_i$ Felipe =à'$_k$ gutoo =nà$_k$ =nà$_i$
one loaf Felipe =DIST C/eat =3N =3A
Felipe ate one loaf/roll. One loaf, Felipe ate it.

66. **Ìyhéé bènnè' nààyá' gutoocanà ca etta chà'á.**
ìyhéé bènnè' nààyá' gutoo =ca =nà$_k$ ca etta chà' =á
many person yesterday C/eat =PL =3N PL tortilla of/1SG =INVIS
Many people ate my tortillas yesterday. Many people, they ate my tortillas yesterday

That certain quantified expressions in MacZ may occur in TopP is consistent with the observations of Rizzi (1997) concerning Italian. He notes that quantified expressions

[13] Some indefinite subjects can cooccur with a postverbal pronoun and in certain instances the pronoun is required. I analyze such cases as deriving not via dislocation and base-generation of the quantified/indefinite DP, but through movement with a resumptive pronoun, which can be considered an overt spell-out of a trace. See Section 4.2.7 for discussion.

[14] These quantified expressions are clearly in TopP as evidenced by the fact that they can precede other material that is relatively high in the structure, such as another TopP in 65 and a temporal adverb adjoined to TP in 66. See 4.1.6 below.

cannot generally occur in topics. He reasons that this is because they do not have a variable to bind. He notes, however, that if the quantified expression contains a lexical restriction they can occur as topics. Rizzi attributes this to additional QR which allows the quantifier to bind a trace within the topic which is itself then coreferent with a resumptive pronoun. An example for this structure in Italian is given below (from Rizzi 1997:295 example 35):

67. Molti$_i$ [t$_i$ libri] TOP°, [li ho buttati via]
Many books, I threw them away

In MacZ, if a quantified expression is overtly marked as being [+specific], then it not only can be a topic, but it must be (or it must be focused) if it occurs preverbally. Thus in 68 below, the fronted constituent, *ttsúnná ca manzanani* 'three of these apples', is quantified. But since it is a partitive expression, it is therefore a specific indefinite phrase (see Enç 1991 for a discussion of specificity and partitive constructions). As such, it can only occupy TopP when occurring preverbally, as evidenced by the required coindexed pronoun =*canà*:

68. **Ttsúnná ca manzanani gutoo Felipeni*(canà).**
ttsúnná ca manzana =ni gutoo Felipe =ni *(=ca =nà)
three PL apple =PROX C/ate Felipe =PROX *(=PL =3A)
Felipe here ate three of these apples.

This contrasts with the indefinite, nonspecific DP *ttsúnná manzana* 'three apples' above in 62, which is dispreferred as a topic, occurring preverbally instead as a moved quantified/indefinite expression (see Section 4.1.6).

Finally, if the TopP position is involved with some discourse function as its name suggests, then this would explain the relatively high frequency of SV=sO order in MacZ.

Subjects are frequently also discourse topics, so this would account for why subjects often appear in TopP. The evidence currently available from extended narratives also indicates that TopP is sensitive to discourse. While more analysis of narratives is needed to understand all of the discourse functions, at least one function that has been observed is the marking of contrastive topics, as discussed below.

TopP can be involved in signaling a change in topic, what a following sentence or group of sentences will be about. This is illustrated in the short passage (69-72) below from a narrative about the marriage of a fourteen year old girl. This excerpt begins with a few clauses (69-70) with the heroine, who has already been introduced to the story, as the subject. In these, the subject is encoded by a postverbal pronoun (=*nà*) underlined in the clauses below. Then, a short sentence in 71 is included about the actions of the husband, the first sentence in the passage in which he is a subject. With this switch in topic, the new topic *beyùù'á* 'the man' (double underline) appears in TopP occurring before the verb with a coreferent pronoun (double underline) following. When the next clause switches back to the girl as the subject, this switch is marked again by a DP in TopP, this time an independent pronoun *làànà* (single underline).

69. **Para chi dedáá'runà—**
para chi dedáá' -ru =nà
for already S/come.back -still =3N
So she was coming back—

70. **chi bettsa'nàá'nì tàà'nna, dedáá'nà.**
chi bèttsà'nàá' =nì tàà' =nna dedáá' =nà
already C/get.married =3G FOC =and S/come.back =3N
She had already gotten married and she was coming back.

71. **Beyùù'á denéèrúbayénna**
beyùù' =á denéèrú -ba =yé =nna
man =DIS2 S/come.before -EMP =3FN =and
The man was coming ahead.

72. **Làànànna dedáá'nà lóó néédà gwìttìà, gwètuppá ìyyà…**
làà=nà =nna dedáá' =nà lóó néédà gwìttìà gwètuppá ìyyà
BAS=3 =and S/come.back =3N on road N/play N/collect flower
And she was coming back on the road playing, gathering flowers…

Thus, at least one function of TopP is to mark contrastive topics. Additional analysis of discourse structure is needed to determine other functions.

In sum then, MacZ has a preverbal position available for dislocated definite/specific DPs coreferent with a VP-internal pronoun. This position appears to be quite high in the structure allowing the dislocated DPs to precede adverbs adjoined to TP, such as temporal adverbs, and even fronted *wh*-phrases. This latter fact indicates that we should adopt Rizzi's (1997) notion of an expanded CP projection with the dislocated DPs occupying the highest position, TopP. The DPs appear to be base-generated in TopP and require a coindexed pronoun to be licensed in the structure. This structural position has certain discourse functions, including marking contrastive topics. As this is a topic position, it is restricted to definite and specific DPs, which means that many indefinite DPs are incompatible with this position. However as we have seen, these are not barred from appearing preverbally, but instead occur in other preverbal positions. We now turn to a brief consideration of these additional preverbal positions.

4.1.6 Other Preverbal Positions

As mentioned previously, there appear to be other preverbal positions available in MacZ aside from TopP. This is evidenced by the fact that a wide range of quantified and

indefinite DPs can occur preverbally and unlike the base-generated DPs in TopP, can do so without requiring a coindexed postverbal pronoun. The lack of required coreferential pronouns is due to the fact that non-topicalized preverbal DPs have undergone movement to their preverbal positions as opposed to being base-generated in these positions. Such DPs include *wh*-phrases, relative pronouns, focused DPs, and quantified indefinite phrases. In this section, I will briefly consider what other preverbal position(s) are available to these types of DPs in MacZ.

A variety of quantified and indefinite DPs can (and some must) appear in a preverbal position. Not surprisingly for a head-initial language, among these fronted indefinites are *wh*-questioned DPs like those in 73-75:

73. **¿Núú$_i$ní guxxi t$_i$ libru chà'á?**
núú =ní guxxi libru chà' =á
who =COMP C/take bookof/1G =INVIS
Who took my book?

74. **¿Bíí$_i$ní gutoolù' t$_i$?** {mm}
bíí =ní gutoo =lù'
what =COMP C/eat =2N
What did you eat?

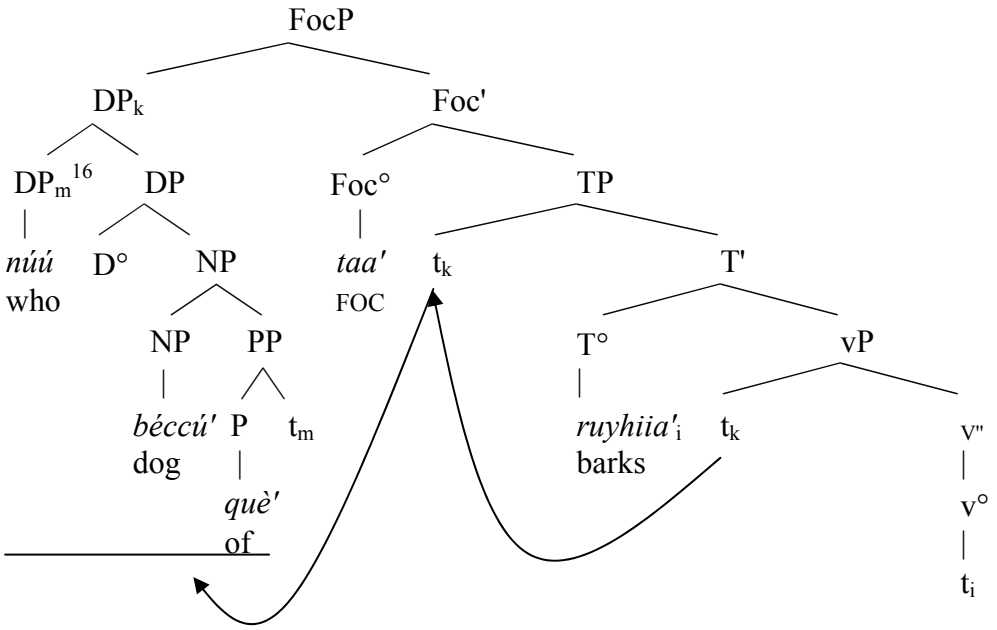
75. **¿[Núú$_i$ béccú' què' t$_i$]$_k$ taa' ruyhiia' t$_k$?** {mm}
núú béccú' què' taa' ruyhiia'
who dog of FOC H/bark
Whose dog is barking?

The *wh*-phrases are not based generated in TopP, as evidenced by the fact that they do not require coindexed VP-internal pronouns.[15] Instead, as indicated by the traces in 73-75, they appear to undergo typical *wh*-movement to [Spec,CP], or a position within

[15] In certain cases resumptive subject pronouns are required. These are most likely overt spell-outs of traces. See Section 4.2.7 on Movement as a subject diagnostic for more discussion.

an expanded CP. There is some evidence that the particular landing site might be Foc(us)P along the lines of Rizzi 1997, or at least can be FocP. For example, the *wh*-phrase may cooccur with the focus particle *taa'* as in 75 in place of the complementizer *=ní* in 73-74 (for examples of *taa'* with focused DPs see 80-82 below). Movement to FocP produces the following structure:

76.



¿Núú béccú' què' taa' ruyhiia'?
'Whose dog is barking?'

Note that the *wh*-phrase, since it is the subject, must first pass through [Spec,TP] to satisfy the nominal features associated with that projection. Failure to do so would leave its features unchecked and cause the derivation to crash.

Additional candidates for movement into [Spec,CP] or into an expanded CP are relative pronouns and focused phrases like those in 77-82. Thus, the relative pronoun *nu'*

[16] As is common in Meso-American languages, MacZ exhibits pied-piping with inversion (Smith-Stark 1988). In these languages, a larger phrase containing the *wh*-word, usually a PP or a possessed DP as in 76, is pied-pipe along with the *wh*-word, which subsequently moves/inverts to the beginning of the pied-piped phrase.

in 77-78, the embedded *wh*-word *nuuyha* 'who' in 79, and focused phrases in 80-82 (all underlined) can be analyzed as undergoing movement into CP.

77. **Beyùú' <u>nu'</u>$_i$ àbíídi gunnee=t$_i$=á naanà Yhiida'.** {vi4a}
beyùú' <u>nu'</u> àbíídi gunnee =á naa =nà Yhiida'
man <u>REL</u> nothing C/talk =INVIS S/be =3N Chinantec
That man who didn't say anything is Chinantec.

78. **Beyùú' <u>nu'</u>$_i$ begwiia' Felipeá t$_i$ náàyá' naanà béttsi'yà'.**
beyùú' <u>nu'</u> begwiia' Felipe =á náàyá' naa =nà bettsi' =ya'
man <u>REL</u> C/see Felipe =INVIS yesterday S/be =3N man's.brother =1SG
The man who Felipe saw yesterday is my brother.

79. **Diiateyà' loo ramal gwegwia' <u>nuuyha</u>$_i$ taa' rugwiacaba t$_i$.** {Deer Story.13/14}
diia' =te =ya' loo ramal gwegia' <u>nuu</u> <u>-yha</u> taa' rugwia' =ca =ba
S/go =INT =1SN on path N/look.at <u>who</u> <u>-EMB</u> FOC H/look.at =PL =3ANIM
I went right away on the path to look at whoever they were looking at.

80. **Àbíína, [<u>motocicleta chà'la</u>]$_i$ taa' bitappa t$_i$ náàyá'.**
àbíína <u>motocicleta</u> <u>cha'</u> <u>=la</u> taa' bitappa náàyá'.
no <u>motorcycle</u> <u>of/1G</u> <u>=instead</u> FOC C/break.down yesterday
No, MY MOTORCYCLE broke down yesterday.

81. **...incaadi <u>ttu besiina'</u>$_i$ taa' gulaan t$_i$.** {Deer Story 14}
incaadi <u>ttu</u> <u>besiina'</u> taa' gulaan
but <u>one</u> <u>deer</u> FOC C/appear
...but it was a deer that appeared.

82. **¿[<u>Làà'unnà'</u>]$_i$ taa' uccwa t$_i$ béccú' chò'?**
<u>làà-'un=nà'</u> taa' uccwa beccu' cho'
<u>BAS-INDEF.PRO=DIST</u> FOC C/be dog of/2SG
Was that your dog?

Note too that these phrases also do not cooccur with a coindexed pronoun, which is expected as they represent instances of movement.

These phrases represent clear candidates for movement to CP. MacZ allows other apparent instances of movement involving quantified indefinite DPs like those in 83-88:

83. **Ànúúdi$_i$ betti t$_i$ conééjúà'.**
ànúúdi betti conééjú =à'
nobody C/kill rabbit =DIST
Nobody killed the rabbit.

84. **Náàyá' ìyhéé bènnè'$_i$ gutoo t$_i$ ca etta chà'á.**
náàyá' ìyhéé bènnè' gutoo ca etta chà' =á
yesterday many people C/eat PL tortilla of/1SG =INVIS
Yesterday, many people ate my tortillas.

85. **Ttu yaa$_i$ gubixxi t$_i$.**
ttu yaa gubixxi
a tree C/fall
A tree fell.

86. **Ttu beyeeti'$_i$ begwiia' Felipeà' t$_i$ náàyá'.**
ttu beyeeti' begwiia' Felipe =à' náàyá'
a bat C/see Felipe =DIST yesterday
Felipe saw a bat yesterday.

87. **Ttu ettaxtiila$_i$ gutoo Felipeà' t$_i$.**
ttu ettaxtiila gutoo Felipe =à'
a loaf C/eat Felipe =DIST
Felipe ate a loaf.

88. **Chúppá bènnè'$_i$ beeni compa taa quí'yà' t$_i$.**
chúppá bènnè' beeni compa taa quí' =ya'
two person C/make help father of =1SG
My father helped two people.

As these fronted phrases do not require coindexed pronouns and have other commonalities with *wh*-movement in MacZ,[17] they too seem to represent instances of movement, perhaps a form of overt Quantifier Raising (QR).

Unlike *wh*-movement and relativization, overt QR is optional, with the exception of the negative indefinite pronouns, such as *àbíídi* 'nothing' and *ànúúdi* 'nobody' in 83. These obligatorily front, possibly driven to check a strong [neg] feature. As such, a likely

[17] For example, like *wh*-movement in MacZ, this movement requires a resumptive subject pronoun in certain instances. See Section 4.2.7 below.

landing site for them is [Spec,NegP], which must be positioned above TP. The negative indefinite pronouns, however, must remain below the CP since DPs that do appear within CP show quite a bit of flexibility in their ordering, unlike the negative indefinite pronouns. We have already seen that topics can be freely ordered with respect to each other, and other DPs within the expanded CP can also precede topics. For example, *wh-* and relative pronouns can precede topics as shown below in 89 and 90, where *Felipeà'* represents a topic. Thus, moved DPs do not block other DPs from TopP.

89. **¿Núú$_i$ní Felipeà'$_k$ begwiia'nà$_k$ t$_i$?**
núú =ní Felipe =à' begwiia' =nà
who =COMP Felipe =DIST C/see =3N
Who did Felipe see?

90. **Àbíí yuuyà' biiyha$_i$ taa' Felipeà'$_k$ arcalaa'nì$_k$ t$_i$.** {mm}
àbíí yuu =ya' bii -yha taa' Felipe =à' arcalaa(si) =nì
NEG S/know =1SN what -INDEF FOC Felipe =DIST H/want =3G
I don't know what Felipe wants.

Negative indefinite pronouns do not have this ability. They cannot precede topics, but must follow them, as seen in 91:

91. a. **Felipeà'$_k$ àbíídi$_i$ arcalaa'nì$_k$ t$_i$.** {mm}
Felipe =à' àbíídi arcalaa'(si) =nì
Felipe =DIST nothing H/want =3G
Felipe doesn't want anything.

b. ***Àbíídi$_i$ Felipeà'$_k$ arcalaa'nì$_k$ t$_i$.** {mm}

And not surprisingly, *wh-* and relative pronouns within the CP precede negation and the negative indefinite pronouns:

92. **Beyùú' nu'$_i$ àbíídi gunnee=t$_i$=á naanà Yhiida'.** {vi4a}
beyùú' nu' àbíídi gunnee =á naa =nà Yhiida'
man REL nothing C/talk =INVIS S/be =3N Chinantec
That man who didn't say anything is Chinantec.

93. **¿Núú$_i$ní làbíi chi gutoo t$_i$?**
núú =ní làbíi chi gutoo
who =COMP NEG already C/eat
Who hasn't eaten yet?

These facts indicate that negative indefinite pronouns do not surface in CP, but remain below it.

Although the other quantified/indefinite DPs like those in 84-88 don't target NegP, they too appear to remain below CP. This is supported by the fact that these phrases too cannot precede topics:

94. a. **Felipeà'$_k$ ttu ettaxtiila$_i$ gutoonà$_k$ t$_i$.**
Felipe =à' ttu ettaxtiila' gutoo =nà
Felipe =DIST a loaf C/eat =3N
Felipe ate a loaf.

b. ***Ttu ettaxtiila$_i$ Felipeà'$_k$ gutoonà$_k$ t$_i$.**

Interestingly, these fronted quantified/indefinite DPs are also incompatible with negation and negative indefinite pronouns, as shown below:

95. a. ***Ttu chúppá bènnè'$_i$ àbíí ruyhiisi t$_i$.** {mm}
ttu chúppá bènnè' àbíí ruyhiisi
one two person NEG H/laugh
**A few people aren't laughing.*

cf.

b. **Ttu chúppá bènnè'$_i$ ruyhiisi t$_i$.**
ttu chúppá bènnè' ruyhiisi
one two person H/laugh
A few people are laughing.

96. ***Ttu yaa$_i$ àbíí gubixxi t$_i$.**
ttu yaa àbíí gubixxi
a tree NEG C/fall
**A tree didn't fall.*

97. ***Ttu chúppá bènnè'$_i$ àbíídi$_k$ gutoo t$_i$ t$_k$.** {mm}
ttu chúppá bènnè' àbíídi gutoo
one two person nothing C/eat
**A few people didn't eat anything.*

This is possibly the result of some structural conflict between the negative elements and the (other) quantified indefinite DPs. If the moved DPs generally adjoin to TP, it is conceivable this could be blocked by the presence of NegP above TP. Another possibility is that there is some semantic/scope conflict. For each of the sentences in 95-97, the intended scope is of the quantified subject over negation. Perhaps this is not possible if negation c-commands the trace of a quantified, indefinite expression.

In either case, to occur preverbally before negation, the quantified/indefinite DP must become a topic, receiving a [+specific] interpretation:

98. **Ttu chúppá bènnè'$_i$ àbíí ruyhiisicanà$_i$.** {mm}
ttu chúppá bènnè' àbíí ruyhiisi =ca =nà
one two person NEG H/laugh =PL =3N
A few people aren't laughing.

99. **Ttu yaa$_i$ àbíí gubixxinà$_i$.**
ttu yaa àbíí gubixxi =nà
a tree NEG C/fall =3N
A tree didn't fall.

100. **Ttu chúppá bènnè'$_i$ àbíídi$_k$ gutoocanà$_i$ t$_k$.** {mm}
ttu chúppá bènnè' àbíídi gutoo =ca =nà
one two person nothing C/eat =PL =3N
A few people didn't eat anything.

Converted to a topic, the quantified DP can now precede other topic DPs, as shown below:

101. **Ttu ettaxtiila$_i$ Felipeà'$_k$ gutoonà$_k$ nà$_i$.**
ttu ettaxtiila Felipe =à' gutoo =nà =nà
a loaf Felipe =DIST C/eat =3N =3A
One loaf, Felipe ate it.

In contrast to *wh*-words, relative pronouns and focused phrases, other quantified/indefinite phrases do not target CP as a landing site. Instead, they seem to have a slightly lower landing site, adjoining to TP or, for negative quantifiers, moving to NegP. However, these quantified expressions—with the exception of negative indefinites—can also receive a [+specific] interpretation and be base-generated in TopP, where they exhibit all of the properties associated with topics.

4.1.7 Overview of A/A' Positions

We have now established the various positions where we might find the grammatical subject DP. This is crucial for establishing which properties are uniquely associated with nominative subjects in MacZ. These will, in turn, provide diagnostics for evaluating the grammatical subjecthood of various non-nominative subjects.

The grammatical subject may surface in a number of different positions. However, to be interpreted as a subject, a DP must either occur immediately after the verb in the VS(O) order or be coindexed with a trace or clitic pronoun in that position. This establishes the postverbal position as being the surface syntactic subject position.

Of course, full DPs are not restricted to this postverbal position but may appear in other positions as well. Indeed, the order of the verb and full DP subjects and objects can quite freely occur in five of the six possible orderings: VSO, SVO, OVS, SOV, and OSV as we saw in 29 repeated below:

29. a. [etta chà' =á]$_i$ gutoo taa chà' =à' =nà$_i$ OVS=O
[tortilla of/1SG =INVIS] C/eat father of/1SG =DIST =3A

b. [etta chà' =á]$_i$ [taa chà' =à']$_k$ gutoo =yé$_k$ =nà$_i$ OSV=S=O
[tortilla of/1SG =INVIS] [father of/1SG =DIST] C/eat =3FN=3A

c. [taa chà' =à']$_k$ [etta chà' =á]$_i$ gutoo =yé$_k$ =nà$_i$ SOV=S=O
[father of/1SG =DIST] [tortilla of/1SG =INVIS] C/eat =3FN=3A

d. [taa chà' =à']$_k$ gutoo =yé$_k$ etta chà' =á SV=SO
[father of/1SG =DIST] C/eat =3FN tortilla of/1SG =INVIS

e. gutoo taa chà' =à' etta chà' =á VSO
C/eat father of/1SG =DIST tortilla of/1SG =INVIS

My father ate my tortilla

Crucially, the clitic pronouns must retain the strict VSO order. A clitic subject pronoun must always immediately follow the verb and precede any other postverbal arguments, whether full or pronominal.

Only the VOS order is never allowed. The postverbal subject (whether full or pronominal) must precede a postverbal object (see Section 4.2.3 for more examples and discussion):

102. gutoo etta chà' =á taa chà' =à' *VOS
C/eat tortilla of/1SG =INVIS father of/1SG =DIST
!*My tortilla ate my father.*
**My father ate my tortilla.*

Even a highly implausible interpretation cannot force the VOS alternative to be accepted. Just as English strictly adheres to SVO, so MacZ does to VSO. Again this emphasizes the identification of the immediate postverbal position as being occupied by the syntactic subject.

As we have seen in 29 above, definite and specific DPs can appear preverbally as topics. These topic DPs are base-generated in TopP—part of the expanded CP—and must be coreferent with a following postverbal argument clitic.

In addition, other positions and mechanisms are available which may allow a preverbal DP. For example, argument DPs may undergo movement to a preverbal position, moving under focus, as a result of *wh*-movement, or via overt QR of quantified/indefinite expressions. The first two (focus and *wh*-movement) target positions within CP, while overt QR appears to target a lower position, perhaps adjoining to TP. In all three cases, the moved DP typically leaves behind a silent trace in its postverbal argument position. (An exception with a spelled-out trace is discussed below in 4.2.7.)

These processes—dislocation and movement—drive the major word order permutations that are found in MacZ. In all cases though, the subject maintains some connection, either via a trace or coindexed pronoun, with the immediate postverbal subject position. Now that we have established that this is the position the grammatical subject occupies, we can consider which syntactic properties are associated with this position in MacZ. These properties can then be used as a diagnostic to test if apparent non-nominative subjects are in fact syntactic subjects. For example, we can use these properties to investigate if MacZ allows both dative and genitive subjects. In the next section, I discuss and develop the various relevant diagnostics.

4.2 Properties of Nominative Subjects/Diagnostics for Subjects

Now that we have identified the grammatical subject as being that DP which originates as an argument of the verb/predicate and covertly or overtly moves through [Spec,TP], we can investigate various morphosyntactic properties that are uniquely associated with such DPs and develop diagnostics for the syntactic subject. There are several properties of nominative subjects that are worth discussing and developing as diagnostics including morphological case properties, lack of pro-drop, word order, omission in imperatives, omission with non-finite verbs, behavior in binding, and movement restrictions.

4.2.1 Morphological Properties: Nominative Case

As discussed in Section 3.2.1, MacZ has relatively few overt case distinctions, though more than some Zapotec languages (cf. Quiegolani Zapotec (Black 2000) for example). The few overt realizations of case in MacZ are restricted to the bound pronominal system, as seen below:

103.	Nominative		Dative/Accusative		Genitive (Inalienable)	
	singular	plural	singular	plural	singular	plural
1st inclusive		=riu'		=riu'		=riu'
exclusive	=ya'	=tù'	(=/ì)ntè'[18]	(=/ì)ntù'	=ya'	=tù'
2nd informal	=lù'	=li	=lù'	=li	=lù'	=li
formal	=ccwa'	=ccwa'li	=ccwa'	=ccwa'li	=ccwa'	=ccwa'li
3rd nonformal	=nà	=canà	=nà	=canà	=nì	=canì
formal	=yé	=cayé	=yé	=cayé	=yé	=cayé
child	=bí	=cabí	=bí	=cabí	=bí	=cabí
animal	=ba	=caba	=ba	=caba	=ba	=caba

[18] In fast speech, the initial [*i*]- in *=(i)nte'* and *=(i)ntu'* deletes and the pronouns cliticize to the preceding word. In more careful speech, the [*i*] is pronounced and the pronouns do not cliticize.

As indicated by the shading, the distinctions are restricted to first person and third nonformal forms. The core uses of the nominative, accusative and genitive cases—marking subjects, objects and possessors respectively—are illustrated below:

104. a. Begwiia' =ya' =nà
C/see =1SN =3A
I saw him.

b. Begwiia' =nà =ntè'
C/see =3N =1SA
He saw me.

105. a. naaga =ya'
ear =1SG
my ear

b. naaga =nì
ear =3G
his ear

Of course, if all grammatical subjects consistently took nominative clitic pronouns, there would be little to discuss in identifying the subject of a clause. Frequently in MacZ, however, the apparent subject is not nominative, but shows up in one of the other cases, either dative (as in 106) or genitive (107):

106. a. Nabiia'=ni =ntè' =nà
S/know=PREP =1SA =3A
I know him.

b. Nabiia'=ni =nà =ntè'
S/know=PREP=3A =1SA
He knows me.

107. a. Rulaasi' =ya' =nà
H/like =1SG =3A
I like him.

b. Rulaasi' =nì =ntè'
H/like =3G =1SA
He likes me.

Thus, if these non-nominative arguments are in fact grammatical subjects, then nominative case cannot be a necessary condition of subjecthood. It is not clear if it is a sufficient condition either. As discussed in Section 3.2.1.4, not only does nominative case appear with most subjects, it also appears on pronouns modified by various quantifiers. These quantifiers do exhibit other verbal properties, including taking aspectual prefixes in other Zapotec languages. It is possible then that nominative case marks the subject of these quantificational verbs. Whether or not this is the correct

analysis for the quantifiers, nominative pronominal forms do provide a pretty good indication of grammatical subjecthood. Apart from the quantifier context, nominative case is restricted to uncontroversial grammatical subjects. As a result, the presence of nominative case provides evidence that an argument is a grammatical subject.

Although this diagnostic by definition cannot be applied to potential dative and genitive subjects, it can be used as a quick test for subject with verbs whose semantics are similar to dative and genitive subject verbs. In addition for certain verbs and in certain circumstances it is possible for the exceptional dative and genitive subjects to appear in the nominative form, providing additional evidence of their subject status.

4.2.2 Lack of pro-Drop

A second subject property worth noting is that subjects may not undergo pro-drop in MacZ. The postverbal subject position must typically either be overtly filled or contain the trace of a subject which is overtly realized in some other position. Omitting finite subjects is not generally allowed.[19]

The postverbal subject may move to another position, but it cannot be omitted through pro-drop. This is true regardless of person, number or formality of the pronoun or the context as shown below in 108-112:

[19] Imperatives are an unsurprising exception. More surprisingly, subjects may also be omitted under coreference with a following possessor DP as discussed in 4.2.6 and extensively in Chapter 6. This does not seem to be the result of pro-drop because of the coreference requirement. Simiarly, Black (2000) argues that Quiegolani Zapotec is not a pro-drop language, despite also having this unusual backward binding construction.

108. **Gullia*(ba')ntè'.**
gullia *(=ba') =ntè'
P/kick *(=3ANIM) =1SA
It will kick me.

109. **Ruun*(yé) yíínató'.**
ruuni *(=yé) yíínató'
H/do *(=3FN) yellow.mole
He/she is making yellow mole.

110. **Raa*(nà)ntè' què' dùá*(lù') taarí'á.**
raa *(=nà) =ntè' què' dùá *(=lù') taarí' =á
H/say *(=3N) =1SA COMP S/live *(=2SN) far.away =INVIS
He/she told me that you live far away.

111. **Reyuun*(canà) carru.**
reyuuni *(=ca =nà) carru
H/repair *(=PL =3N) car
They fix cars.

112. **Edííga*(yà') ca llaveni.**
edííga *(=ya') ca llave =ni
P/pick.up *(=1SN) PL key =PROX
I will pick up these keys.

Note that preverbal independent pronouns can optionally appear in TopP, but importantly, the postverbal clitic pronouns are not optional:

113. **(Lààba') gullia*(ba')ntè'.**
(làà=ba') gullia *(=ba') =ntè'
(BAS=3ANIM) P/kick *(=3ANIM) =1SA
It will kick me.

114. **(Lààyé) ruun*(yé) yíínató'.**
(làà=yé) ruuni *(=yé) yíínató'
(BAS=3F) H/do *(=3FN) yellow.mole
He/she is making yellow mole.

115. **(Làànà) raa*(nà)ntè' què' dùá*(lù') taarí'á.**
(làà=nà) raa *(=nà) =ntè' què' dùá *(=lù') taarí' =á
(BAS=3) H/say *(=3N) =1SA COMP S/live *(=2SN) far.away =INVIS
He/she told me that you live far away.

116. **(Lààcanà) reyuun*(canà) carru.**
(làà=ca=nà) reyuuni *(=ca =nà) carru
(BAS=PL=3) H/repair *(=PL =3N) car
They fix cars.

117. **(Ìntè') edíiga*(yà') ca llaveni.**
(ìntè') edíiga *(=ya') ca llave =ni
(me) P/pick.up *(=1SN) PL key =PROX
I will pick up these keys.

The lack of pro-drop does not necessarily provide a diagnostic to verify the subjecthood of dative and genitive subjects. It does, however, help rule out alternative analyses of these and other phenomena.

4.2.3 Word Order

A stronger diagnostic is provided by word order restrictions. As discussed previously, MacZ commonly allows a variety of word order permutations of full DPs: SVO, OVS, OSV, SOV and VSO. Crucially though clitic pronouns maintain a strict VSO ordering. Furthermore, MacZ is a "pure" VSO language for both full and pronominal DPs and does not allow a VOS ordering alternative as some VSO languages do (see Polinsky 1997 for an example of this alternation).

As shown below in 118-122, placing an independent object before an overt postverbal subject results in ungrammaticality or forces the would-be object to be interpreted as a subject. This is true whether or not the object is indefinite (118) or whether one or both arguments are pronominal (120-122):

118. a. **Ruuni naanquí'yà' yíinatò'.** VSO
ruuni naan-quí' =ya' yíina =tò'
H/do mother-of =1SG chili =DIM
yellow mole
My mother is making yellow mole.

b. ***Ruuni yiinatò' naanquí'yà'.** *VOS

119. a. **Beyuuni Felipeà' carruni.** VSO
beyuuni Felipe =à' carru =ni
C/repair Felipe =DIST car =PROX
Felipe fixed this car.

b. **!Beyuuni carruni Felipeà'.** *VOS
***Felipe fixed this car. !This car fixed Felipe.*

120. a. **Beyuuni Felipeà'nà.** VSO
beyuuni Felipe =à' =nà
C/fix Felipe =DIST =3A
Felipe fixed it.

b. **!Beyuuinnà Felipeà'.** *VOS
***Felipe fixed it. !He/she/it fixed Felipe.*

121. a. **Edíígayà' ca llaveni.** VSO
edíiga =ya' ca llave =ni
P/pick.up =1SN PL key =PROX
I will pick up these keys.

b. ***Edíiga ca llaveniyà'.** *VOS

122. a. **Edíígayà'canà.** VSO
edíiga =ya' =ca =nà
R/pick.up =1SN =PL =3A
I will pick them up.

b. ***Edíígacanàyà'.** *VOS

The verb and postverbal subject (if present) must form a continuous string. No phonologically independent material may intervene between the verb and postverbal subject, regardless of whether the subject is pronominal or a full DP. Thus, if a

postverbal argument can be separated from the verb, it cannot be the grammatical subject. Conversely, if a postverbal argument cannot be separated from the verb, especially by another argument, then it provides good evidence that that argument may be the grammatical subject.

4.2.4 Imperatives

Another subject property that can be used as a diagnostic is provided by imperatives. Positive imperatives with second singular subjects in MacZ are formed using the completive form of the verb. As shown in 123-127 below, a second person singular informal subject (*=lù'*) is not overtly expressed in these constructions (an underline marks the missing subject). The presence of an overt subject, instead, blocks the imperative interpretation, yielding a simple declarative completive interpretation as illustrated in 123b:

123. a. **Guduani___.**
guduani
C/sit
Sit down.

b. **Guduanlù'.** {mm}
guduani=lù'
C/sit =2SN
You sat down. ***Sit down.***

124. **Gutoo___ ru'ayà'.** {v21g}
gutoo ru'a =ya'
C/eat mouth =1SG
Kiss me.

125. **Gutoo___ ca ettaná.** {v209k}
gutoo ca etta =ná
C/eat PL tortilla =INVIS
Eat the tortillas.

126. **Begwiia'___ Felipeà'.** {v282h}
begwiia' Felipe =à'
C/look.at Felipe =DIST
Look at Felipe.

127. **Gutii___ ca nàá'lù'.** {v25c}
gutii ca nàá' =lù'
C/wash PL hand =2SG
Wash your hands.

With second person singular formal imperatives, the subject is overtly expressed as seen below:

128. **Guduanccwà'.** {mm}
guduani =ccwà'
C/sit =2FN
Sit down.

129. **Beenccwà' quediuyhi.** {mm}
beeni =ccwà' quediuyhi
C/do =2SF please
Please do.

Only second person informal singular subjects can be omitted in these imperatives. Therefore, if a second person singular informal argument can be omitted in a positive imperative, it provides good evidence that the omitted argument is a subject. Furthermore, failure to delete a second person singular informal argument in a positive imperative indicates it is not a subject.

The imperative diagnostic nicely complements some of the other diagnostics. For example, unlike the word order diagnostic in 4.2.3 above, the imperative can be employed with intransitives. Likewise, in contrast to the movement tests, the imperative diagnostic is insensitive to transitivity and selectional restrictions on objects. As noted in 4.2.7, movement can require a resumptive subject pronoun when a clitic object follows

the subject position and/or to avoid ambiguity. This can alter and sometimes limit the use of that diagnostic.

Although imperative formation, like movement, can result in an empty (or null) postverbal subject, it does not exhibit the same restrictions. The null imperative subject does not result in ambiguity and is insensitive to clitic objects. Thus, although *Felipeà'* in 126 could potentially fill the subject selectional restrictions of *begwiia'* 'look(ed) at', it does not force the imperative subject to be overt, as it would force a resumptive pronoun for a moved subject. The subject, *=lù'*, can still be omitted in such imperative contexts (perhaps the intonation associated with imperatives avoids potential ambiguities and licenses the null subject).

Similarly, a clitic object does not require the imperative postverbal subject to be overt. Unlike movement from such an environment, an overt subject clitic is not required, as shown below:

130. **Guteesi___ntè'.** {iv73a}
guteesi =ntè'
C/hug =1SA
Hug me.

131. **Gureesiya'ain___nà.** {v67f}
gureesiya'a =ni[20] =nà
C/yell =PREP =3A
Yell at her.

Of course, the imperative diagnostic does have one limitation in its use: it is restricted to volitional contexts in which the subject referent has some control over the event denoted by the predicate. Imperatives are only semantically compatible with

[20] Here, *=ni* licenses the object, not a subject. For the imperative diagnostic of *=ni* subjects see Chapter 5.

volitional predicates. This does significantly restrict the number of verbs that can accept this diagnostic. Many of the dative and genitive subject verbs whose subject licensing is in question are non-volitional, and the imperative diagnostic cannot be applied to them. Fortunately, a few volitional verbs can be found in each class and as will be shown, the imperative diagnostic confirms the existence of dative and genitive subjects in MacZ.

4.2.5 Non-Finite Verbs

Another subject diagnostic is provided by non-finite verbs in MacZ (see Section 3.1.1.6 above). Unlike some varieties of Zapotec (cf. San Lucas Quiaviní Zapotec (Munro and Lopez et al. 1999) for example), MacZ has a non-finite verbal form which functions something like an infinitive. Like non-finite verbal forms in many languages, the ones in MacZ do not license an overt external argument; they cannot have (overt) subjects. This predicts then that if a verb licenses a subject, an overt realization of that subject will be incompatible with the non-finite form of the verb.

The non-finite form of a verb in MacZ is typically indicated by the prefix *gw-*. In this form, the verb cannot license an (overt) external argument and therefore does not have an overt subject. The subject instead must be computed via some control module. The following sentences in 132-137 exemplify the non-finite verbal form (an underline follows the non-finite verb marking the postverbal position a finite subject would occupy):

132. **Diia'yà' gwediia____ ttu carta.** {v21j}
diia' =ya' gwediia ttu carta
S/go =1SN N/write a letter
I'm on my way to write a letter.

133. **Diia'nà gweyúú____ naanquè'nìá.** {Wedding Story.14}
diia' =nà gweyúú naan -què' =nì =á
H/go =3N N/visit mother -of =3G =INVIS
She went to visit her mother.

134. **Béccú'nà' gudàànà gweyhiia___.** {v149e'}
béccú' =nà' gudàà =nà gweyhiia
dog =DIST C/do? =3N N/bark
That dog was barking.

135. **Gwa'loo què'canì gweduuttse'___ loo meesa diila Saabadu.** {v112i}
gwa'loo què' =ca =nì gweduu =ttse' loo mesa diila Saabadu
C/finish of =PL =3G N/make.stand =well on table morning Saturday
They finished preparing the altar on Saturday morning.

136. **Làànànna dedáá'nà ló néédà gwìttià___, gwètuppá____ ìyyà…** {Wedding Story.6}
làà=nà =nna dedáá' =nà lóó néédà gwìttià gwètuppá ìyyà
BAS=3N =and S/come.back =3N on road N/play N/collect flower
And she was coming back on the road playing, gathering flowers…

137. **Diiateyà' loo ramal gwegwia'___ nuuyha taa' rugwiacaba.** {Deer Story.13/14}
diia' =te =ya' loo ramal gwegia' nuu -yha taa' rugwia' =ca =ba
S/go =INT =1SN on path N/look.at who -INDEF FOC H/look.at =PL =3ANIM
I went right away on the path to look at whatever they were looking at.

Not only can the postverbal subject position go unfilled with a non-finite form of the verb, it must be. Attempting to overtly express the postverbal subject of the non-finite form of the verb results in ungrammaticality, as shown below:

138. **Diia'yà' gwediia(*yà') ttu carta.** {mm}

139. **Diia'nà gweyúú(*nà) naanquè'nìá.** {mm}

140. **Gwa'loo què'cani gweduuttse'(*canà) loo meesa diila Saabadu.** {v112i'}

141. **Diia'yà' gwesiia(*yà') fruta loo mesà'.** {v108d}
diia' =ya' gwesiia (*=ya') fruta loo mesa =à'
S/go =1SN N/put (*=1SN) fruit on table =DIST
I'm on my way to put fruit on the table.

142. **Diia'tù' gwesaa'(*tù') Aan Pánfila.** {v20d'}

diia	=tù'	gwesaa'	(*=tù')	Aan	Pánfila
S/go	=1EXCLN	N/get.together.with	(*=1EXCLN)	Señora	Pánfila

We are on our way to get together with Señora Pánfila.

As a diagnostic, this subject property has an advantage over some of the others in that the postverbal subject not only cannot be overt, it must not be. Some of the other diagnostics which rely on the omission of a postverbal subject allow the position to be optionally filled. Therefore with the non-finite diagnostic, we can conclude not only that if an (overt) argument cannot be licensed by a non-finite form, then that argument must be a subject but also that if an argument remains overt with a non-finite form, it cannot be a subject.

Like the imperative diagnostic discussed in 4.2.4 above, the non-finite diagnostic has several additional advantages. For example, it can be used with intransitives like *gweyhiia* 'bark' in 134 and *gwìttià* 'play' in 136. Also unlike movement and Covert Subject Binding, this diagnostic is not blocked by potential ambiguities with an object or by clitic object pronouns. Since the verb is overtly marked as being non-finite, there is no possibility of ambiguity resulting from a following object being interpreted as the subject without an overt subject. In contrast to the movement diagnostic in such cases, no overt resumptive pronoun is forced with the non-finite verb as seen in 139 and 142.

Similarly, the omission of the overt subject of the non-finite verb is insensitive to whether there is a following clitic pronoun. Moving a subject in such situations requires the insertion of a resumptive pronoun. The non-finite subject, however, still cannot be overtly realized in such situations:

143. **Béccú'nà' gudàànà gweyhiani(*nà)ntè'.** {v149e}
béccú' =nà' gudàà =nà gweyhia =ni (*=nà) =ntè'
dog =DIST C/do? =3N N/bark =PREP (*=3N) =1SA
That dog was barking at me.

144. **Diiayà' gubeesiya'ani(*yà')canà.** {v68e}
diia =ya' gubeesiya'a =ni (*=ya') =ca =nà
S/go =1SN N/yell =PREP (*=1SN) =PL =3A
I am on my way to yell at them.

Although it has numerous advantages as a diagnostic, the non-finite test also has a major drawback: only a restricted subset of verbs have a non-finite form. Many verbs do not have this non-finite form. Like imperatives, it only occurs with verbs whose subjects have some degree of volitionality, but is even more restricted than the distribution of imperatives, which can be formed with any verb when its subject can be construed as having some volitional control over the predicate. Imperatives seem to be licensed purely by the semantic and possibly pragmatic interpretations of the predicate. The non-finite form is not licensed merely by the semantic/pragmatic interpretations but only occurs with verbs whose subjects are underlying agents, which I take to originate in [Spec,vP]. Unfortunately, it is non-agentive arguments whose subjecthood is usually in question. While this test cannot be applied to most of these, it does provide a diagnostic for complex verbs derived from these agentive verbs, such as verbs with incorporated nouns and apparent genitive subjects, as discussed in Chapter 6.

4.2.6 Covert Subject Binding

Another subject property and diagnostic is provided by an unusual backwards binding construction. Although the direction of the binding and mechanism involved are

crosslinguistically rare, the descriptive facts are fairly straightforward and provide a reliable diagnostic.

As discussed in detail in Chapter 6, MacZ and several other Zapotec languages have a binding construction which I label Covert Subject Binding (CSB). In this construction, a subject may be covertly realized when it is coreferential with some following, embedded DP, usually a possessor. This is schematized below in 145 (this is not intended to represent how such sentences are in fact derived):

145. V Subject$_i$ … [$_{DP}$ …N… Possessor$_i$ …] … → V ∅$_i$ …[$_{DP}$ …N… Possessor$_i$ …] …

Only subjects are targeted in this way, producing sentences such as those in 146-151 (rough English word-by-word equivalents are given in parentheses and covert subjects are indicated by an underline in the normal postverbal subject position):

146. **Deeya ___ liisi' Joaquin.** V ~~S$_i$~~ [$_{PP}$ N Poss$_i$] {vi27l}
deeya ___ liisi' Joaquin
S/go.back ___ home Joaquin
Joaquin$_i$ went to his$_i$ home. (went to home of Joaquin)

147. **Beyuuni ___ carru què' Felipeà'.** V ~~S$_i$~~ [$_{DP}$ N of Poss$_i$]
beyuuni ___ carru què' Felipe =à'
C/repair ___ car of Felipe =DIST
Felipe$_i$ repaired his$_i$ car. (repaired car of Felipe)

148. **Neccu' ___ vestiidu cuubi què'nià'.** V ~~S$_i$~~ [$_{DP}$ N…of Poss$_i$]
neccu' ___ vestiidu cuubi què' =nì =à'
S/wear ___ dress new of =3G =DIST
She$_i$ is wearing her$_i$ new dress. (wearing that new dress of hers)

149. **Ediíga ___ ca llave chà'á.** V ~~S$_i$~~ [$_{DP}$ N of Poss$_i$]
ediíga ___ ca llave chà' =á
P/pick.up ___ PL key of/1SG =INVIS
I will pick up my keys. (will pick up those keys of mine)

150. **Làànà roo____ <u>lààní</u> ca nàá'nì.** V ~~S~~$_i$ [$_{PP}$ P [$_{DP}$ N Poss$_i$]] {ii79f/g}
làànà roo <u>lààní</u> ca nàá' =nì
3BAS H/eat <u>with</u> PL hand =3G
He$_i$ eats with his$_i$ hands. (eats with his hands)

151. **Bedúú ___ luitayà' silla laata duuanlù'á.** V ~~S~~$_i$ [$_{PP}$ N Poss$_i$] DO {iv1i}
bedúú ___ luita =ya' silla laata duuani =lù' =á
C/put ___ side =1SG chair where S/sit =2SN=INVIS
I put at my side the chair where you were sitting. (put at my side the chair…)

As noted, only a subject argument can be rendered null in Covert Subject Binding. Other arguments, such as null objects, cannot be licensed in this way. The (a) sentences below in 152-155 cannot alternate with the (b) counterparts that have a null object.

152. a.**Bethellayà' Felipeà' liisi'nì.** {vi28a}
bethella=ya' Felipe =à' liisi' =nì
C/send =1SN Felipe =DIST home =3G
I sent Felipe to his home.

b.***Bethellayà' ___ liisi' Felipeà'.** *V S ~~DO~~$_i$ [$_{PP}$ …N of Poss$_i$] {vi28b}
**I sent ___ home of Felipe*

153. a.**Beeyà'canà direccion què'canì.** {vi28c}
bee =ya' =ca =nà direccion què' ca =nì
C/give =1SN =PL =3A address of PL =3G
I gave them each other's addresses.

b.***Beeyà' ___ direccion què'canì.** *V S ~~IO~~$_i$ [$_{DP}$ …N of Poss$_i$] {vi28d}
**I gave ___ addresses of theirs.*

154. a.**Beseelantè' Felipeà' llè'è carru què'nìá.** {vi28e}
beseela =ni =ntè' Felipe =à' llè'è carru què' =nì =á
C/be.found =PREP =1SD Felipe =DIST in car of =3G =INVIS
I found Felipe in his car.

b.**!Beseelantè' ___ llè'è carru què' Felipeà'.** *V S ~~DO~~$_i$ [$_{PP}$ …N of Poss$_i$] {vi28f}
*!I found the stomach of Felipe's car. *I found Felipe in his car.*

155. a. **Betheenyà'cana ca llave què' luesi'canì.** {v182c'}
betheeni =ya' =ca =nà ca llave què' luesi' =ca =nì
C/hand =1SN =PL =3A PL key of self =PL =3G
I gave them each other's keys.

b. ***Betheenyà' ___ ca llave què' luesi'canì.** *V S ~~IO$_i$~~ [$_{DP}$ …N of Poss$_i$] {v182d'}
**I handed ___ the keys of each other.*

Although this construction is unusual it provides a clear test for subjecthood. And it is a fairly robust diagnostic, occurring with a broad range of predicate types. For example, it can be licensed not only with a possessed direct object of a transitive verb, but also by the possessed object of a preposition with an intransitive verb, as in 150 above.

This diagnostic, however, is limited in ways similar to the movement diagnostics discussed in the next section. Since a possessor is required, this diagnostic cannot be used if the direct object is pronominal, since pronouns cannot take possessors. A more subtle restriction, however, is that the possessed direct object DP generally cannot be one that satisfies the verb's selectional restrictions on its subject. Thus in 156 below, omission of the subject under CSB is not possible, because *niula chà'á* 'my wife' can be a potential agent of *ruyhiiti'ni* 'confuses'. As discussed in the next section, *niula chà'á* 'my wife' must therefore be interpreted as the subject. Such an interpretation, however, leads to ungrammaticality since there is no direct object argument which this transitive verb requires.

156. **Ìntè' ruyhiiti'n*(yà') niula chà'á.** {v167e/f}
ìntè' ruyhiiti'=ni *(=ya') niula chà' =á
1SIND H/confuse=PREP *(=1SN) woman of/1SG =INVIS
I confuse my wife.

In contrast, in 157, the direct object of *ruyhiiti'ni* 'confuses' is *la'riyeeni què'nì* 'her mind', which does not readily satisfy the verb's selectional restriction for subject. As such, CSB is available in this sentence, as indicated by the underline:[21]

157. **Margarità' ruyhiiti'ni___ la'riyeeni què'nì.** {v167c}
Margarita =à' ruyhiiti'=ni la'riyeeni què' =nì
Margarita =DIST H/confuse=PREP mind of =3G
Margarita confuses herself (her mind).

As a result, we must be careful to rule out such confounding factors before concluding that the unavailability of CSB indicates that a DP is not a grammatical subject. While negative evidence is not as conclusive in CSB cases, positive evidence provides strong support for subjecthood. If an argument can be omitted under coreference with a following, embedded argument (usually a possessor), then the omitted argument must be the syntactic subject.

4.2.7 Movement

A final diagnostic for subjethood is provided by restrictions on movement. As discussed in 4.1.6, MacZ has various types of movement processes including relative pronoun movement, *wh*-movement, and overt quantifier raising. All varieties of movement interact with the grammatical subject position in specific ways providing valuable diagnostics for subjecthood.[22]

[21] Preverbal topic DPs, like those in 156-157, do not affect the availability of CSB. See Chapter 6 for more discussion.

[22] Focus movement, too, behaves the same way with respect to movement of subjects, though further study is needed to confirm these initial observations.

Generally in MacZ, an argument of the verb may undergo movement to a preverbal position, leaving behind no overt material in the postverbal argument position. This is represented below with an unpronounced trace:

158. **Carru nu'$_i$ guyo'o Felipeá t$_i$ bitappa'nà.** **relativization**
carru nu' guyo'o Felipe bitappa' =nà
car REL C/buy Felipe C/break.down =3N
The car that Felipe bought broke down.

159. **¿Núú$_i$ní bee'lù' t$_i$ libruá?** ***wh*-movement**
núú =ní bee' =lù' libru =á
who =COMP C/give =2SN book =INVIS
Who did you give the book to? {vi25c}

160. **Àbíídi$_i$ gutooyà' t$_i$.** **neg-indef fronting**[23]
àbíídi gutoo =ya'
nothing C/eat =1SN
I didn't eat anything.

For subjects—especially transitive subjects—the fronted element may cooccur with a resumptive clitic pronoun, overtly spelling out the trace:

161. **Nabiia'tè' bènnè' nu'$_i$ gucchu(nà$_i$) ittsicchálù'.** **relativization**
nabiia'=ni =tè' bènnè' nu' gucchu (=nà) ittsa-icchá =lù'
S/know=PREP =1SD person REL C/cut (=3N) hair-head =2SG
I know the person who cut your hair.

162. **¿Núú$_i$ní gucchu(nà$_i$) ittsicchalù'?** ***wh*-movment**
núú =ní gucchu (=nà) ittsa-icchá =lù'
who =COMP C/cut (=3N) hair-head =2SG
Who cut your hair?

163. **Ànúúdi$_i$ gucchu(nà$_i$) ittsiccháyà'.** **neg-indef fronting**
ànúúdi gucchu (=nà) ittsa-icchá =ya'
nobody C/cut (=3N) hair-head =1SG
Nobody cut my hair.

[23] Generally throughout this section I will use negative indefinite pronouns as an example of overt raising of quantified phrases since they obligatorily front. Apart from this difference, the negative indefinite pronouns are representative of quantified DPs.

Thus, 161 is literally something like 'I know the person who (he/she) cut your hair'.

In contrast, the moved objects in 158-160 not only may occur without a resumptive pronoun, but they must occur without a resumptive. Resumptive object pronouns are generally judged to be ungrammatical (crucially, this refers to resumptive pronouns with movement; coreferential pronouns with base-generated objects in TopP are grammatical as discussed in 4.1.3.2):[24]

164. **Carru nu'$_i$ guyo'o Felipeá(*nà$_i$) bitappa'nà.** **relativization**
carru nu' guyo'o Felipe (*=nà) bitappa' =nà
car REL C/buy Felipe (*=3A) C/break.down =3N
The car that Felipe bought broke down.

165. **¿Núú$_i$ní beelù'(*nà$_i$) libruá?** ***wh*-movement**
núú =ní bee' =lù' (*=nà) libru =á
who =COMP C/give =2SN (*=3A) book =INVIS
Who did you give the book to? {vi25}

166. **Àbíídí$_i$ gutooya'(*nà$_i$).** **neg-indef fronting**
àbíídi gutoo =ya' (*=nà)
nothing C/eat =1SN (*=3A)
I didn't eat anything.

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[24] I have found a very few instances of object resumptives (underlined below), and these need further study:

i. **Beyùú' nu'$_i$ ànúúdi$_k$ rulaa'nì$_k$nà$_i$ naanà Yhiida'.**
beyùú' nu' ànúúdi rulaa' =nì =nà naa =nà Yhiida'
man REL nobody H/like =3G =3A S/be =3 Chinantec
The man who nobody likes is Chinantec.

ii. **Bèttsì'yá' naanà ttu bènnè' nu'$_i$ niidi ttulte la gwee'yà'nà$_i$ ttu liibru què'ní ttutteba runittinàcanà.** {iv20}
bèttsì' =yá' naa =nà ttu bènnè' nu' niidi tulte la gwee' =ya' =nà
man's.bro =1SG S/be =3 one person REL no once EMP P/give =1s =3A

ttu liibru què'ní ttutteba runitti =nà =ca =nà
one book because always H/lose =3 =PL =3A
My brother is a person who I will never give a book to because he always looses them.

Possibly these are triggered only when there is additional fronting within the relative clause or material between the fronted DP and verb. If such cases can be confirmed, they are still very different from subject resumptives: the subject resumptives can much more freely be included than object ones and are required in contexts in which object resumptives are still found ungrammatical.

For relative clause formation at least, this is an interesting, although not unique, typological pattern. It has been claimed that resumptive pronouns are not generally found in the subject position of relative clauses, and that if they are, resumptive object pronouns should be equally available (Keenan and Comrie 1977). MacZ provides another counterexample to these claims. Keenan and Comrie themselves note a few languages, such as Hausa and Yoruba, which are exceptional in just this way; these are discussed below. In addition, this pattern is also reported in other West African languages such as Kinande (Bernard Comrie, pc) and Vata (Koopman and Sportiche 1986). Interestingly, these patterns have also been found in other, historical varieties of Zapotec (Munro 2002, Foreman and Munro (forthcoming)) suggesting that this pattern may be reconstructible for Proto-Zapotec. Although not necessarily an unusual pattern, the MacZ pattern of resumptive pronouns in relative clauses is still of interest both typologically and for understanding other aspects of MacZ grammar, such as Covert Subject Binding (see Section 4.2.6 above).

> In his survey of universal subject properties, Keenan (1976) notes that
>
> > a personal pronoun is rarely present in a position relativized if that position is a b[asic]-subject one. So even if a L[anguage], like Arabic, Fijian, or Welsh, normally presents such pronouns, as in the girl that John gave the book to her it will not normally say the girl that she gave the book to John but only the girl that gave the book to John (p. 320).

And Keenan and Comrie (1977:92) argue that "languages will exhibit a greater tendency to use pronoun-retaining [(resumptive pronoun)] RC-forming strategies" the lower the relativized position is on their Accessibility Hierarchy, given below in 167:

167. *Keenan and Comrie Accessibility Hierarchy*
Subject>Direct Object>Indirect Object>Oblique>Genitive>Object of Comparison

They observe that there is this general tendency not to have resumptive pronouns with relativized subjects, but it is not absolute. In their survey, they do find some languages that allow resumptive subject pronouns such as Urhobo and (North-East) Aoban (optionally). Subject resumptive pronouns are also attested in Spanish and Yiddish (see Suñer 1998 for an overview and references cited there). MacZ, too, exhibits this minority pattern: as we observed in 161-163, MacZ allows subject resumptive pronouns despite the general preference for resumptive pronouns in lower positions on the Accessibility Hierarchy.

By allowing subject resumptive pronouns, MacZ goes against a general trend. In other respects, however, it violates a suggested universal. Keenan and Comrie postulate that at whatever point on the Accessibility Hierarchy a language begins to employ resumptive pronouns in relative clauses, it must use them with all positions lower on the hierarchy that are relativizable (p. 92). MacZ does not follow this. While the highest point (subjects) on the hierarchy allows (optional) resumptive pronouns, lower positions—namely direct and indirect objects—do not allow resumptive pronouns, although they may be relativized (compare 158 and 164).

In fact, MacZ seems to provide a counterexample to a more general constraint proposed by Keenan and Comrie. They formulate a hierarchy constraint stating that "any R[elative]C[lause]-forming strategy must apply to a continuous segment of the A[ccessibility] H[ierarchy]" (p. 67). They conclude that if a relativization strategy is available to any two points on the hierarchy, then it must also be available to all intermediate positions on the hierarchy. MacZ is a counterexample because resumptive

pronouns in relative clauses are a strategy available to a discontinuous segment of the hierarchy.

Resumptive pronouns in relative clauses are available not only to subject relatives in MacZ, but also to obliques, as in 168-169, and genitives, as in 170 (the resumptive pronouns have been underlined):[25]

168. **Bènnè' Pabluá beinnà yaaraatu què'*(yé) duuayé Los Angeles.** {iv26}
bènnè' Pablu =á beeni =nà yaaraatu què' *(=yé) duua =yé LA
person Pablo =INVIS C/make =3N plow of *(=3FG) H/live =3F LA
The person Pablo made the plow for lives in Los Angeles.

169. **Bènné' nu'$_i$ bettsa'nàá'yà' làànin*(nà$_i$) naanà nu' Tagaayu'.**
bènné' nu' bettsa'nàá' =ya' lààní *(=nà) naa =nà nu' Tagaayu'
person REL C/get.married =1SG with *(=3D) S/be =3N REL Macuiltianguis
The person who I got married to is from Macuiltianguis.

170. **Beeyà' belliu bènnè' beyùú' nu'$_i$ gutittsayà' ni'a*(yé$_i$)à'.** {iv33}
bee' =ya' belliu bènnè' beyùú' nu' gutittsa =ya' ni'a *(=yé) =à'
C/give =1N money person man REL C/broke =1N leg *(=3G) =DIST
I gave money to the man whose leg I broke.

But as seen in 164, resumptive pronouns are not allowed with objects. This is nicely illustrated in the following pair of sentences, showing a subject resumptive pronoun in 171, which is required, and an object resumptive pronoun in 172, which is ungrammatical (the reason the subject resumptive is required in this sentence as opposed to being optional will be discussed below):

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[25] For certain obliques, there is another strategy available. If pied-piping occurs with the relativized DP then no resumptive is required:

i. **Bènnè' [lààní nu']$_i$ rnneeyà' t$_i$ rudilaacanàyé Felipe.** {iv21}
bènnè' lààní nu' rnnee =ya' rudilaa =ca =nà =yé Felipe
person with REL H/speak =1 H/call =PL =3 =3FACC Felipe
The person with whom I'm speaking is named Felipe.

This strategy is also available to DOs, IOs and subjects in MacZ and does not present any problems for the Accessibility Hierarchy.

171. **Beyùú' nu'$_i$ begwiia'*(nà$_i$) Felipeá náàyá' naanà béttsi'yà'.**
beyùú' nu' begwiia' *(=nà) F. =á náàyá' naa =nà bettsi' =ya'
man REL C/see (=3N) F. =INVIS yesterday S/be =3N man's.bro =1SG
The man who saw Felipe yesterday is my brother.
lit. *The man who he saw Felipe yesterday is my brother.*

172. **Beyùú' nu'$_i$ begwiia' Felipeá(*nà$_i$) náàyá' naanà béttsi'yà'.**
beyùú' nu' begwiia' F. =á (*=nà) náàyá' naa =nà bettsi' =ya'
man REL C/see F. =INVIS (*=3A) yesterday S/be =3N man's.bro =1SG
The man who Felipe saw yesterday is my brother.
**The man who Felipe saw him yesterday is my brother.*

Thus, the resumptive pronoun strategy in relative clauses is available to subjects, obliques and genitives but not to direct and indirect objects. These latter are intermediate positions on the Access Hierarchy, and this, therefore, appears to be a violation of the hierarchy constraint of Keenan and Comrie stated above.

As mentioned above, MacZ is not the only language which is exceptional in this way. In fact, Keenan and Comrie (1977) note a few languages that allow resumptive pronouns on discontinuous portions of their hierarchy. One language—Tongan—they suggest may be exceptional for historical reasons. They observe that the exceptional ergative subjects (with respect to the Access Hierarchy) of this language derive from passives while the absolutive direct objects were originally passive subjects. The relativization reflects these origins. Absolutive direct objects behave like typical subjects and do not allow resumptives while the ergative subjects behave like obliques in the language and take resumptive pronouns. Such an historical account for MacZ, however, does not seem plausible. There is no evidence that nominative subjects have been derived from earlier, non-subject (oblique) arguments. Instead, some other explanation of their behavior is needed.

The other potential exceptions that Keenan and Comrie consider are Hausa and Yoruba. They account for these by suggesting that the problematic resumptive clitic subject pronouns in these languages should really be considered agreement morphology, especially since they also occur outside of relativization contexts. Such an analysis is not generally accepted, however, and certainly, this agreement analysis will not work for MacZ. The resumptive pronouns in the MacZ examples are identical to clitic pronouns which, as I showed in Section 4.1 above, are not agreement morphology.

So, what drives these exceptional relativization patterns in MacZ? Recall first that this is not unique to relativization of subjects but seems to be a restriction on movement in general; other argument fronting processes license resumptive subject pronouns in the same contexts where they are licensed in relative clauses. Across all types of movement, the main use of the resumptive subject pronouns seems to be to satisfy the Subject Parsing Constraint for MacZ:

173. Subject Parsing Constraint (SPC)
If an overt DP immediately follows the verb and satisfies the verb's selectional restrictions for subject, parse it as the grammatical subject.

As established in Section 4.1.4, the highest DP argument of the verb within the lexical projection of the verb is the grammatical subject and must either raise at LF to [Spec,TP] or must have overtly done so in cases where it was driven to a preverbal position by other movement, such as *wh*-movement. The grammatical subject will either overtly appear immediately after the verb or it may appear in any number of preverbal positions (FocP, WhP, NegP, adjoined to TP) many of which can be separated from the verb by other DPs. As a result, the postverbal position is the easiest place to locate and

parse the grammatical subject, especially since the only overt case marking which occurs in the language is restricted to clitic pronouns which are in turn restricted to postverbal positions. It is easy to understand how a constraint like the SPC in 173 might have arisen. Hearers expect the subject to appear immediately after the verb. Only if there is no DP immediately following the verb that satisfies the verb's selectional restrictions do hearers interpret the subject by some other manner (such as trace interpretation, control, imperative subject, via binding, etc). Speakers, of course, are conditioned by the same constraint. If the subject must move to satisfy some feature, then speakers may need to insert a resumptive pronoun in order to indicate this movement and to prevent any other postverbal DPs from being interpreted as the subject.

We can begin to see how this works when we consider the environments in which the resumptive subject clitics are required. There are two such environments: to resolve potential ambiguities and when a following argument is also a clitic pronoun.

Resumptive subject pronouns are obligatory in order to resolve potential ambiguities. As noted, MacZ has relatively little overt case marking and no predicate/argument agreement. Instead, it frequently relies on word order to distinguish subjects from objects, in particular relying on the VS order and the requirement that subjects immediately follow verbs.

In light of the SPC in 173, if an object DP could potentially satisfy the selectional restrictions of the verb for subject, then there must be some overt realization of the subject in the immediate postverbal position to block the ambiguous object from

receiving the subject interpretation.[26] If, in such an environment, the subject undergoes obligatory movement to a preverbal position, then a resumptive pronoun must be employed to fill the postverbal subject position.

Thus, a predicate like *begwiia'* 'saw' is potentially ambiguous when it has two animate arguments. Either could fill the selectional restrictions that the verb has a subject capable of vision (literally or figuratively). MacZ avoids the ambiguity by requiring that the intended subject remains postverbal (before the object) or that a resumptive pronoun occupies this position if the subject must move. The former case with a postverbal subject is illustrated in 174. The latter with a resumptive pronoun is given in 175.

In the underlined relative clause in 174, *Felipeá* satisfies the SPC and therefore must be parsed as the grammatical subject. By default, the relative pronoun *nu'* must represent the object of the relative clause.

174. **Beyùú' nu' begwiia' Felipeá nààyá' naanà béttsi'yà'.**
beyùú' nu' begwiia' Felipe =á nààyá' naa =nà bettsi' =ya'
man REL C/see Felipe =INVIS yesterday S/be =3N man's.brother =1SG
The man who Felipe saw yesterday is my brother.
**The man who saw Felipe yesterday is my brother.*

As indicated, the relative clause in 174 can never mean 'the man who saw Felipe'. That interpretation can only be obtained with a resumptive pronoun as in 175 below. Adhering to the SPC, the resumptive pronoun is parsed as the grammatical subject of the relative clause; *Felipeá* must then be the object.

[26] Many other languages, including other Zapotec languages such as San Lucas Quiaviní Zapotec (Munro 2002, Foreman and Munro (forthcoming)) and Quiegolani (Black 2000), tolerate this ambiguity and do nothing to avoid it.

175. **Beyùú' nu'$_i$ begwiia'nà$_i$ Felipeá nààyá' nana béttsi'yà'.**
beyùú' nu' begwiia' =nà F. =á nààyá' naa =nà bettsi' =ya'
man REL C/see =3N F. =INVIS yesterday S/be =3N man's.brother =1SG
The man who saw Felipe yesterday is my brother.
lit. *The man who he saw Felipe yesterday is my brother.*
**The man who Felipe saw yesterday is my brother.*

The SPC is not sensitive to context or extraclausal information. Thus, in response to a question like 'Who killed Felipe?' the answer can only be 176a, not 176b. Neither the question that has established that Felipe is dead nor the rest of the sentence in 176b stating that the subject of the matrix clause is standing can block the SPC from parsing *Felipeà'* as the subject in 176b.[27]

176. a. **Beyùú' nu' bettinà Felipeà' nàà' duunà.** {vi143}
beyùú' nu' betti =nà Felipe =à' nàà' duu =nà
man REL C/kill =3N Felipe =DIST there S/stand =3N
The man who killed Felipe is standing over there.

b. **!Beyùú' nu' betti Felipeà' nàà' duunà.** {vi143}
beyùú' nu' betti Felipe =à' nàà' duu =nà
man REL C/kill Felipe =DIST there S/stand =3N
!The man who Felipe killed is standing over there.
**The man who killed Felipe is standing over there.*

It is the SPC as given in 173 then that in MacZ overrides the universal tendency observed by Keenan and Comrie to avoid resumptive pronouns in relativized positions high on the Accessibility Hierarchy.

It also drives the use of resumptive pronouns in other movement environments, such as with *wh*-movement and overt QR. Thus in 177a below, for *núúní* 'who' to be interpreted as the subject, it must have an overt trace (i.e. a resumptive pronoun) in the

[27] Thanks to Bernard Comrie (pc) for suggesting consideration of these data.

postverbal subject position. Otherwise as required by the SPC, *unto'nà'* 'that child' will receive the subject interpretation as in 177b.

177. a. **¿Núúní bee'*(nà) unto'nà'?** {mm}
núú =ní bee' *(=nà) unto' =nà'
who =COMP C/hit *(=3N) child =DIST
Who hit that child?

b. **¿Núúní bee' unto'nà'?** {mm}
núú =ní bee' unto' =nà'
who =COMP C/hit child =DIST
*Who did that child hit? *Who hit that child?*

Similarly in 178a, *ànúúdi* 'nobody' can only be interpreted as the subject when it occurs with a resumptive pronoun in the postverbal subject position. Otherwise, *uncwitti'nà* 'that guy' must be parsed as the subject (178b).

178. a. **Ànúúdi beyhiisiin*(nà) uncwitti'nà'.** {mm}
ànúúdi beyhiisi =ni *(=nà) uncwitti' =nà'
nobody C/laugh =PREP *(=3N) guy =DIST
Nobody laughed at that guy.

b. **Ànúúdi beyhiisini uncwitti'nà'.** {mm}
ànúúdi beyhiisi =ni uncwitti' =nà'
nobody C/laugh =PREP guy =DIST
*That guy didn't laugh at anybody. *Nobody laughed at that guy.*

Recall that the SPC also seems to block Covert Subject Binding (CSB) in certain cases as discussed above in Section 4.2.6. Under CSB, a subject may be null when it is coreferential with the possessor of some following argument. CSB is blocked, however, if a DP following the would-be null subject satisfies the verb's selectional restrictions for subject, as illustrated below:

179. a. **Binna*(yà') niula chà'á llè'è radiu.**
binna *(=ya') niula chà' =á llè'è radiu
C/hear *(=1SG) woman of/1SG =INVIS in radio
I heard my wife on the radio.

b. **Binna ___ ttsi'iyà' llè'è radiu.**
binna ttsi'i =ya' llè'è radiu
C/hear voice =1SG in radio
I heard my voice on the radio.

In 179a, *niula chà'á* 'my wife' satisfies the verb's requirement for an experiencer subject. Therefore, by the SPC, *niula chà'á* would have to be parsed as the subject if it is the first overt DP following the verb. This would lead to the ungrammatical parse 'My wife heard on the radio' with a missing object. To avoid this and derive the correct interpretation, the subject must remain overt. In 179b, however, the coreferential subject may be null since the object noun *ttsi'i* 'voice' does not refer to an entity capable of experiencing sound. It cannot be interpreted as the subject, and the SPC does not force it to be parsed as such, allowing CSB to obtain.

Although the SPC overrides the tendency to avoid resumptive pronouns with relativized subjects, nothing similarly counteracts the tendency to avoid resumptive pronouns with other relativized positions high on the Accessibility Hierarchy. As a result, direct and indirect object resumptive pronouns are generally found to be ungrammatical in relative clauses as seen below:

180. **Carru nu'$_i$ guyo'o Felipeá(*nà$_i$) bitappa'nà.**
carru nu' guyo'o Felipe (*=nà) bitappa' =nà
car REL C/buy Felipe (*=3A) C/break.down =3N
The car that Felipe bought broke down.

181. **Bènné' bee'yá'(*yé) belliu ree'yé lo sofanà'.** {iv24'}
bènné' bee' =ya' *(=yé) belliu' ree' =yé loo sofa =nà'
person C/give =1SN *(=3FA) money H/sit =3F face sofa =that
The person who I gave money to is sitting on the sofa.

But MacZ, like many languages, also requires resumptive pronouns with relativized positions still lower on the Accessibility Hierarchy such as with objects of prepositions and possessors as seen above in 168-170. This results in resumptive pronouns occurring on discontinuous portions of the Accessibility Hierarchy: with subjects, objects of prepositions and possessor, but not with direct and indirect objects.

Other types of movement exhibit similar patterns. Subject resumptives are allowed, and sometimes required, while object resumptives are ungrammatical as seen above in 165-166 and below in 182-183:[28]

182. **¿Núúní bee' unto'nà'(*nà)?** {mm}
núú =ní bee' unto' =nà' (*=nà)
who =COMP C/hit child =DIST (*=3A)
Who did that child hit

183. **Ànúúdi beyhiisini uncwitti'nà'(*nà).** {mm}
ànúúdi beyhiisi =ni uncwitti' =nà' (*=nà)
nobody C/laugh =PREP guy =DIST (*=3A)
That guy didn't laugh at anybody.

Of course in 182-183, the object resumptive pronouns are not avoided because they are in positions that are easily accessible to relativization. Instead, the object pronouns here are dispreferred on more general prohibitions against overt pronouns, such as Chomsky's (1981) Avoid Pronoun Principle.

[28] For objects of prepositions and possessors, these movement constructions, too, may use resumptive pronouns. However, pied-piping (with inversion) of the PP or possessive phrase seems to be the more common pattern, particularly with *wh*-movement.

While the SPC can sometimes require a resumptive pronoun in subject position, it does not always force a resumptive pronoun to occur when the subject undergoes movement. For example, when there are no other postverbal DPs which could be interpreted as the subject, the SPC does not force the use of a resumptive pronoun. This occurs with intransitive verbs and with transitive verbs in which a postverbal DP cannot satisfy the verb's selectional restrictions for subject.

With intransitive verbs, resumptive subject pronouns are typically dispreferred or even ungrammatical, as illustrated below:[29]

184. **Bènnè' beyùú' nu' ruyhiisi(*yé)nà' naayé xuudiyà'.** **relativization**
bènnè' beyùú' nu' ruyhiisi (*=yé) =nà' naa =yé xuudi =ya'
person man REL H/laugh (*=3F) =DIST S/be =3F father =1SG
That man who is laughing is my father.

185. **¿Núúní gubixxi(*nà/*yé)** ***wh*-movement** {vi77b/c}
núú =ní gubixxi (*=nà/ *=yé)
who =COMP C/fall (*=3N/ *=3F)
Who fell?

186. **Ànúúdi ruyhiisi'(*nà).** **neg-indef fronting** {vi10g}
ànúúdi ruyhiisi' (*=nà)
nobody H/laugh (*=3N)
Nobody is laughing.

Since there is only one overt argument vying for the subject interpretation, it is easy to assign the sole DP the subject interpretation whether it occurs in the canonical postverbal

[29] One place where intransitive subject resumptive pronouns may be tolerated is with certain quantified DPs with an overt domain. If that domain NP is one due respect, it may license a resumptive respectful subject pronoun:
i. **Ìyhéé bènnè' gubixxi(cayé)/(*canà).** {vi77f/g/h}
ìyhéé bènnè' gubixxi (ca =yé) / (*=ca =nà)
many person C/fall (PL =3F) / (*=PL =3)
Many people fell.
Considerations of respect seem to license and sometimes require resumptive pronouns. The exact characterization of these facts needs additional investigation.

subject position or in some preverbal position. As a result, there are no countervailing requirements overcoming the general tendency to not have subject resumptive pronouns.

In transitive clauses where the DP object does not satisfy the verb's selectional restrictions for subject, the resumptive subject pronouns are generally optional. We saw this in examples 161-163, repeated below:

161. **Nabiia'tè' bènnè' nu'$_i$ gucchu(nà$_i$) ittsicchálù'.** **relativization**
nabiia'=ni =tè' bènnè' nu' gucchu (=nà) ittsa-icchá =lù'
S/know=PREP =1SD person REL C/cut (=3N) hair-head =2SG
I know the person who cut your hair.

162. **¿Núú$_i$ní gucchu(nà$_i$) ittsicchalù'?** ***wh*-movment**
núú =ní gucchu (=nà) ittsa-icchá =lù'
who =COMP C/cut (=3N) hair-head =2SG
Who cut your hair?

163. **Ànúúdi$_i$ gucchu(nà$_i$) ittsicchá**yà'**. **neg-indef fronting**
ànúúdi gucchu (=nà) ittsa-icchá =ya'
nobody C/cut (=3N) hair-head =1SG
Nobody cut my hair.

In 161, *ittsiccha* 'hair' is not an animate entity capable of having anything cut. As a result, it cannot be interpreted as the subject of *gucchu* 'cut', and the subject can undergo movement without requiring a resumptive pronoun.

That a resumptive pronoun can occur at all in such sentences is a bit surprising. Possibly, the resumptive pronoun is available because there is an object DP present, which satisfies the first condition of the SPC in 173. This may be sufficient to allow the optional resumptive pronoun. Only when neither condition of the SPC is met, as with intransitive verbs, are subject resumptive pronouns considered ungrammatical as we saw in 184-186 above.

The other environment in which a subject resumptive is required seems to also be best understood in terms of the SPC. When an object of a transitive verb is encoded by a clitic pronoun, a subject trace must be overtly realized as a resumptive pronoun. This is illustrated below in 187-189:

187. **Nabiia'tè' bènnè' nu' gucchu*(nà)nà.** {d84f}
nabiia'=ni =tè' bènnè' nu' gucchu *(=nà) =nà
S/know=PREP =1SD person REL C/cut *(=3N) =3A
I know the person who cut it. lit. *I know the person who he cut it.*

188. **¿Núúní bee'*(nà)ntè'?** {vi77i/j}
núú =ní bee' *(=nà) =ntè'
who =COMP C/hit *(=3N) =1SA
Who hit me?

189. **Ànúúdi gutoo*(nà)cayé.** {mm'}
ànúúdi gutoo =nà =ca =yé
nobody C/eat =3N =PL =3FA
Nobody ate them.

Phonological factors do not seem to be at issue here. It is not the case that object pronouns may never cliticize to a verb. They frequently do so in other constructions which lack overt subjects, such as imperatives (Section 4.2.4) and infinitives (Section 4.2.5), as shown below:

190. **Guteesi___ntè'.** **imperative**
guteesi =ntè'
C/hug =1SA
Hug me.

191. **Diiayà' gubeesiya'ani___canà.** **non-finite verb**
diia =ya' gubeesiya'a =ni =ca =nà
S/go =1SN N/yell =PREP =PL =3A
I am on my way to yell at him.

Instead, SPC-effects are only observed with instances of movement.[30] Thus in 187-189, the subject resumptive pronouns are necessary to keep the object clitic pronouns from being parsed as the subject. Recall that overt case distinctions within the pronouns are of little help in avoiding this problem. The only pronouns with any overt case alternations are the first person exclusive pronouns (*=ya'* =1SNOM/GEN with *=ntè'* 1SDAT/ACC and *=tù'* =1EXCLNOM/GEN with *=ntù'* =1EXCLDAT/ACC) and the third person informal pronouns (*=nà* =3NOM/ACC with *=nì* =3GEN). Even these are of little help since the third person forms do not distinguish between nominative and accusative case and since MacZ allows dative subjects meaning that the first exclusive dative forms cannot be consistently parsed as non-subjects.

The resumptive pronoun patterns in MacZ we have observed can best be understood as an interaction between the Subject Parsing Constraint presented in 173 and prohibitions against (resumptive) pronouns like Chomsky's Avoid Pronoun Principle and as encoded in Keenan and Comrie's Accessibility Hierarchy. These interactions serve to resolve potentially ambiguous sentences with moved DPs in a maximally economical way. They result in a continuum of subject resumptive requirements from intransitives which generally do not tolerate resumptive pronouns, through unambiguous transitives which optionally allow them, to potentially ambiguous transitives which require them. As the SPC does not apply to object resumptive pronouns, the prohibitive constraints

[30] The SPC does not force the objects in 190-191 to be parsed as subjects. In both cases, this is presumably because there are other independent factors signaling the lack of an overt subject. In the imperative case, intonation may signal that it is an imperative construction with a covert second singular informal subject, in essence overriding the SPC. The non-finite verb form, which cannot license an overt subject, is overtly signaled by the morphological shape of the verb.

reassert themselves in such cases and object resumptive pronouns are generally ungrammatical.

Now that we have considered an overview of movement in MacZ, we can understand how it can be employed as a diagnostic. Subjects have a complicated, but unique, behavior under movement which we can use to identify subjects.

In intransitive contexts, we generally would expect no subject resumptive or at most an optional resumptive. Requiring the resumptive in such contexts would indicate that the DP in question is not a subject. (If a resumptive pronoun is not required, however, we can make no firm conclusions since both intransitive subjects and transitive objects do not require—and actually disprefer—resumptives.)

In transitive contexts, we would expect an optional resumptive subject to be possible and required when a following DP is a pronoun and/or satisfies the verb's selectional restrictions for subject. Objects still resist resumptive pronouns, however, in both of these contexts.

4.2.8 Summary of Nominative Subject Properties

We have now established that the grammatical subject in MacZ will be that DP which has overtly moved through [Spec,TP] or is the immediate postverbal DP which will move there at LF. There are many independent morphosyntactic processes which are associated with such DPs and that can be used to evaluate whether an argument is a syntactic subject or merely provides the logical, but not structural, subject. These subject properties and diagnostics are summarized below:

case	Nominative case only occurs with subjects (and with quantified pronouns).
not pro-drop	Overt subjects are obligatory for most clause types. MacZ lacks pro-drop.
word order	When postverbal, the subject immediately follows the verb. VSO is allowed but not VOS
imperatives	Second singular informal subjects must be omitted in positive imperatives.
non-finite	An overt subject may not appear with a non-finite verb.
Covert Subject Binding	A subject, but no other position, may be null when coreferent with a non-coargument lower in the structure, typically a possessor.
movement	The subject (like other arguments) may undergo movement to a preverbal position when it is a *wh*-phrase, relative pronoun, quantified indefinite expression or focused. Intransitive subjects usually do not allow resumptive postverbal subjects, but unlike object arguments, a resumptive can occur with transitive subjects. It must occur to avoid ambiguity or if a following argument is a clitic pronoun.
topic	A definite/specific subject, like other arguments, may be a dislocated topic, but requires a coindexed pronoun after the verb. The coindexed pronouns rigidly maintain the VSO order.

Table 4-1 Summary of Subject Diagnostics

Now that we have established a range of morphological and syntactic properties for nominative subjects, we may turn to dative and genitive DPs which are logical subjects and can consider if these in fact represent syntactic subjects. In Chapter 5, I consider the evidence for dative syntactic subjects in MacZ and in Chapter 6, I evaluate the evidence of genitive subjects.

5 Dative Subjects

In the preceding chapter, we discussed the overt positions of grammatical subjects and provided a number of diagnostic properties to establish grammatical subjecthood. In this chapter, we are now ready to apply those diagnostics to our first potential class of non-nominative subjects, dative =ni subjects.

As discussed in Section 3.1.6, MacZ has an incorporated preposition/dative applicative clitic =ni which licenses an additional dative argument. This is illustrated below in 1-2 (=ni and the argument it licenses are underlined):[1]

1. a. **Ruyhiisi' Felipeà'.** V S
   ruyhiisi' Felipe =à'
   H/laugh Felipe =DIST
   Felipe is laughing.

   b. **Ruyhiisi'<u>ni</u> Felipeà' <u>béccú'à'</u>.** V=<u>ni</u> S <u>DO</u>
   ruyhiisi' =ni Felipe =à' béccú' =à'
   H/laugh =PREP Felipe =DIST dog =DIST
   Felipe is laughing at that dog.

2. a. **Gutti'nà ttu la'ri íttsá gallia peesu.** V=s DO …
   gutti' =nà ttu la'ri íttsá gallia peesu
   P/sell =3N a cloth hair twenty peso
   blanket
   He will sell a blanket for twenty pesos. {ii158f'}

   b. **Gutti'<u>in</u>nà <u>bèttsì'nià'</u> ttu la'ri íttsá gallia peesu.** V=<u>ni</u>=s <u>IO</u> DO …
   gutti' =ni[2] =nà bèttsì' =nì =à' ttu la'ri ittsá gallia peesu
   P/sell =PREP =3N man's.brother =3G =DIST a blanket twenty peso
   He will sell a blanket to his brother for twenty pesos. {ii156e'}

[1] This same clitic *=ni* is also occasionally used in the licensing of instrumental arguments as also discussed in Section 3.1.6.

[2] Recall that *=ni* undergoes metathesis before a following third person neutral clitic pronoun *=nà*. Before other person clitics, the [i] of *=ni* deletes. For a more thorough discussion of the phonology of *=ni*, see Section 2.6.2.2.

In addition to more prototypical dative objects like those in 1-2, *=ni* is also involved in licensing dative subjects like that given below in 3:

3. a. **Nii rquiina' ttu libru.** V S
nii rquiina' ttu libru
here H/be.needed a book
A book is needed here.

b. **Rquiina'ni Felipeà' ttu libru.** V=ni S O
rquiina' =ni Felipe =à' ttu libru
H/be.needed =PREP Felipe =DIST a book
Felipe needs a book.

In this chapter, we will be concerned with such dative subjects. After providing an overview of =ni licensed subjects, I will apply the subject diagnostics developed in Chapter 4 to show that these dative arguments are in fact grammatical subjects. It is not the case that sentences like 3b above represent exceptional instances of VOS word order or have null expletive subjects. Instead, they have dative subjects, Felipeà' 'Felipe' in this case, that are licensed by =ni. After establishing the subjecthood of arguments like Felipeà' in 3b, I will provide a structure for =ni verbs in general and account for when the =ni licensed argument surfaces as subject as in 3b or as object as in 1b and 2b. Finally, I will consider the surface case realizations of the =ni arguments and case assignment in general in MacZ.

5.1 Overview of =ni Subjects

In this section, I provide an overview of the two semantic classes of *=ni* verbs (experiencer *=ni* and possessor *=ni*) and discuss the morphological dative case marking that *=ni* subjects receive.

5.1.1 Semantics of =ni Subject Verbs

Dative *=ni* subjects generally occur either as experiencer subjects or as the subjects of *=ni* 'have' verbs.[3] These two types are illustrated below. Experiencers associated with both perception and psych verbs are given in 4-7, and in 8-10 are subjects of *=ni* 'have' verbs, which are formed from one of the many existential verbs plus *=ni*. (The subjects are underlined in each example).

Dative Experiencer Subjects:

4. **Ttuttu saa riyeen<u>tè'</u> Felipeà' loo radiu.** {ii111f}
   ttuttu saa riyeeni =ni <u>=ntè'</u> Felipe =à' loo radiu
   every day H/sound =PREP <u>=1SD</u> Felipe =DIST on radio
   Every day I hear Felipe on the radio.

5. **¿Releen<u>lù'</u>?** {ii114e}
   releeni=ni <u>=lù'</u>
   H/be.sad=PREP <u>=2SD</u>
   Are you sad?

6. **Làànà nabiiain<u>nà</u>ntè'.** {ii114g}
   làà=nà$_i$ nabiia'=ni <u>=nà$_i$</u> =ntè'
   BAS=3N S/know.someone=PREP <u>=3D</u> =1SA
   He knows me.

7. **Duusini <u>Felipeà'</u>.** {ii110b}
   duusi=ni <u>Felipe</u> <u>=à'</u>
   S/be.drunk=PREP <u>Felipe</u> <u>=DIST</u>
   Felipe is drunk.

---

[3] One verb that doesn't seem to fall readily into these two categories is *cààbáni* 'probably be' as illustrated below. Possibly this is a "have" verb; the girl has fourteen years.

i. **Cásí ítú ttsitaa' cààbí<u>nà</u> yhà ò ménús rulà.**

cásí	ítú	ttsitaa'	cààbá=ni	<u>=nà</u>	=yhà	ò	menus	rulà
almost	about	fourteen	S/probably.be=PREP	<u>=3D</u>	=AFF	or	less	even

She was probably just about fourteen or less, even.

Dative 'Have' Subjects:

8. .**Lààcanà$_i$ yhúà<u>cainnà$_i$</u> belliuà' loo meesà'.** {ii104c}
làà=ca=nà yhúà =ni =ca =nà belliu =à' loo meesa =à'
BAS=PL=3N S/be.on =PREP =PL =3D money =DIST on table =DIST
They have the money on the table.

9. **Duun<u>tè'</u> chuppa carru ru'a yú'ù chà'ni.** {ii107e}
duu =ni =ntè' chuppa carru ru'a yú'ù chà' =ni
S/stand =PREP =1SD two car by house of/1SG =PROX
I have two cars by my house.

10. **Duan<u>tè'</u>cayé loo yii'.** {d227f}
dua =ni =ntè' =ca =yé loo yii'
S/sit =PREP =1SD =PL =3FA on fire
I have them on the fire.

Neither of these uses is sufficient to require the *=ni* clitic and it is not always possible to predict if a verb will be a *=ni* subject verb solely based on its semantics. While all existential verbs like those in 8-10 have *=ni* 'have' forms, the 'have' interpretation can also derive from an existential verb (sans *=ni*) with a possessive prepositional phrase.[4] This yields alternations like that in 11. Compare also 12 below with 9 above:

11. a. **Pacuà' teegwa què'nì belliu'.** {ii22f}
Pacu =à' tee =gwa què' =nì belliu'
Paco =DIST S/exist =also of =3G money
Paco also has money.

b. **Pacuà' teegwainnà belliu'.** {ii22g}
Pacu tee =gwa =ni =nà belliu'
Paco S/exist =also =PREP =3D money
Paco also has money.

[4] Existential plus PP is restricted to instances in which the existential possessum argument is indefinite. In definite contexts, the *=ni* construction must be used. With the PP, possession is asserted, but with *=ni* it is not.

12. **Duu chuppa carru chà' ru'a yú'ù chà'ni.** {ii107a}
duu chuppa carru chà' ru'a yú'ù chà' =ni
S/stand two car of/1SG by house of/1SG =PROX
I have two cars by my house.

Encoding of experiencers is much less uniform and it is impossible to predict with certainty if a verb will contain *=ni* based on its semantics. Not every verb with a perception/psych meaning is a *=ni* verb, and arguments that are ostensibly experiencers may be encoded in differing ways.

These differences in licensing are partially due to differences in the volitionality of the experiencer. The presence of *=ni* typically coincides with lack of volitional control for the experiencer,[5] and there are pairs of perception/psych verbs—one with *=ni*, the other without—which encode differences in volitionality. The *=ni* verb indicates lack of volitionality while the non *=ni*, nominative subject verb indicates some volitional control. For example, *riyeeni=ni* 'hears, sounds to'[6] and *rilaa'=ni* 'sees' are the non-volitional counterparts to *runna* 'hears, listens to' and *rugwiia'* 'looks at, watches.' In usage though, the exact distinctions in these pairs are not always clear, but at least in certain volitional contexts the differences in semantics can be observed.

Clear semantic differences, however, do not distinguish all *=ni*-less verbs from *=ni* verbs. Some perception/psych verbs are regular nominative subject verbs while another large class involve the incorporated noun *–laasi'* 'body' with genitive subjects (see Section 3.1.4 above for an introduction to this latter group and see Chapter 6 for a full discussion and genitive subject evidence). This leads to contrasts like those in 13.

[5] Although we see some exceptions below in Section 5.2.3.3 on imperatives.

[6] For a discussion of this glossing convention, see Section 3.1.6.

13. a. *nabiia'=ni* 'knows (someone)' *duusi=ni* 'is drunk'
    b. *yuu* 'knows (something)' *rtuuni* 'is hungry'

The subject of each of these verbs presumably receives an experiencer theta-role and there is no evidence of a volitionality contrast. Despite this, only the verbs in 13a are *=ni* subject verbs. The verbs in 13b are nominative subject verbs. The contrast is particularly striking with *rtuuni* 'is hungry' since the verb happens to end in the phonetic sequence [ni]. However, it is simply part of the verb root, as discussed in Section 2.6.2.

There is even greater apparent semantic overlap between *=ni* subject verbs and *-laasi'* verbs like those in 14:

14.	*rulaasi'*	*arcalaasi'*	*ribiisilaasi'*	*rennalaasi'*	*rutthalaasi'*
	'like'	'want'	'is thirsty'	'remembers'	'thinks'

The genitive subjects of these verbs are again arguably experiencers and certainly we find close semantic counterparts among *=ni* verbs (and some nominative subject verbs for that matter cf. *rtuuni* 'is hungry' and *ribiisilaasi'* 'is thirsty'). For example, there are pairs like *rutthalaasi'* 'thinks' and *arcani* 'believes, occurs to' and *riisialaasi'* 'hates' and *arcasini* 'loves'. In fact, a small number of verb roots occur with either *=ni* or *–laasi'*, expressing the same meaning, as illustrated below in 15:

15.	*releeni=ni*	*riganna=ni*	*redacca'=ni*
	releeni-laasi'	*riganna-laasi'*	*redacca'-laasi'*
	'is sad'	'is angry'[7]	'is happy'

This alternation between a *=ni* form and a *–laasi'* form does not extend to all verbs as shown in 16, but I am uncertain exactly how widespread it is.

[7] Possibly these two verbs have been confused. Some speakers give *riganna=ni* as 'is angry' while *rigannalaasi'* is given as 'is dizzy'.

16. *ru-laasi'* *ribiisi-laasi'* *arca-laasi'* *rquiina'=ni* *arca=ni* *riyeeni=ni*
**ru=ni* **ribiisi=ni* **arca=ni* **rquiina'-laasi'* **arca-laasi'* **riyeeni-laasi'*
'likes' 'is.thirsty' 'wants' 'needs' 'thinks' 'hears'

Ultimately, it is unclear exactly which semantic factors distinguish pure *=ni* subject verbs from pure *–laasi'* verbs and those verbs which allow alternation between the two. Similarly, it is not possible to distinguish any of these solely based on the semantics from certain nominative subject verbs like *rtuuni* 'is hungry' and *yuu* 'knows (something).' For at least some of these words then, it must be lexically specified if they are *–laasi'* verbs, *=ni* verbs or verbs of another type.

5.1.2 Dative Case Marking

Apart from the presence of *=ni*, *=ni* subject verbs are also distinguished from nominative subject verbs in that the former assign dative case to their subjects. This is illustrated below in 17 and 18. Compare dative *=(n)tè'* =1SD in 17a to nominative *=ya'* in 18. [8]

17. **Rquiinantè' belliu'.** Dative *=(n)tè'*
rquiina' =ni =ntè' belliu'
H/be.needed =PREP =1SD money
I need money.

18. a. **Beyhiisi'yà'.** Nom *=ya'*
beyhiisi' =ya'
C/laugh =1SN
I laughed.

b. **Rquiina'yà'.** Nom *=ya'*
rquiina' =ya'
H/be.needed =1SN
I'm needed.

[8] Sometimes we do get a nominative subject with a *=ni* subject verb, such as *cabaanyà'* 'I probably am'. This will be discussed below in Section 5.3.4.

As discussed in Section 3.2.1, there are only very minimal overt case distinctions in MacZ. Only the first person exclusive clitic pronouns (=*ya'* =1SN versus =(*n*)*tè'* =1SD and =*tù'* =1EXCLN versus =*ntù'* =1EXCLD) show differences between the nominative and dative series of bound pronouns.

Unlike in other languages, such as Icelandic (Andrews 1976) and Chickasaw (Munro 1999), which allow dative subjects and nominative objects, nominative case marking does not appear elsewhere in the clause in MacZ. Nominative case is restricted to the surface subject argument. Obviously the converse is not true: the surface subject is not restricted to bearing nominative case, but may also be marked with dative case or with genitive case, as discussed in Chapter 6.[9] So, the theme argument in 18 above is nominative when it appears as the surface subject. When the =*ni* licensed experiencer argument is added, the =*ni* argument is realized as the surface subject (evidence of this will be given below in 5.2.3). The theme argument then appears as an object, not the subject, and receives a typical accusative realization, as in 19a. It cannot have the nominative form, as shown in 19b:

19. a. **Rquiina'ni Felipeà'ntè'.** Acc =*ntè'*
rquiina' =ni Felipe =à' =ntè'
H/is.needed =PREP Felipe =DIST =1SA
Felipe needs me.

b. ***Rquiina'ni Felipeà'ya'.** Nom =*ya'*

[9] Nominative case may also appear with certain quantified pronouns as discussed in Section 3.2.1.4. The crucial difference between MacZ on the one hand and languages like Icelandic and Chickasaw on the other is that nominative case does not appear on an object in a clause with a dative subject. In fact, since the subject is overtly marked with dative, nominative case does not usually appear at all in dative subject clause (barring the presence of a quantified DP).

As can be seen comparing 17 and 19a, there is little difference in form between the accusative first person singular (=*ntè'*) and dative first singular (=(*n*)*tè'*), and there are no other distinct forms in the rest of the pronominal paradigm. The only (minimal) difference between the accusative and dative first singular clitics is that dative subject =(*n*)*tè'* can optionally fuse with =*ni* yielding =*tè'* in which all traces of the *n* and *i* are omitted yielding the variant forms shown in 20 below:

20.	rquiinatè'	*I need*	duusitè'	*I'm drunk*	nabiiatè'	*I know (someone)*
cf.	rquiinantè'		duusintè'		nabiiantè'	

The first person singular accusative and dative object pronouns can appear as either the free standing *ìntè'* or more commonly as the bound =*ntè'*. For both, however, the *n* cannot be deleted:

21. a. **Begwiia'nà*(n)tè'.** Acc =*ntè'*
begwiia' =nà =*(n)tè'
C/see =3N =1SA
He saw me.

b. **Beyhiisi'innà*(n)tè'.** Dat Obj =*ntè'*
beyhiisi' =ni =nà =*(n)tè'
C/laugh =PREP =3N =1SD
He laughed at me.

The reduction of =*ni* and =*ntè'* dative subject may be simply a matter of phonological reduction and not reflect a real case-marking distinction. The reduction, however, is sensitive to the syntactic structure, only occurring with a first singular dative subject but not when =*ni* and the first singular accusative/dative object pronoun are incidentally brought together. Thus in 22 below, =*ni* is brought adjacent to accusative =*ntè'* (22a) and dative =*ntè'* (22b) via the omission of the intervening subject through

imperative deletion and non-finite verb forms respectively. In neither case, though, can the resulting *=ni=ntè'* sequence reduce to *=tè'*.

22. a. **Uccwasi'*(n)tè'.** {vi73b}
uccwasi'=ni =ntè'
C/love=PREP =1SA
Love me!

b. **Béccú'nà' gudàànà gweyhiia'*(n)tè'.** {v149e}
béccú' =nà' gudàà =nà gweyhiia' =ni =ntè'
dog =DIST C/do? =3N N/bark =PREP =1SD
That dog was barking at me.

This is unlike the typical phonological interactions discussed in Section 2.6.2.2 between *=ni* and following pronominal clitics since these other interactions seem insensitive to the syntactic structure.[10] For example, deletion of *i*, metathesis of *=ni* and interaction with the plural occur with any following clitic pronoun regardless of syntactic function or even whether or not *=ni* licensed the argument.

Whether these distinctions ultimately reflect case distinctions or simply phonological interactions, it is still useful to distinguish accusative case from the case of *=ni* licensed arguments. The two exhibit different properties. For example, *=ni* licensed arguments may appear as subjects as in 17, while accusative subjects never occur. Theme subjects cannot be realized in the accusative. Thus, the theme subject in 18b above cannot be replaced with the accusative pronoun *=ntè'* and likewise, the nominative subject *=ya'* in 24a cannot be replaced with *=ntè'* in 24b.

[10] It might be hypothesized that reduction in 22 is blocked in order to avoid ambiguity between the *=ntè'* subject and *=ntè'* object. While this might be true for 22a and *uccwasi'tè'* could be misconstrued as 'I loved,' this should not be a problem for 22b. *Ruyhiia'ni* 'barks at' never licenses a *=ni* subject and therefore there is no potential confusion in 22b, especially since the non-finite verb form, *gweyhiia'ni*, clearly indicates that an overt subject is not possible anyway. If the object were realized as *=tè'*, there would then be no potential ambiguity and *=tè'* would still have to be interpreted as an object.

23. ***Rquiina'ntè'.**
rquiina' =ntè'
H/be.needed =1SA
I am needed.

24. a. **Rebiisiyà' lààní ubiisa'.** {vi72k}
rebiisi =ya' lààní ubiisa'
H/dry.again =1SN with sun
I'm drying off in the sun.

b. ***Rebiisintè' lààní ubiisa'.**

Since the overt case forms are assigned differently (one via *=ni*, the other not) and appear in different positions (one can surface for the subject, the other not), it is useful to give them different labels. The overt case for the direct object, then, I will label accusative. The overt morphological case for *=ni* arguments, I will refer to as dative. I assume that all *=ni* arguments whether objects or subjects exhibit the same overt dative case marking, though ultimately little crucially hinges on this. The dative label seems appropriate for the *=ni* arguments since *=ni* often licenses indirect objects and typical dative arguments like recipients and experiencers. This also helps highlight the strong parallel with other languages which have dative subjects.

5.2 Dative Subjects

We have now seen that *=ni* arguments receive dative case, and I have claimed that certain *=ni* licensed arguments, despite their dative case-marking, frequently surface as syntactic subjects.[11] Certainly, the *=ni* dative subjects do semantically parallel what have been identified as dative subjects in other languages (as evidenced by the papers in Bhaskararao and Subbarao 2004, for example). And Bartholomew (1983) identifies these

[11] This can only occur when an agent argument is not also licensed by the verb. See Section 5.3.1 below.

as dative subjects in her grammar of Atepec Zapotec, a language closely related to MacZ. In this section, I will provide syntactic evidence that this is the correct analysis for such clauses and show that MacZ conforms to the grammaticalization pattern noted by Cole et al. (1980): a non-canonical subject exhibits all of the behavioral (syntactic) properties associated with subjects, but lacks the coding (morphological) properties of subjects (such as nominative case). Although their distinct case form comes about from their unique licensing via *=ni*, the *=ni* subject arguments are in fact the syntactic subjects.

To demonstrate this, it is necessary to determine what, if any, syntactic properties distinguish *=ni* clauses like 25 from *=ni* clauses like 26. In both sentences, the argument *Felipeà'* is licensed by the presence of *=ni*:

25. **Rquiina'ni Felipeà' ttu libru.** *=ni* Subject
rquiina' =ni Felipe =à' ttu libru
H/be.needed =PREP Felipe =DIST a book
Felipe needs a book.

26. **Gunaabani bexuudià' Felipeà' ttu libru.** *=ni* Object
gunaaba =ni bexuudi =à' Felipe =à' ttu libru
C/ask.for =PREP priest =DIST Felipe =DIST a book
The priest asked Felipe for a book.

Although *Felipeà'* is licensed by the same element, I will show that it has different structural positions in each of the sentences. It is not the case, for instance, that both are (in)direct objects. Instead, in 25, *Felipeà'* is an experiencer subject, but in 26, *Felipeà'* is a patient (indirect) object.

That *Felipeà'* might be an object in both cases is not an unreasonable supposition. It would certainly make the realization of the grammatical relation of the *=ni* argument more consistent. And occasionally what I am labeling as a *=ni* subject argument does not

line up with a subject argument in other languages. This is seen with the comparisons between MacZ and English in 27. In each case, the proposed MacZ *=ni* subject (underlined) corresponds to a non-subject in English.[12]

27. a. **Ìntè' rtoottse'ntè' lagooni.** {ii286e}
ìntè' rtoo =ttse' =ni =ntè' lagoo =ni
IND/1SN H-MID-eat =well =PREP =1SD food =PROX
This food tastes good to me.

b. **La'rittsani guyhacca'cainnànà gallia peesu.** {ii292a}
la'rittsa =ni guyhacca' =ni =ca =nà =nà gallia peesu
blanket =PROX C/cost =PREP =PL =3D =3A twenty peso
This blanket cost them twenty pesos.

In addition, as can be seen in comparing 28 below to 25 above and 29 to 27b, the intransitive counterparts to such sentences have the theme argument appearing as the surface subject. This is evidenced by the availability of nominative case forms as was seen in 18b.

28. **Nii rquiina' ttu libru.**
nii rquiina' ttu libru
here H/be.needed a book
A book is needed here.

29. **La'ri ittsani dacca'nà gallia peesu.** {ii290b}
la'rittsa =ni dacca' =nà gallia peesu
blanket =PROX S/cost =3 twenty peso
This blanket costs twenty pesos.

It is therefore important to provide evidence that such theme arguments do not remain the syntactic subject when a *=ni* argument is present.

If *=ni* arguments were always (in)direct object arguments and not subjects, then this would mean that the subject position of such *=ni* clauses as 25 and 27 would either

[12] For a discussion of such sentences and the glossing conventions employed here see Section 3.1.6.

have to filled by another argument of the verb or filled with a null expletive element. So without a *=ni* subject, a sentence like 25 would have a structure like one of those schematized below in 30 and 31:

30. **[$_V$ Rquiina'ni] [$_O$ Felipeà'] [$_S$ ttu libru].** (*theme subject)
a book is.needed=by Felipe

31. **[$_V$ Rquiina'ni] [$_S$ e] [$_{IO}$ Felipeà'] [$_{DO}$ ttu libru].** (*null expletive subject)
(there) is.needed=to/by Felipe a book

Below, however, we will see that there is ample evidence arguing against either of these structures. Instead, the evidence supports the dative subject structure I have been advocating, and which is schematized below:

32. **[$_V$ Rquiina'ni] [$_S$ Felipeà'] [$_O$ ttu libru].** Dative Subject
Felipe$_i$ is.needed=to/by t$_i$ a book
Felipe needs a book.

5.2.1 Against the Theme Subject Alternative

The structure put forth in 30 involving a theme subject is easily ruled out as a possible alternative structure for *=ni* subject clauses. Case properties, word order and intransitive *=ni* subject sentences show that this is not a viable structure.

Case properties indicate that the theme argument is not a potential subject in *=ni* clauses. As illustrated above with the examples in 18-19 and below with the examples in 33, theme arguments receive nominative case in intransitive sentences, but are realized with an accusative form when a *=ni* argument is introduced.

33. a. **¿Bartoottse'<u>và'</u>?** Nom *=ya'*
ba r-t-oo =ttse' <u>=ya'</u>
EMP H-MID-eat =well <u>=1SN</u>
Do I taste good? (lit. *Do I eat well?*) (in the context of a dog licking one's hand)

b. **Rtoottse'ni béccú'nintè'/*ya'.** Acc *=ntè'*
r-t-oo =ttse' =ni béccú' =ni =ntè'
H-MID-eat =well =PREP dog =PROX =1SA
I taste good to the dog. (*The dog likes the taste of me.*)

If the first singular argument is the subject in 33b, it is unclear why it would appear in the accusative and be ungrammatical with the nominative. However, this is predicted if the *=ni* argument is the syntactic subject, blocking the theme argument from appearing as the syntactic subject and receiving nominative case.

Another argument against this structure is provided by word order. As discussed in Section 4.2.3, MacZ is a strict VSO language. While arguments may sometimes be fronted to a preverbal position, VOS ordering is never allowed. There is no compelling evidence showing that sentences 33b are exceptions and have theme subjects following the *=ni* argument objects.

The most convincing evidence against a theme subject, however, is provided by the intransitive *=ni* subject like those in 34:

34.	Rsa'ani=yé.	Raasi'ni=lù'.	Duusi'ni=ntè'	Releenini=nà
	H/be.angry=3FD	H/be.scared=2SD	S/be.drunk=1SD	H/be.sad=3D
	He's angry.	You are scared.	I'm drunk.	He's sad.

For such verbs (which do not occur without *=ni*), there is no other argument which can serve as the subject. Thus, either MacZ does in fact allow dative subjects or the arguments of these verbs are not subjects. If they are not subjects, then the structure must be the second alternative offered in 31, the null expletive subject structure. We will now consider the evidence against this possibility and in support of dative subjects in MacZ.

5.2.2 Against the Null Expletive Alternative

The second alternative structure, given in 31, involving a null expletive subject is also not supported by MacZ grammatical facts. We would expect a (null) expletive to be linked to an argument, either via an expletive-argument chain in the overt structure (Burzio 1986, Chomsky 1986) or, more consistent with a Minimalist approach, via LF movement of the argument to the position occupied by the expletive, in order to eliminate the expletive element which has no function at LF (Chomsky 1986, 1991, 1993). In either case, such links between expletives and arguments are associated with definiteness effects (Safir 1985, Reuland and ter Meulen 1989, among others), and the expletive is restricted to being linked with an indefinite.

However, no such restriction is observed in MacZ. No argument in a *=ni* subject clause is required to be indefinite. For example, the intransitive *=ni* sentences in 34 do not contain an indefinite argument, nor does it seem likely that such sentences have a structure like that presented in 35 for *Rsa'anyé* in 34:

35. there is anger to him

Rsa'ani is a verb, as evidenced by its aspectual inflection, and there is no independent evidence that an indefinite noun corresponding to 'anger' is present in the structure.

Similarly with transitive *=ni* verbs, under the null expletive scheme in 31, repeated below, we would expect the null expletive to be linked to an indefinite (theme) object.

31. **[$_{V}$ Rquiina'ni] [$_{S}$ e] [$_{IO}$ Felipeà'] [$_{DO}$ ttu libru].** (*null expletive subject)
(there) is.needed=to/by Felipe a book
There's a book needed by Felipe.

We have already seen, however, that such a restriction does not hold. There are many examples of definite objects occurring with transitive *=ni* verbs as we saw in 19a, 27a, and 33b, all repeated below (the definite objects are underlined below):

19. a. **Rquiina'ni Felipeà'ntè'.**
rquiina' =ni Felipe =à' =ntè'
H/is.needed =PREP Felipe =DIST =1SA
Felipe needs me.

27. a. **Ìntè' rtoottse'ntè' lagooni.** {ii286e}
ìntè' r-t-oo =ttse' =ni =ntè' lagoo =ni
IND/1SN H-MID-eat =well =PREP =1SD food =PROX
This food tastes good to me. (*I like the taste of this food.*)

33. b. **Rtoottse'ni béccú'nintè'.**
r-t-oo =ttse' =ni béccú' =ni =ntè'
H-MID-eat =well =PREP dog =PROX =1SA
I taste good to the dog. (*The dog likes the taste of me.*)

As neither the *=ni* argument nor the object are indefinite in such sentences, there is no indefinite DP for a (null) expletive to be linked with, suggesting that there is in fact no expletive in such sentences. Instead of having a null expletive subject or a theme subject, such sentences have dative subjects licensed via *=ni* as discussed below in the next section.

5.2.3 Dative Subject Evidence

Many independent pieces of evidence point to the following conclusion for MacZ grammar: it allows dative subjects. Although *=ni* licensed subjects do not receive nominative case, they exhibit a number of syntactic properties associated with subjects, indicating that they are syntactic subjects. The subject properties exhibited by these *=ni* arguments include word order, binding, imperatives and movement. Each of these are discussed in turn below.

5.2.3.1 Word Order

The first subject property exhibited by *=ni* subjects is that when they appear postverbally they must immediately follow the verb. Like nominative subjects, they rigidly maintain the VSO word order. This ordering behavior contrasts with that of direct and indirect objects which may generally freely reorder with respect to one another. The ordering properties exhibited by the *=ni* subject then is consistent with it being the syntactic subject instead of being an object.

In Chapter 4, we observed that when the arguments of the verb appear postverbally they maintain a rigid VSO order. While arguments may front to various preverbal positions, crucially VOS order never obtains, as illustrated below in 36 and the various examples in Section 4.2.3.

36. a. **Beyuuni Felipeà' carruni.** VSO
beyuuni Felipe =à' carru =ni
C/repair Felipe =DIST car =PROX
Felipe fixed this car.

b. **!Beyuuni carruni Felipeà'.** *VOS
***Felipe fixed this car.* *!This car fixed Felipe.*

In fact, no phonologically independent words may intervene between the verb and a postverbal subject.

In contrast, indirect objects (IOs) and direct objects (DOs) do not have a strict ordering. Generally, they may be reordered quite freely, either IO/DO or DO/IO as shown below in 37-38. Only if both are pronominal do they occur in a fixed order, =IO=DO, as shown in 39:

37. a. **Beeyà' bettsi'yà'nà.** V=S IO=DO {ii1f}
bee =ya' bettsi' =ya' =nà
C/give =1SN man's.brother =1SG =3A
I gave it to my brother.

b. **Beeyà'nà bettsi'yà'.** V=S=DO IO {ii1g}

38. a. **Beeyà' béccú'à' inda.** V=S IO DO {ii1b}
bee =ya' béccú' =à' inda
C/give =1SN dog =DIST water
I gave the dog water.

b. **Beeyà' inda béccú'à'** V=S DO IO {ii1c}

39. **Bee'yà'canànà.** V=S=IO=DO
bee' =ya' =ca =nà =nà
C/give =1SN =PL =3A =3A
*I gave it to them. *I gave them to him.*

The ordering of IOs and DOs is equally free when the IO is licensed by *=ni*. Both IO/DO and DO/IO orderings are possible (unless both objects are pronominal), as illustrated below in 40-42 (*=ni* and the argument it licenses are both underlined):

40. a. **Gunaabanyà' Felipeà' belliu'.** V=ni=S IO DO{vi25i}
gunaaba =ni =ya' Felipe =à' belliu'
C/ask.for =PREP =1SN Felipe =DIST money
I asked Felipe for money.

b. **Gunaabanyà' belliu' Felipeà'.** V=ni=S DO IO {vi25j}

41. a. **Gunaabanyà' Felipeà'nà.** V=ni=S IO=DO {vi26f}
gunaaba =ni =ya' Felipe =à' =nà
C/ask.for =PREP =1SN Felipe =DIST =3A
I asked Felipe for it.

b. **Gunaabanyà'nà Felipeà'.** V=ni=S=DO IO {vi26g}

42. a. **Betti'cainnà Pedruà' ttu la'rittsa.** V=ni=S IO DO {ii292f}
betti' =ca =ni =nà Pedru =à' ttu la'rittsa
C/sell =pl =PREP =3N Pedro =DIST a blanket
They sold a blanket to Pedro.

b. **Betti'cainnà ttu la'ri ittsa Pedruà'.** V=ni=S DO IO {ii292d}

These differences in ordering between subjects and objects make a prediction about *=ni* subject arguments. If they were not subjects, but objects, with a null expletive subject or some other argument as subject, then the *=ni* licensed argument should exhibit free ordering with respect to a DO. If they are subjects, they should not allow this ordering variation. As can be seen below in 43-46, subjects licensed by *=ni* must remain in the strict VSO ordering. Like nominative subjects, they do not allow an object to precede them:

43. a. **Rquiina'ni Felipeà' ttu libru.** V=ni S DO {vi26j}
rquiina' =ni Felipe =à' ttu libru
H/be.needed =PREP Felipe =DIST a book
Felipe needs a book.

b. **!Rquiina'ni ttu libru Felipeà'.** *V=ni DO S {vi26k}
*!A book needs Felipe. *Felipe needs a book.*

44. a. **Beseelani Pedruá llave cho'á.** V=ni S DO {vi27b}
beseela =ni Pedru =á llave cho' =á
C/be.found =PREP Pedro =INVIS key of/2SG =INVIS
Pedro found your key.

b. **!Beseelani llave cho'á Pedruá.** *V=ni DO S {vi27c}
*!Your key found Pedro. *Pedro found your key.*

45. a. **Rtoottse'ni Victorià' lagooni.** V=ni S DO {vi27e}
r-t-oo =ttse' =ni Victoria =à' lagoo =ni
H-MID-eat =well =PREP Victoria =DIST food =PROX
This food tastes good to Victoria. (*Victoria likes the taste of this food.*)

b. **!Rtoottse'ni lagooni Victorià'.** *V=ni DO S {vi27f}
!Victoria tastes good to this food. (*!This food likes the taste of Victoria.*)
This food tastes good to Victoria.* (Victoria likes the taste of this food.*)

46. a. **Guxaccani Felipeà' libruà' gallia dolar.** V=ni S DO… {vi27h}
guxacca =ni Felipe =à' libru =à' gallia dolar
C/cost =PREP Felipe =DIST book =DIST twenty dollar
That book cost Felipe twenty dollars.

b. **!Guxaccani libruà' Felipeà' gallia dolar.** *V=ni DO S … {vi27i}
*!Felipe cost that book twenty dollars. *That book cost Felipe twenty dollars.*

This supports the conclusion that the *=ni* arguments in sentences like 43-46 are syntactic subjects, which move at LF to [Spec,TP]. Such sentences do not have null expletive subjects. Similarly, these word order observations argue that the theme arguments also cannot be the subjects. Considering MacZ's strict adherence to VSO ordering, it would be unexpected for the theme arguments to be subjects which can never precede certain *=ni* "objects".

Instead, word order indicates that the *=ni* licensed arguments in such sentences are the grammatical subjects. This is supported even in cases like 45 and 46 where the English equivalent retains a theme subject.

5.2.3.2 Covert Subject Binding

Another piece of evidence supporting dative *=ni* subjects comes from binding. As discussed in Section 4.2.6 (and more thoroughly in Chapter 6), MacZ and several other Zapotec languages have an unusual backward binding construction in which the subject of a clause can be rendered covert if it is coreferential with the possessor of some following argument. This is schematized below in 47 with an example given in 48. (The

covert subject is indicated with an underline. A rough word-by-word translation is included in parentheses.)

47. V Subject$_i$ … [$_{DP}$ …N… Possessor$_i$ …] … → V ∅$_i$ … [$_{DP}$ …N… Possessor$_i$ …] …

48. **Beyuuni ___ carru què' Felipeà'.** V ~~S$_i$~~ [$_{DP}$ N of Poss$_i$]
beyuuni ___ carru què' Felipe =à'
C/repair ___ car of Felipe =DIST
Felipe$_i$ repaired his$_i$ car. (repaired car of Felipe)

Only subjects are targeted in this way. Other arguments cannot be rendered null because they are coreferential with some following possessor. Thus, even if the proper coindexing conditions are met as in 49a, an indirect object cannot be participate in Covert Subject Binding outlined in 49b.

49. a. V Subject IO$_i$ … [$_{DP}$ …N… Possessor$_i$ …] …
b. *V Subject ∅$_i$ … [$_{DP}$ …N… Possessor$_i$ …] …

This restriction also holds of indirect objects licensed by *=ni*. They, too, cannot participate in Covert Subject Binding. Even if coreferential with some following possessor, the indirect object must remain overt:

50. **Gunaabanyà'*(nà) ca yhoonì.** *V=ni=S=~~IO$_i$~~ [$_{DP}$ N=Poss$_i$] {v190c}
gunaaba =ni =ya' *(=nà) ca yhoo =nì
C/ask.for =PREP =1SN *(=3A) PL clothing =3G
I asked him for his clothes.

51. **Betti'nyà'*(canà) carru què' luesi'canì.** *V=ni=S=~~IO$_i$~~ [$_{DP}$ …N=Poss$_i$]{mm}
betti' =ni =ya' *(=ca =nà) carru què' luesi' =ca =nì
C/sell =PREP =1SN *(=PL =3D) car of self =PL =3G
I sold them each other's cars.

52. **Billanyà'*(nà) cwentu què'nìá.** *V=ni=S=~~IO$_i$~~ [$_{DP}$ N=Poss$_i$]{mm}
billa =ni =ya' *(=nà) cwentu què' =nì =á
C/read =PREP =1SN *(=3D) story of =3G =INVIS
I read her her story.

If the proposed *=ni* subject arguments were in fact surface objects, they, too, should not be able to participate in Covert Subject Binding. However, such *=ni* arguments can participate in CSB as shown below in 53-56. This indicates that these dative arguments are syntactic subjects accessible for (covert) binding:

53. **Rquiina'ni ___ yhooyà'.** V=ni ~~S~~$_i$ [$_{DP}$ N Poss$_i$]{v188d}
rquiina' ___ =ni yhoo =ya'
H/is.needed ___ =PREP clothing =1SG
I need my clothing. (need clothing of mine)

54. **Beseelani ___ ca llave què' luesi'canì.** V=ni ~~S~~$_i$ [$_{DP}$ N Poss$_i$] {v184a}
beseela =ni ___ ca llave què' luesi' =ca =nì
C/be.found =PREP ___ pl key of self =PL =3G
They found each other's keys. (found the keys of each other)

55. **Biyeenini ___ ttsi'iyà' loo radiu.** V=ni ~~S~~$_i$ [$_{DP}$ N Poss$_i$] {vi28i}
biyeeni =ni ___ ttsi'i =ya' loo radiu
C/sound =PREP ___ voice =1SG on radio
I heard my voice on the radio. (heard voice of mine on the radio)

56. **Àbíí bedeccani ___ luesi'yà' loo fotografíani.** V=ni ~~S~~$_i$ [$_{DP}$ N Poss$_i$] {vi28l}
àbíí bedecca =ni ___ luesi' =ya' loo fotografía =ni
neg C/be.recognized =PREP ___ self =1SG on photograph =PROX
I didn't recognize myself in this picture. (didn't recognize myself in this picture)

As can be seen in 53-56, the *=ni* arguments of what I have identified as *=ni* subject verbs can be null under Covert Subject Binding. This can only occur since the *=ni* arguments are syntactic subjects. This data is not consistent with either of the proposed alternate structures involving theme subjects or null expletive subjects. Since it is not possible to omit a *=ni* object argument via Covert Subject Binding, these *=ni* arguments in 53-56 must actually be the grammatical subjects of their clauses.

5.2.3.3 Imperatives

Yet another piece of evidence supporting the *=ni* subject hypothesis comes from imperatives. As discussed in Section 4.2.4, in positive imperatives in MacZ like that in 57, a second person singular informal subject must be omitted:

57. **Gutoo___ ca ettaná.** {v209k}
gutoo ca etta =ná
C/eat PL tortilla =INVIS
Eat the tortillas.

This provides a diagnostic for subject: omission of second person singular informal arguments in an imperative indicates that that argument is a syntactic subject.

Of course, imperatives occur most naturally with predicates whose subjects exhibit some volitional control over the outcome of the predicated event. Since most *=ni* subject verbs have non-volitional experiencer subjects, this test is not generally available with them.

However, for a few *=ni* subject verbs, the *=ni* subject argument can be construed as exercising a certain amount of volitional control over the predicate. Such verbs can naturally occur in imperative contexts. When they do so, the second singular informal *=ni* argument is omitted, providing evidence that it is a subject in such clauses:

58. **Guduusini___.** {v27e}
guduusi=ni ___
C/get.drunk=PREP ___
Get drunk.

59. **Bisa'ani ___ làànì Felipeà'.** {vi29e}
bisa'a=ni ___ làànì Felipe =à'
C/get.angry=PREP ___ with Felipe =DIST
Get mad at Felipe.

60. **Uccwasi'nintè'.** {vi73b}
uccwasi'=ni =ntè'
C/love=PREP =1SA
Love me.

Although limited in scope, the imperative diagnostic provides additional evidence for the subjecthood of certain *=ni* licensed arguments, including intransitive *=ni* subjects like that in 58.

5.2.3.4 Movement

A final diagnostic for the subject status of certain *=ni* arguments is provided by movement and the pattern of resumptive pronoun retention. As discussed in Section 4.2.7, MacZ has rather complex requirements on resumptive pronouns which can be used to identify subject arguments. While resumptive object pronouns (whether direct or indirect objects) are never allowed, subject resumptive pronouns may optionally occur, particularly with transitive verbs. And the subject resumptive pronouns are required in two contexts: when an immediately following object DP is also a clitic pronoun and when an object DP satisfies the verb's selectional restrictions for subjects. (As discussed in Section 4.2.7, in the latter case, such a DP must be parsed as the syntactic subject following the Subject Parsing Constraint. A subject resumptive pronoun is required in such cases to block an intended object DP from being incorrectly parsed as a subject.)

These various subject resumptive patterns are briefly exemplified below with examples involving relative clauses. Recall, however, that these patterns are found with all types of movement. Example 61 shows an optional resumptive pronoun occurring with a transitive verb (the moved relative pronoun, *nu'*, and the resumptive pronoun are both in bold).

61. **Nabiia'tè' bènnè' nu' gucchu(nà) ittsicchálù'.**
nabiia'=ni =tè' bènnè' **nu'** gucchu **(=nà)** ittsa-icchá =lù'
S/know=PREP =1SD person **REL** C/cut **(=3N)** hair-head =2SG
I know the person who cut your hair. (*I know the person who* (*he*) *cut your hair.*)

Sentence 62 provides an example of a required subject resumptive pronoun when an object of a transitive verb is encoded by a clitic pronoun. Here, the object *ittsicchalù'* 'your hair' in 61 has been replaced by the clitic pronoun *=nà* 'it', requiring the trace of the fronted subject to be overtly realized via a resumptive clitic pronoun.

62. **Nabiia'tè' bènnè' nu' gucchu*(nà)nà.** {d84f}
nabiia'=ni =tè' bènnè' **nu'** gucchu ***(=nà)** =nà
S/know=PREP =1SD person **REL** C/cut ***(=3N)** =3A
I know the person who cut it. lit. *I know the person who he cut it.*

Finally, 63 provides an example of the second environment in which a subject resumptive pronoun is required. This occurs when an object DP could be parsed as the grammatical subject if the grammatical subject is not overtly realized in its postverbal position.

The Subject Parsing Constraint discussed in Section 4.2.7 requires the first overt DP following the verb to be parsed as the subject if the DP satisfies the verb's selectional restrictions. In 61 above, *ittsiccha* 'hair' was not an animate entity capable of being the agent of *gucchu* 'cut.' As a result, the subject of the relative clause, *nu'* REL, could undergo movement without requiring a resumptive pronoun. Of all the arguments in the clause, only *nu'* fulfills the subject selectional restrictions of the verb.

In the relative clause in 63, however, the object *Felipeá* is an entity capable of vision and thus could satisfy the selectional restrictions for subject of the verb *begwiia'* 'saw'. If the subject, again *nu'*, underwent movement without a resumptive pronoun, then

Felipeá would be the first overt DP following the verb. Since it also satisfies the verb's selectional restrictions on subject, then it would have to be parsed as the grammatical subject according to the Subject Parsing Constraint mentioned above. In such case, the sentence could only mean 'The man who Felipe saw yesterday is my brother'. To prevent this interpretation and to get the intended one in which *nu'* REL is parsed as the subject of the relative clause, the resumptive pronoun is required, as shown below:

63. **Beyùú' nu' begwiia'*(nà) Felipeá nàayá' naanà béttsi'yà'.**
beyùú' **nu'** begwiia' ***(=nà)**F. =á náàyá' naa =nà bettsi' =ya'
man **REL** C/see ***(=3N)**F. =INVIS yesterday S/be =3N man's.brother =1SG
The man who saw Felipe yesterday is my brother.
lit. *The man who he saw Felipe yesterday is my brother.*

In contrast, IOs and DOs do not exhibit these same restrictions on movement. Although IOs typically precede DOs, and obligatorily do so when both are pronominal, an IO resumptive pronoun is not required, even if a following DO is a pronoun or could potentially satisfy the verb's selectional restrictions on subject. Example 64 below involving *wh*-movement shows that an IO resumptive pronoun is not required when a clitic DO pronoun is present:

64. a. **¿Núúní$_i$ bee'lù' t$_i$ libruá?** {vi25c}
núú =ní bee' =lù' libru =á
who =COMP C/give =2SN book =INVIS
Who did you give the book to?

b. **¿Núúní$_i$ bee'lù'=t$_i$=nà?** {vi25e}
núú =ní bee' =lù' =nà
who =COMP C/give =2SN =3A
Who did you give it to?

This is true as well in cases in which the IO is licensed by *=ni*. A following DO clitic pronoun does not require an overt IO resumptive:

65. **¿Núúní$_i$ gunaabanlù'=t$_i$=nà?** {vi25k}
núú =ní gunaaba =ni =lù' =nà
who =COMP C/ask.for=PREP =2SN =3A
Who did you ask for it?

IO resumptive pronouns are also not required even when a following DO could satisfy the verb's selectional restrictions for indirect object. Although either *Victoriá* or *núúní* 'who' in 66 could potentially refer to a baby or a baby-sitter, for example, no resumptive IO pronoun is required to ensure that only *núúní* 'who' is parsed as the indirect object as represented in 66. As a result, this sentence can also be interpreted as 'Who did you give to Victoria?'.

66. **¿Núúní$_i$ bee'lù' t$_i$ Victoriá?** {mm}
núú =ní bee' =lù' Victoria=á
who =COMP C/give =2SN Victoria=INVIS
Who did you give Victoria to?

The *=ni* licensed subjects behave as expected with respect to movement. Unlike object arguments, they allow resumptive pronouns under movement and require them in the same environments in which nominative subjects do. For example, *=ni* subject arguments must occur with resumptive pronouns when there is an object clitic pronoun:

67. a. **¿Núúní arcasi'innànà?** {vi24d}
núú$_i$ =ní arcasi'=ni =nà$_i$ =nà
who =COMP H/love=PREP =3D =3A
Who loves him?

b. ***¿Núúní arcasi'in nà?** {vi24e}
núú =ní arcasi'=ni =nà
who =COMP H/love=PREP =3A
**Who loves him?* (grammatical as *Who does he love?*)

68. a. **¿Núúní rquiina'innàntè'?** {vi25a}
núú$_i$ =ní rquiina' =ni =nà$_i$ =ntè'
who =COMP H/need =PREP =3D =1SA
Who needs me?

b. ***¿Núúní rquiina'ni ntè'?** {vi25b}
núú =ní rquiina' =ni =ntè'
who =COMP H/need =PREP =1SA
**Who needs me?*

c. **¿Núúní rquiina'ntè'?** {vi25b}
núú =ní rquiina' =ni =ntè'
who =COMP H/need =PREP =1SD
*Who do I need? *Who needs me?*

Similarly, subject resumptive pronouns are also required to avoid having intended DOs parsed as the subject, as shown in 69-70. With two animate arguments the verbs *arcasi'ni* 'loves' and *rquiina'ni* 'needs' require either a postverbal subject or a postverbal resumptive pronoun. Otherwise, the DOs, which satisfy the verbs' selectional restrictions for subject, would be the first overt DPs following the verbs and would thus be required to be parsed as the syntactic subjects in accordance with the requirements of the Subject Parsing Constraint.

69. a. **¿Núúní arcasi'innà Felipeà'?** {vi24a}
núú$_i$ =ní arcasi'=ni =nà$_i$ Felipe =à'
who =COMP H/love=PREP =3D Felipe =DIST
Who loves Felipe?

b. ***¿Núúní arcasi'ni Felipeà'?** {vi24e}
núú =ní arcasi'=ni Felipe =à'
who =COMP H/love=PREP Felipe =DIST
**Who loves Felipe?* (grammatical as *Who does Felipe love?*)

70. a. **¿Núúní rquiina'innà Felipeà'?** {vi25a}
núú$_i$ =ní rquiina' =ni =nà$_i$ Felipe =à'
who =COMP H/need =PREP =3D Felipe =DIST
Who needs Felipe?

b. ***¿Núúní rquiina'ni___ Felipeà'?** {vi25b}
núú =ní rquiina' =ni Felipe =à'
who =COMP H/need =PREP Felipe =DIST
**Who needs Felipe?* (grammatical as *Who does Felipe need?*)

The restrictions on movement and required resumptive pronouns support the identification of these *=ni* licensed arguments as subjects. They do not behave like object arguments—licensed by *=ni* or otherwise—but instead appear to be syntactic subjects.

5.2.4 Summary of Dative Subject Properties

As summarized below in 71, apart from the overt dative case, the *=ni* subjects exhibit a full range of syntactic properties associated with syntactic subjects in MacZ.

71.	**Nom Subject**	**Dat =ni Subjects**	**Indirect Objects**
can follow a postverbal DO	never	never	usually
covert binding	yes	yes	no
omitted in imperatives	yes	yes	no
resumptive pronouns with movement	required/optional	required/optional	never
case	nominative	dative	dative/accusative

The *=ni* subjects behave like nominative subjects (and unlike objects) with respect to VSO ordering, binding, imperatives and resumptive pronoun patterns under movement. We thus have evidence that these *=ni* arguments are syntactic subjects which either overtly or covertly move through [Spec,TP].

As in the cases discussed by Cole et al. (1980), the *=ni* subjects in MacZ exhibit a common transitional pattern in the development of subject arguments in which they possess the behavioral (syntactic) properties associated with subjects but not the coding (morphological) properties of subjects (such as nominative case). This is a common

stage that historically non-subject arguments may pass through as they acquire subjecthood. That MacZ exhibits such a transitional stage is consistent with my reconstruction of =*ni* in Section 3.1.6. There, I argued that =*ni* has developed from an historical preposition similar to 'with,' which licensed some dative objects. A weak allomorph of the preposition incorporated into the verb in MacZ, eventually becoming a dative licenser. Its dative licensing properties expanded to include experiencer and possessor arguments which are usually realized as dative subjects.

Now that we have established that certain dative =*ni* arguments occur as syntactic subjects, I will turn to the question of which =*ni* verbs allow dative subjects. In particular, I will focus on the structure of =*ni* licensed arguments and =*ni* subjects. Finally, I will then consider why dative case is allowed with subjects and how case assignment works in general in MacZ with respect to subjects.

5.3 The Syntax of =ni *Verbs*

We have now seen evidence that for certain verbs, like *rquiina'ni* 'needs' in 72 below, an argument licensed by the incorporated preposition/applicative clitic =*ni* appears as a dative subject.

72. **Rquiina'<u>ni</u> <u>Felipeà'</u> ttu libru.** V=<u>ni</u> <u>S</u> O
rquiina' =ni Felipe =à' ttu libru
H/be.needed =PREP Felipe =DIST a book
Felipe needs a book.

Recall that with other verbs, such as *ruyhiisi'ni* 'laughs at' in 73, this same =*ni* morpheme is involved in licensing dative objects:

73. **Ruyhiisi'ni Felipeà' béccú'à'** V=ni S DO
ruyhiisi' =ni Felipe =à' béccú' =à'
H/laugh =PREP Felipe =DIST dog =DIST
Felipe is laughing at that dog.

In this section, we will consider the syntax of *=ni* verbs. First, I will provide an account of when an argument licensed by *=ni* must appear as an object and when it must be realized as a subject. These facts can be captured in a fairly straightforward manner utilizing the subject access hierarchy presented in 74. Structurally, this can be encoded by the ordering of corresponding thematic licensing projections as given in 75:

74. ***MacZ Subject Hierarchy*:**
agent > experiencer/recipient > theme/patient

75. ***MacZ Thematic Licensing Hierarchy*:**
vP > datP > VP

The argument that is licensed in the highest of these thematic positions projected by a verb will surface as the syntactic subject. Arguments licensed lower in the hierarchy will be realized as objects.

After presenting evidence for the hierarchy in 74 and discussing its implementation in 75, I will then briefly consider the ordering of *=ni* in relation to other clitic elements that attach to the verb, in particular, its interactions with clitic adverbs and the plural proclitic *ca=*. Ultimately, however, I will conclude that the ordering of these elements is not strictly determined by the syntax but is the result of other, extra-syntactic processes.

5.3.1 Subject Hierarchy in MacZ

The realization of the syntactic subject in MacZ can be described via an access hierarchy along the lines of the subject access hierarchy proposed in Fillmore 1968 and similar to thematic hierarchies subsequently developed in numerous other works (including Jackendoff 1972, Carrier-Duncan 1985, Bresnan and Kanerva 1989, Larson 1988 and Grimshaw 1990 inter alia). In MacZ, an agentive argument of the verb, if present, will obligatorily surface as the subject. If one is not present, and a *=ni* dative argument is licensed, then this *=ni* argument will appear as the subject. Finally, if neither an agent nor *=ni* argument is licensed, then an argument bearing some other thematic role, such as theme or patient, can surface as the subject. This subject hierarchy for MacZ is summarized below in 76:

76. ***MacZ Subject Hierarchy*:**
agent > experiencer/recipient > theme/patient

Though this hierarchy differs in the details from Fillmore's (dative in place of instrument), it is compatible with it and other thematic hierarchies that have been proposed (Givón 1984, Foley and van Valin 1984, Bresnan and Kanerva 1989, and Grimshaw 1990 among others). For example, Bresnan and Kanerva (1989:23) propose the hierarchy in 77 below, while Grimshaw (1990:8) offers the hierarchy in 78:

77. **agent > beneficiary > recipient/experiencer > instrument > theme/patient > locative** (Bresnan and Kanerva)

78. **agent > experiencer > goal/source/location > theme** (Grimshaw)

While there are some differences in the particulars of the proposed hierarchies, there is general agreement on having agents at the highest point on the hierarchy with

theme/patient arguments near the bottom. Various thematic roles associated with datives, such as recipient and experiencer, occur between agent and theme/patient. These hierarchies provide cross-linguistic support for the MacZ hierarchy proposed in 76.

As suggested by the hierarchies of Bresnan and Kanerva and Grimshaw, additional positions and more finely-grained distinctions on a thematic hierarchy may be relevant for other languages. For MacZ, however, the subject hierarchy is adequately articulated by agent, dative, and theme/patient. Note that I am using dative here as a cover term for the various thematic roles associated with *=ni* in MacZ, including recipient and experiencer. These various uses are discussed in Section 3.1.6. Below, I provide evidence for the ordering of the MacZ subject hierarchy and then discuss how it is derived via the syntax.

5.3.1.1 Ordering of =ni Arguments and Themes

We have already seen numerous examples showing the preference of *=ni* licensed arguments over theme/patient arguments for subject position. In such cases, the dative *=ni* argument appears as a subject blocking any theme/patient arguments from appearing as the overt subject. This is illustrated below in each of the pairs of sentences in 79-85 (subjects are in bold in the interlinear gloss; *=ni* and the argument it licenses are underlined).

79. a. **Rquiina'yà'.**
rquiina' **=ya'**
H/be.needed **=1sN**
I'm needed.

b. **Rquiinanyéntè'.**
rquiina' =ni **=yé** =ntè'
H/be.needed =PREP **=3FD** =1SA
He/she needs me.

80. a. **Ca llave chò'á$_i$ beseelacanà$_i$ lle'e carru chò'á.** {d228a}
ca llave chò' =á beseela **=ca =nà** lle'e carru chò' =á
PL key of/2SG =INVIS C/be.found **=PL =3N** in car of/2SG =INVIS
Your keys were found in your car.

b. **Beseelantè' ca llave chò'á lle'e carru chò'á.** {d228c}
beseela =ni **=ntè'** ca llave chò' =á lle'e carru chò' =á
C/be.found =PREP **=1SD** PL key of/2SG =INVIS in car of/2SG =INVIS
I found your keys in your car.

81. a. **Saniila rllaa' cwanaayhu.** {ii113f}
saniila rllaa **cwanaayhu**
bad H/smell **garlic**
Garlic smells bad.

82. b. **Ìntè'$_i$ rlla'ntè'$_i$ saniila cwanaayhu.** {ii114a}
ìntè' rllaa' =ni **=ntè'** saniila cwanaayhu
me H/smell =PREP **=1SD** bad garlic
Garlic smells bad to me. (*I find garlic smells bad*).

83. a. **¿Riyeenyà' duusi?** {vi72f}
riyeeni **=ya'** duusi
H/sound **=1s** drunk
Do I sound drunk?

84. b. **¿Riyeenlù'ntè' duusi?** {vi72h}
riyeeni =ni **=lù'** =ntè' duusi
H/sound =PREP **=2SD** =1SA drunk
Do I sound drunk to you? (*Do you hear me as drunk?*)

85. a. **Belliuá$_i$ yhúànà$_i$ loo meesà'.** {ii103h}
belliu =á yhúà **=nà** loo meesa =à'
money =INVIS S/be.on **=3N** on table =DIST
The money is on the table.

b. **Lààcanà$_i$ yhúàcainnà$_i$ belliuà' loo meesà'.** {ii104c}
làà=ca=nà yhúà =ni **=ca =nà** belliu =à' loo meesa =à'
BAS=PL=3N S/be.on =PREP **=PL =3D** money =DIST on table =DIST
They have the money on the table.

In each of the (a) examples above, the clause has an intransitive verb with a theme subject. That these arguments are subjects is evidenced in part by the fact that the subjects appear in nominative form. Thus, 79a and 83a have nominative *=ya'* 'I' as opposed to *=ntè'* 'me'.

In each of the (b) examples, *=ni* has been added to the verb licensing a dative argument. This argument is realized as the surface subject in each of these sentences. This can be determined via the subject tests discussed above in Section 5.2.3. In each sentence, for instance, the *=ni* argument appears in the subject position immediately following the verb and before any other arguments. The theme arguments no longer appear as subjects as they did in the (a) sentences. This is evidenced by the fact that they no longer occur in the immediate post-verbal subject position and the first person arguments that had a clear nominative realization (*=ya'*) now appear in the accusative (*=ntè'*) in 79b and 83b.

Moreover, the *=ni* argument must be realized as the subject in the (b) sentences above. The theme subjects in the corresponding (a) sentences cannot appear as subjects when a *=ni* argument is added, as shown below in 86-90. Such sentences, with an intended theme subject and oblique *=ni* argument, are found ungrammatical. If these strings can be parsed at all, it is only with the subject being understood as the *=ni* licensed argument. This, however, yields the non-sensical meanings indicated below with *!*:

86. ***Rquiinanyà'yé.**[13] {mm}
rquiina' =ni **=ya'** =yé
H/be.needed =PREP **=1SN** =3FD
**I am needed by him/her.*

87. ***Beseelani ca llave chò'ántè' lle'e carru chò'á.** {mm}
beseela =ni **ca llave chò' =á** =ntè' lle'e carru chò' =á
C/be.found =PREP **PL key of/2SG =INVIS** =1SD in car of/2SG =INVIS
**Your keys were found by me.*
!Your keys found me in your car.

88. ***Saniila rlla'ni cwanaayhuntè'.** {mm}
saniila rllaa' =ni **cwanaayhu** =ntè'
bad H/smell =PREP **garlic** =1SD
**Garlic smells bad to me.*
!I smell bad to garlic. (*!Garlic finds that I smell bad.*)

89. ***¿Riyeenyà'lù' duusi?**[14] {mm}
riyeeni =ni **=ya'** =lù' duusi
H/sound =PREP **=1SN** =2SD drunk
**Do I sound drunk to you?*

90. ***Lààcanà$_i$ yhúàni belliuà'canà$_i$ loo meesà'.** {mm}
làà=ca=nà yhúà =ni **belliu =à'** =ca =nà loo meesa =à'
BAS=PL=3N S/be.on =PREP **money =DIST** =PL =3D on table =DIST
**They have the money on the table.*
!The money has them on the table.

The required promotion of the *=ni* argument to subject is not simply an animacy effect, in which an animate argument must be realized as a subject over inanimate arguments. In 86 and 89, both the *=ni* argument and the theme argument are animate, but still it is the *=ni* argument which must be realized as the syntactic subject.

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[13] This sentence can be a variant way of saying *I need him/her* with the *=ni*-licensed experiencer understood as receiving nominative case instead of the more typical dative case, a possibility noted back in Section 5.1.2 and to be discussed in more detail in Section 5.3.4. Regardless of the case of the *=ni*-licensed argument, crucially, it is the argument that is realized as subject instead of the theme argument.

[14] Unlike *rquiina'ni* in 86 which tolerates a nominative *=ni*-licensed subject (see the previous footnote), the verb in this sentences, *riyeeni=ni*, does not. Possibly this is due to the fact that *riyeenyà'*, without *=ni*, is the form for 'I sound' and this meaning prevents the nominative subject interpretation for *riyeeni=ni=ya'* → *riyeenyà'* 'I hear'.

These examples and the others like them establish that when a verb in MacZ licenses two arguments, one a =*ni*-licensed dative argument and the other a theme argument, the =*ni* argument will appear as the syntactic subject. This justifies our positioning of the =*ni* dative arguments above theme arguments in the hierarchy in 76.

5.3.1.2 Relative Ordering of Agents and =ni Arguments

While =*ni*-licensed arguments are preferred as subjects over theme and patient arguments, agents are, unsurprisingly, preferred as subjects over both =*ni* arguments and theme/patient arguments. The preference of agents over =*ni* arguments can be seen when =*ni* is added to a verb that already subcategorizes for an agent subject and when =*ni* subject verbs are causativized. In both cases, the agent argument obligatorily appears as the subject while the =*ni* argument is realized as an object.

When =*ni* combines with verbs that independently license an agent, the argument introduced by =*ni* obligatorily surfaces as an object while the agent argument remains the syntactic subject. This is illustrated below by the sentences in 91-94 (again, in the interlinear gloss, subjects are in bold, =*ni* and its argument are underlined). The (a) sentences show the =*ni*-less form of the verb with an agentive subject. The (b) sentences show that an introduced =*ni* argument surfaces as an object. The (c) sentences show that this is obligatory. Just as a theme argument could not be realized as a subject when a =*ni* argument is present, a =*ni* argument cannot surface as the subject when the verb licenses an agent.[15]

[15] MacZ lacks a passive, but even if it did, it would not change the proposed hierarchy. The subject hierarchy only predicts which argument directly licensed by a (complex) verbal head will appear as subject. In a passive, the agent would not be expected to be licensed directly by the verb but introduced as part of some *by*-phrase. As such, even though agents are highest on the subject hierarchy, such agents would not

91. a. **Ruyhiia' béccú'à'.**
ruyhiia' **béccú' =à'**
H/bark **dog** **=DIST**
The dog is barking.

b. **Ruyhiia'ni béccú'à' Felipeà'.**
ruyhiia' =ni **béccú' =à'** Felipe =à'
H/bark =PREP **dog** **=DIST** Felipe =DIST
The dog is barking at Felipe.

c. **Ruyhiia'ni Felipeà' béccú'à'.**
**Felipe is being barked at by the dog. !Felipe is barking at the dog.*

92. a. **Gunaaba Felipeà' ttu libru.**
gunaaba **Felipe** =à' ttu libru
C/ask.for **Felipe** =DIST a book
Felipe asked for a book.

b. **Gunaabani Felipeà' bexuudiá ttu libru.**
gunaaba =ni **Felipe =à'** bexuudi =á ttu libru
C/ask.for =PREP **Felipe =DIST** priest =INVIS a book
Felipe asked the priest for a book.

c. **Gunaabani bexuudiá ttu libru Felipeà'.**
**The priest was asked for a book by Felipe.*
The priest asked Felipe for a book.

93. a. **Gutti'nà ttu la'ri íttsá gallia peesu.** {ii158f"}
gutti' **=nà** ttu la'ri íttsá gallia peesu
P/sell **=3N** a cloth hair twenty peso
blanket
She will sell a blanket for twenty pesos.

b. **Gutti'innà bèttsì'nià' ttu la'ri íttsá gallia peesu.** {ii156e"}
gutti' =ni **=nà** bèttsì' =nì =à' ttu la'ri ittsá gallia peesu
P/sell =PREP **=3N** man's.brother =3G =DIST a blanket twenty peso
She will sell a blanket to his brother for twenty pesos.

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be expected to appear as the subject since they are not licensed directly by the verb or via some morpheme incorporated into the verbal head.

c. **Gutti'ni bèttsì'nià'nà ttu la'ri íttsá gallia peesu.**
**His brother was sold a blanket by her for twenty pesos.*
His brother sold her a blanket for twenty pesos.

94. a. **Bediiayà' ttu correo electronicu.** {mm}
bediia **=ya'** ttu correo electronicu
C/write **=1sN** a e-mail
I wrote an e-mail.

b. **Bediianyà' yhiila Margarità' ttu correo electronicu.** {d225a}
bediia =ni **=ya'** yhiila Margarita =à' ttu correo electronicu
C/write =PREP **=1sN** woman's.sister Margarita =DIST a e-mail
I wrote Margarita's sister an e-mail.

c. ***Bediiani yhiila Margarità'yà' ttu correo electronicu.**[16]
**Margarita's sister was written an email by me.*

The relative ordering of agents and *=ni* arguments can also be established through causativized *=ni* examples like those in 95-98 below. For each of these verbs, the non-causative form of the verb in the (a) examples has an experiencer subject licensed by *=ni*. When a causativized form of the verb, marked in MacZ via overt morphology and distinct verb forms is used as in the (b) examples, an agent argument is introduced.[17] This argument now appears in the surface subject position, as evidenced by word order

[16] With the first singular nominative *=ya'* separated from the verb, this sentence does not have a grammatical reading.

[17] As discussed in Sections 3.1.1.7.1 and 3.1.2.2, morphological causatives are marked in primarily two ways, either with an overt causative prefix, *di-*, as seen in 95b, or by choice of aspectual prefix, for example by taking the *be-/ru-/gu-* series of prefixes, which are restricted to vP-licensed subjects. In fact, all of the causativized verbs in these examples show this change in aspectual prefix, even the one with the distinct causative prefix *di-*. Besides the addition of or change in prefixes, the verbs frequently also show changes in the verb root. A common change, seen in 95-96, is for the verb root to appear in what corresponds to the potential form of the non-causative verb, a form which is often marked by devoicing of the initial consonant of the verb root as seen in the verbs in 96: *guduusi=ni* 'was drunk' and *bethuusi=ni* 'made drunk', cf. *thuusi=ni* 'will be drunk'. Sometimes, as in 98, the verb root in the causative form exhibits devoicing of the initial consonant (*riguitti'=ni* 'is ticklish' versus *ruquitti'=ni* 'tickles') although the devoiced root does not correspond to the potential form of the non-causativized verb. Thus, the potential form of *riguitti'=ni* is *iguitti'=ni* not **quitti'=ni*. Finally, some verbs exhibit highly irregular stem changes between inchoative/causative pairs, as seen in 97 with the verbs *bitiisi'=ni* 'was angry/got angry' and *bequiisi'=ni* 'angered' which show an irregular *t/qu* alternation in the verb root in addition to the differences in the aspectual prefix.

and case facts—nominative *=ya'* in 98b for example—among other properties. The *=ni* experiencer argument as a result surfaces as an object.

95. a. **Raasinriu'.**
raasi=ni **=riu'**
H/be.afraid=PREP **=1INCLD**
We're scared./We're afraid.

b. **Ca beyeeti'á$_i$ rudigaasicainnà$_i$riu'.** {ii115c}
ca beyeeti' =á ru-di-gaasi=ni **=ca =nà** =riu'
PL bat =INVIS H-CAUS-be.afraid=PREP **=PL =3N** =1INCLD
Bats scare us./Bats make us afraid.

c. **Ca beyeeti'á$_i$ rudigaasinriu'canà$_i$.**
*We scare bats. *We are scared by bats.*

96. a. **Guduusintè' nasee'á.** {v185m}
guduusi=ni **=ntè'** nasee'=á
C/be.drunk=PREP **=1SD** last.night=INVIS
I got drunk last night./I was drunk last night.

b. **Margaritani$_i$ bethuusiinnà$_i$ntè' nasee'á.** {v186a}
Margarita =ni bethuusi=ni **=nà** =ntè' nasee'=á
Margarita =PROX C/make.drunk=PREP **=3N** =1SD last.night=INVIS
Margarita got me drunk last night.

c. ***Margaritani$_i$ bethuusintè'nà$_i$ nasee'á.**
**I was gotten drunk byMargarita last night.*

97. a. **Bitiisi'ntè' làànì Felipeà'.** {v185h}
bitiisi'=ni **=ntè'** làànì Felipe =à'
C/be.angry=PREP **=1SD** with Felipe =DIST
I'm mad at Felipe.

b. **Felipeà'$_i$ bequiisi'innà$_i$ntè'.** {v185e}
Felipe =à' bequiisi'=ni **=nà** =ntè'
Felipe =DIST C/anger=PREP **=3N** =1SD
Felipe got me angry.

c. ***Felipeà'$_i$ bequiisi'intè'nà$_i$.**
**I was made angry by Felipe.*

98. a. **Lààcanà$_i$ stiite riguitti'cainnà$_i$.**[18] {iv174e}
làà=ca=nà stiite riguitti'=ni **=ca =nà**
BAS=PL=3N fast H/be.tickled=PREP **=PL =3D**
They are very ticklish. They tickle fast.

b. **Ìntè' bequitti'nyà'canà.** {iv179d}
ìntè' bequitti'=ni **=ya'** =ca =nà
1SN C/tickle=PREP **=1SN** =PL =3D
I tickled them.

c. ***Ìntè' bequitti'cainnàyà'.**
**They were tickled by me.*

It is not the case that volitional agent arguments are the only type of arguments that may appear as subjects over *=ni* licensed arguments. For example, as seen below in 99-100, causative morphology may introduce inanimate causer arguments. These arguments also obligatorily appear as subject over *=ni*-licensed arguments.

99. a. **Ca margarita canu' gu'gwiyà' nasee'á$_i$ bethuusicainnà$_i$ntè'.** {v186b}
ca margarita ca nu' gu'gwi =ya' nasee'=á bethuusi=ni
PL margarita PL REL C/drink =1SN last.night=INVIS C/make.drunk=PREP
=ca =nà =ntè'
=PL =3N =1SD
The margaritas that I drank last night made me drunk.

b. ***Ca margarita canu' gu'gwiyà' nasee'á$_i$ bethuusintè'canà$_i$.**
**I was made drank by the margaritas that I drank last night.*

100. a. **Resáátè'.** {v186f}
resáá=ni **=ntè'**
H/be.tired=PREP **=1SD**
I'm tired.

b. **Siina$_i$ rudisaainnà$_i$ntè'.** {v187b}
siina ru-di-saa=ni **=nà** =ntè'
work H-CAUS-be.tired=PREP **=3N** =1SD
Work makes me tired.

[18] This verb and its related causative form are unusual in that the *=ni* is optional. They can occur with or without *=ni* with no change in meaning.

c. ***Siina$_i$ rudisaainntè'nà$_i$.**
**I was made tired by work.*

Such examples suggest that either we will need an expanded definition of *agent*, perhaps as "the entity that performs an activity or brings about a change of state" (Blake 1994:69), or we will need a more abstract subject hierarchy not dependent on particular thematic roles. In Sections 5.3.2 and 5.3.2.2 below, I develop this latter option. I take agents to be licensed in the highest projection, vP, within an expanded VP structure. This vP position will be immediately above the projection, datP, in which *=ni* arguments are licensed. As a result, any argument generated in vP will necessarily appear as the subject of its clause, regardless of the exact thematic role associated with the argument. Currently, I am focusing on agents as they are the prototypical arguments found in vP and this is only position in which they can be licensed by a verb. I can then use agents to establish the subject hierarchy proposed in 76 and to provide evidence for an abstract thematic hierarchy in the syntax. As suggested by the examples in 99-100, however, it is not the case that vP and the other thematic projections are limited to these prototypical thematic roles. Other types of arguments may be licensed in these positions as well, and they will then show the same grammatical relation patterns as the other, more prototypical arguments, licensed in these positions.

We have now established agents over *=ni* licensed arguments in our subject hierarchy. As can be seen from the examples in 138-94 and in 95-98, a *=ni* licensed argument may appear as the surface subject only if an agent argument is not present. When an agent is present, then it is realized as the subject. As a result, agent arguments appear higher on the subject hierarchy. Now, although we have already established *=ni*

arguments over themes in Section 5.3.1.1, it is necessary to show that agents are preferred over theme arguments as subjects. This is discussed in the following section.

5.3.1.3 Ordering of Agents and Themes

We have already seen that *=ni* arguments are preferred as syntactic subjects over themes. Unsurprisingly, this is also true for agent arguments. When a verb selects for both an agent and a theme argument, the agent invariably surfaces as the grammatical subject as seen in the sentences in 101-105 (subjects are in bold in the interlinear gloss):

101. a. **[Bestiidu què' naanqui'yà']$_i$ bireedanà$_i$.** {v222f}
bestiidu què' naan-qui' =ya' bireeda **=nà**
dress of mother-of =1SG C/get.torn **=3N**
My mother's dress got torn./My mother's dress tore.

b. **Naanqui'yà'$_i$ gucheedayé$_i$ bestiidu vieju què'yéá.** {v223b}
naan-qui' =ya' gucheeda **=yé** bestiidu vieju què' =yé =á
mother-of =1SG C/tear **=3FN** dress old of =3FG =INVIS
My mother tore (up) her old dress.

c. **Gucheeda bestiidu vieju què'yéá naanqui'yà'.**
**Her old dress was torn up by my mother.*
!Her old dress tore up my mother.

102. a. **[Carru què' Felipeà']$_i$ biluulunà$_i$ lle'e yooá.** {v223f}
carru què' Felipe =à' biluulu **=nà** lle'e yoo =á
car of Felipe =DIST C/roll **=3N** in river =INVIS
Felipe's car rolled into the river.

b. **Felipeà'$_i$ beluulunà$_i$ carruá lle'e yooá.** {v223g}
Felipe =à' beluulu **=nà** carru =á lle'e yoo =á
Felipe =DIST C/roll **=3N** car =INVIS in river =INVIS
Felipe rolled the car into the river.

c. **Beluulu carruá Felipeà' lle'e yooá.**
**The car was rolled into the river by Felipe.*
!The car rolled Felipe into the river.

103. a. **Gubixxi etthuà'.** {v216d}
gubixxi **etthu =à'**
C/fall **pot** **=DIST**
The pot fell over.

b. **Ìntè'$_i$ bedixxiyà'$_i$ etthuà'.** {v216c}
ìntè' bedixxi **=ya'** etthu =à'
1SN C/fell **=1SN** pot =DIST
I knocked over the pot.

c. ***Ìntè'$_i$ bedixxi etthuà'yà'$_i$.**
**The pot was knocked over by me.*

104. a. **Lagooni$_i$ rtoottse'nà$_i$.** {ii286d}
lagoo =ni r-t-oo =ttse' **=nà**
food =PROX H-MID-eat =well **=3N**
This food eats well. i.e. *This food tastes good.*

b. **Béccú'á$_i$ gutoonà$_i$ ca etta chà'á.**
béccú' =á gutoo **=nà** ca etta chà' =á
dog =INVIS C/eat **=3N** PL tortilla of/1SG =INVIS
The dog ate my tortillas.

c. **Gutoo ca etta chà'á béccú'á.**
**My tortillas were eaten by the dog.*
!My tortillas ate the dog.

105. a. **Rebiisiyà' lààní ubiisa'.** {vi72k}
rebiisi **=ya'** lààní ubiisa'
H/dry.again **=1SN** with sun
I'm drying off in the sun.

b. **Pedruà'$_i$ bedibiisinà$_i$ ca trasteá.** {vi13h'}
Pedru =à' be-di-biisi **=nà** ca traste =á
Pedro =DIST C-CAUS-dry **=3N** PL dish =INVIS
Pedro dried the dishes.

c. **Bedibiisi ca trasteá Pedruà'.** {vi13h'}
**The dishes were dried by Pedro*
!The dishes dried Pedro.

In intransitive sentences like those in the (a) examples above, a theme argument may appear in the surface subject position, as confirmed by the availability of nominative

case (in 105a for example). When an agent is present as in the (b) examples, however, it must appear as the subject. Theme subjects are ungrammatical in such cases, as shown in the (c) examples. The theme arguments, thus blocked from the syntactic subject position, are realized instead as objects. As a result, we can conclude that agents occur higher on the subject hierarchy than theme arguments.

We have now seen evidence justifying each of the points on the MacZ subject hierarchy proposed in 76 and repeated below:

76. ***MacZ Subject Hierarchy*:**
agent > dative > theme/patient

The sentences in 79-105 establish that agentive arguments of the verb are preferred as syntactic subjects over both dative *=ni* arguments and theme arguments, while dative *=ni* subjects are preferred to theme subjects. Now we will turn to implementing this hierarchy in the syntax and determining what syntactic mechanisms produce the observed data captured by the subject hierarchy. This will be the focus of the next two sections.

5.3.2 Syntax of the Subject Hierarchy

The proposed subject hierarchy can be encoded in structural terms. If each of the thematic roles in the subject hierarchy above in 76 is associated with a particular hierarchical thematic projection of the verb, it will produce a hierarchy of structural positions like that presented in 106 below, with agents licensed in [Spec,vP], *=ni* arguments licensed in [Spec, datP] and theme/patient arguments licensed within VP.[19]

106. ***MacZ Thematic Licensing Hierarchy*:**
vP > datP > VP

[19] This is not to say that these are the only positions in which these thematic roles may be licensed, and it does not exclude other thematic roles from being licensed in these positions.

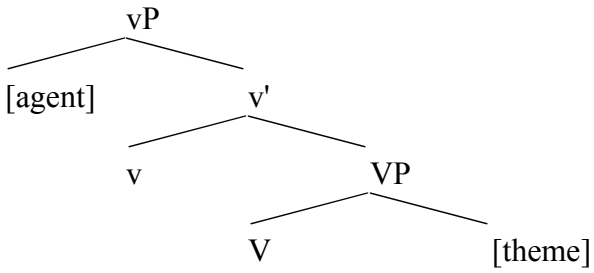
The argument appearing in the highest of these projections for a particular verb will then become the syntactic subject. Thus, if a verb projects a vP, then the argument licensed within [Spec,vP] will be obligatorily realized as the subject, regardless of what other arguments the verb may also license. If no vP is projected, then an argument in datP, if present, must be realized as the subject. Finally, if neither vP nor datP are projected, then an argument originating in VP may be realized as the subject.

As discussed in Chapter 4 and developed in the subsections below, the arguments are driven to be realized as subject by a weak EPP-feature, evidence for which will be provided in Chapter 6. That it is the highest argument in the hierarchy in 106 that becomes subject is ensured by the Minimal Link Condition.

5.3.2.1 Syntax of Agents and Themes

The asymmetry between agents and themes is captured straightforwardly in standard analyses in which an agent argument is licensed in the highest projection in an expanded VP domain (Chomsky 1995, Hale and Keyser 1993, Koopman and Sportiche 1991). Following current usage, I will label this highest position [Spec, vP] (Chomsky 1995). Theme arguments, in contrast, will be licensed in a structurally inferior VP position. This will place agent arguments above themes in a structural hierarchy and accords well with the subject hierarchy proposed for MacZ in 76. This yields the following structure:

107.



The positioning of vP above VP will produce the subject alternations observed in the various intransitive/causative pairs in 101-105 when combined with the (weak) EPP-feature and the Minimal Link Condition (MLC). The weak EPP and MLC will, at LF, drive the highest DP of the expanded VP into the subject position, which as discussed in Chapter 4, I take to be [Spec,TP].

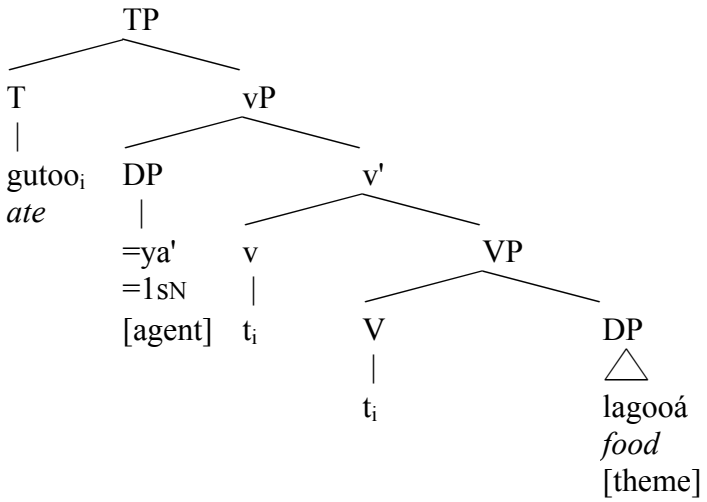
The EPP requires that clauses have subjects (Chomsky 1981). Within the Minimalist framework, this is achieved by means of a [D]-feature associated with the tense head (Chomsky 1995:232). As noted in Chapter 4, there is evidence in MacZ that this EPP-feature may be weak, similar to proposals made by McCloskey (1996) for Irish. (The MacZ evidence for a weak EPP feature is discussed in detail in Chapter 6.) As a result, one argument of the verb must covertly raise to [Spec,TP] to satisfy this D-feature or must have passed through [Spec,TP] as it overtly moves to satisfy some other, strong feature, such as a *wh*-feature.

It will necessarily be the highest DP which moves to (covertly) satisfy the EPP-feature associated with TP if we adopt Chomsky's (1995:297) definition of Attract, the mechanism which regulates feature-driven movement. Chomsky incorporates the Minimal Link Condition (MLC) into his definition of Attract, stating that a target will trigger movement of some element only if it bears the closest instance of a feature that

can enter into a checking relation with the target. Thus, the EPP requirements of TP can only be satisfied by the closest element (in this case, DP) bearing the relevant feature. Since a [Spec,vP] argument is closer to TP than an argument inside the internal VP, a vP argument, if projected, must be the one to satisfy the EPP-feature associated with TP.

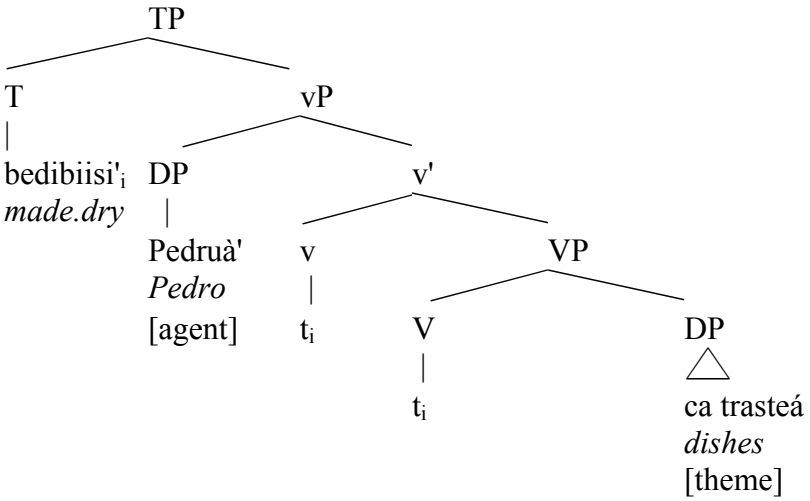
So, in sentences like those in 108-109 below, the verb will first license the theme argument inside VP. The verb will then undergo head-movement to v° licensing the agent argument in [Spec,vP] (and satisfying any features associated with overt causative morphology, such as *di-* in 109). Finally, the verb undergoes movement to T°, satisfying the strong tense feature, and producing the given surface structures:

108.



Gutooyà' lagooá.
I ate the food.

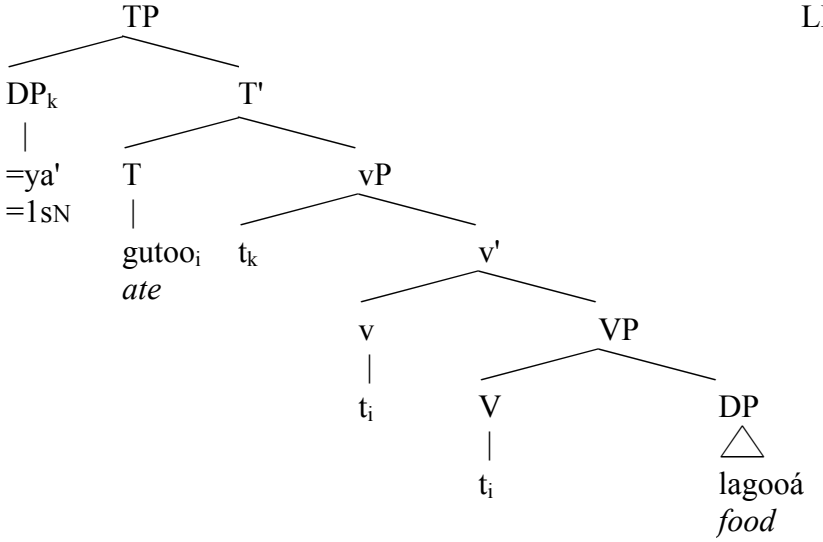
109.



Bedibiisi' Pedruà' ca trasteá.
Pedro dried the dishes.

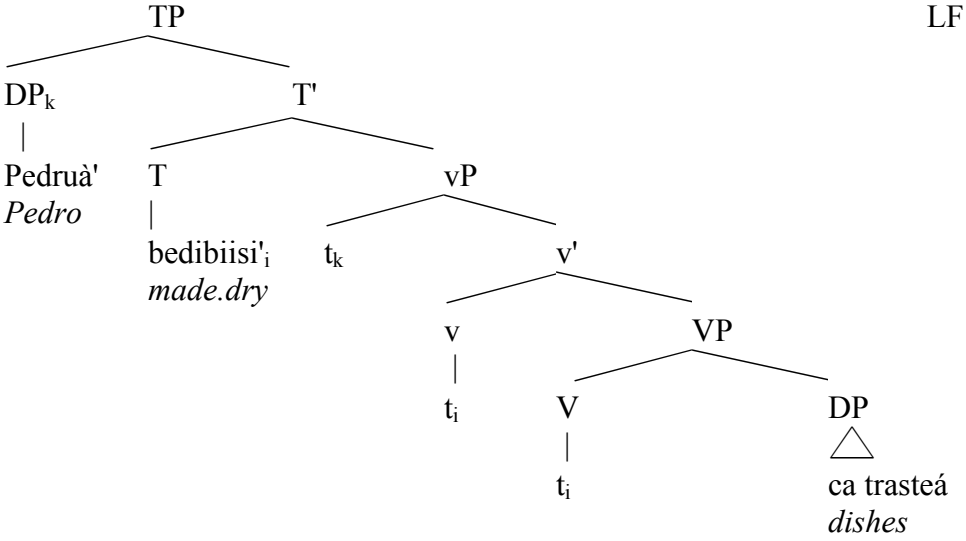
Only at LF will the subject DP arguments move to [Spec,TP]. Since the EPP (and nominative case features) in MacZ are weak, movement to [Spec,TP] can only take place covertly under principles of Greed. As shown below in 110-111, the LF-counterparts of 108-109 above, the DP arguments originating in [Spec,vP] covertly raise to [Spec,TP] checking the weak D-feature and weak nominative case features.[20]

110. LF



[20] For more on case assignment, see Section 4.

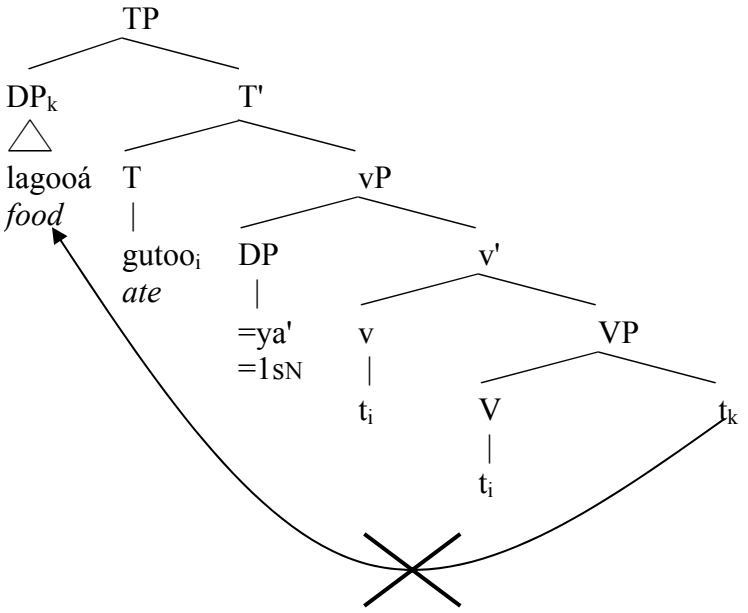
111. LF



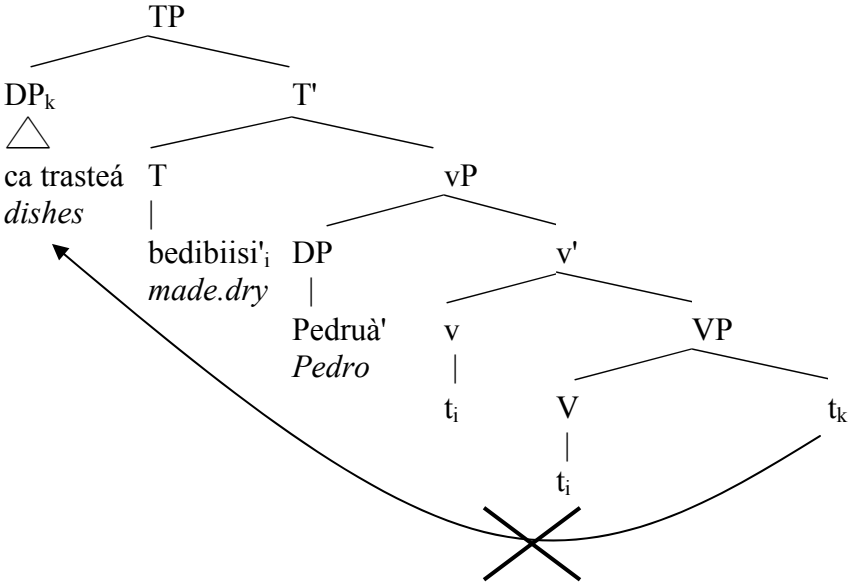
When a verb licenses two arguments, one in [Spec,vP], the other in VP, the one originating inside [Spec,vP]—the "agent"—must be realized as the grammatical subject. The VP-internal argument is blocked by the Minimal Link Condition (incorporated into the definition of Attract being employed here) from raising over the [Spec,vP] argument into [Spec,TP]:[21]

[21] MacZ does not allow VOS ordering under any circumstances. This precludes the possibility of VP-remnant containing an overt object moving above the subject yielding a post-verbal object before the subject.

112. LF



113. LF

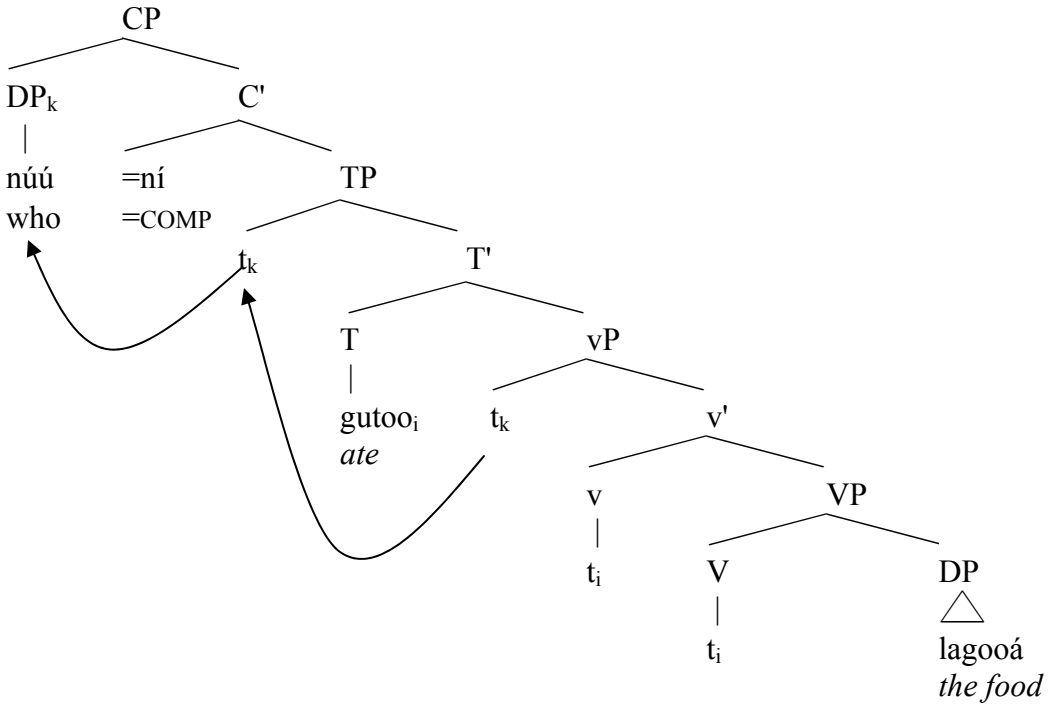


Since the DP in [Spec,vP] bears the closest feature to TP capable of satisfying the D-requirements associated with TP, it must be the argument that moves to [Spec,TP] under the definition of Attract employed here following Chomsky (1995). As a result, the arguments originating in [Spec,VP] in 112-113 above cannot (covertly) raise to [Spec,TP] to satisfy its EPP-feature because the arguments in [Spec,vP] are closer to TP

than are the arguments in VP. The [Spec,vP] argument, then, is realized as the syntactic subject.

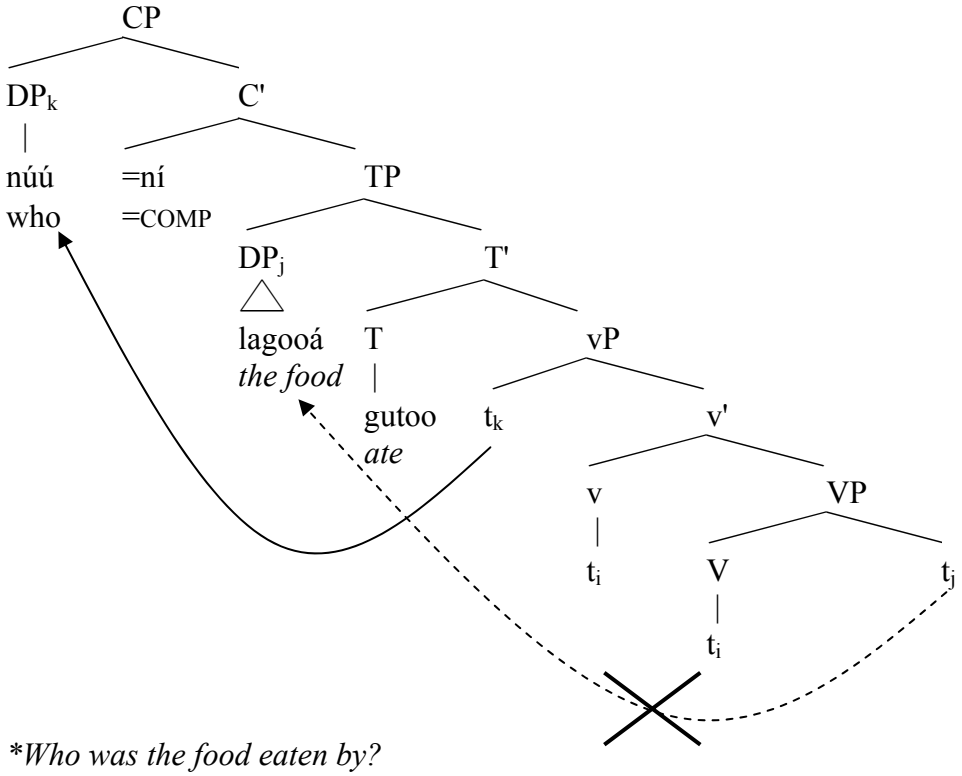
Similarly, a lower DP cannot raise over the trace of a higher DP to satisfy the EPP-feature of TP. Even if an argument originating in [Spec,vP] must overtly move to satisfy some other strong feature, such as a *wh*-feature for example as in 114 below, a lower DP still cannot raise to [Spec,TP]. The trace of the moved DP must still count as bearing a closer instance of a feature, thus blocking the lower DP from raising over it into [Spec,TP]. Thus, if a *wh*-argument overtly moves to [Spec,CP] without passing through [Spec,TP] as in 115, a lower DP is still blocked from raising at LF (represented by the dotted line) to satisfy the D-feature associated with [Spec,TP]. As a result, if the *wh*-argument does not pass through [Spec,TP], no other DP will be able to satisfy the requirements of [Spec,TP] and the derivation will crash. Therefore, the only viable derivation is that presented in 114 in which a *wh*-subject passes first moves to [Spec,TP] satisfying the weak EPP features and nominative case features of TP before moving into [Spec,CP] to satisfy the strong *wh*-feature there.

114.



¿Núúní gutoo lagooá?
Who ate the food?

115. LF

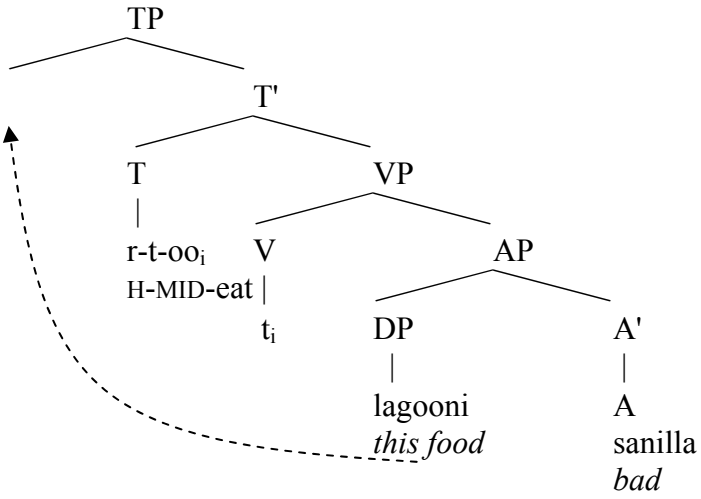


**Who was the food eaten by?*

So long as the verb projects an agent argument, any theme argument also projected cannot be realized as the syntactic subject. However, when no agent argument (or =*ni* argument) is licensed directly by the verb, then only a VP-argument will be available to satisfy the D-feature associated with TP and a theme argument will be realized as the syntactic subject. This occurs, for example, in middle constructions and other intransitive verbs which project only a VP.

Although MacZ lacks a passive construction, a few verbs do have middle forms which do not project a vP and allow theme arguments to be realized as subjects. This is exemplified with *rtoo* 'eats/tastes' in 116 below. With the verb *rtoo*, no "eater" argument is licensed—there is no vP projection. Thus, the DP, *lagooni* 'this food', originating in a lower projection can serve as the syntactic subject, covertly raising at LF (as indicated by the dotted line) to satisfy the weak EPP features and case features associated with TP. Indeed, *lagooni* must be realized as the subject, since there is no other DP available in the structure to satisfy the features of TP.

116. {mm'}



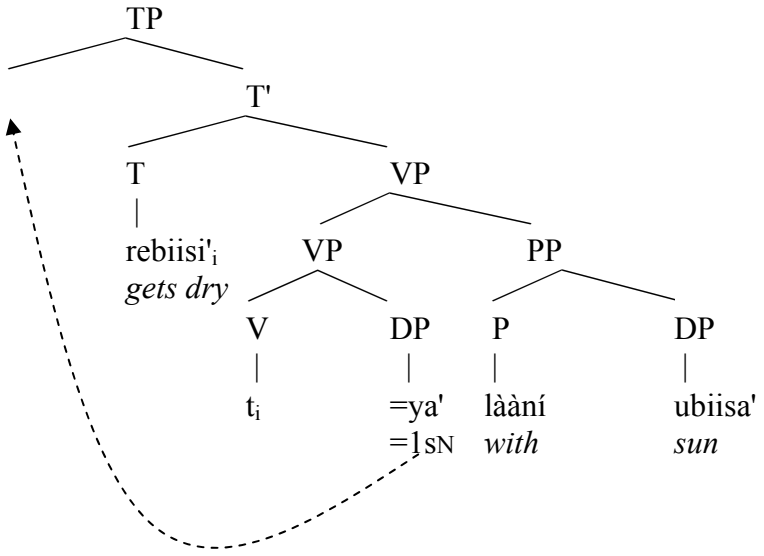
Rtoo lagooni sanilla.
'This food eats bad.' i.e. 'This food tastes bad.'

That the single DP present in 116 represents the grammatical subject is evidenced by the fact that such DPs receive nominative case as shown in 33a, repeated below, which has the nominative first person singular subject *=ya'*:

33. a. **¿Bartoottse'<u>và'</u>?**
ba r-t-oo =ttse' <u>=ya'</u>
EMP H-MID-eat =well <u>=1SN</u>
Do I taste good? (lit. *Do I eat well?*) (in the context of a dog licking one's hand)

Of course, there are various other verb types which project VPs but license no other, higher verbal projections. These verbs, too, have theme or other VP-licensed subjects. *<u>R</u>ebiisi'* 'gets dry', the non-causative counterpart to *bedibiisi'* 'made dry' in 109, provides an example in 117 below:

117.



Rebiisi'yà' làànì ubiisa'.
'I'm getting dry in the sun.'

As evidenced by its nominative case realization, the theme argument of *rebiisi'* serves as the grammatical subject for the clause in 117. This indicates that it is this theme argument which covertly raises to [Spec,TP] (indicated by the dotted line) to satisfy the nominative case features and EPP features associated with DP.

Encoding the MacZ Subject Hierarchy in 76 in terms of the more abstract Thematic Licensing Hierarchy of vPs and VPs has the advantage of abstracting away from particular thematic roles. As a result, any DP licensed in [Spec,vP] will be realized as the subject, regardless of the particular thematic role the DP is assigned. Thus in 118, *=nà* '=3N' originates in [Spec,vP] and is necessarily realized as the subject although it does not refer to a volitional agent but instead to *yiinà'* 'fire', the topicalized DP with which it is coindexed.

118. **Yiinà'$_i$ rudibiisi'nà$_i$ beelá'.** {mm}
yii =nà' ru-di-biisi' =nà beelá'
fire =DIST H-CAUS-dry =3N meat
The fire is drying the meat.

If we had sought to capture subject distributions solely in terms of thematic roles, 118, and other sentences, would force us to make various unsatisfactory adjustments to the MacZ Subject Hierarchy in 76. For example, the subject of 118 could be captured with a broader definition of "agent" as not just an animate entity exercising volitional control over an event but as any "entity that performs an activity or brings about a change of state" (Blake 1994:69). However, it is impossible to develop an exhaustive definition for each level of the Subject Hierarchy. As we have already seen in Section 3.1.6.2, *=ni* arguments receive a wide-range of thematic roles that cannot readily be captured by any semantic generalization. What they do all have in common, however, is how they are licensed in the syntax by *=ni*.

Similarly, including additional thematic points on the hierarchy is also unsatisfactory. For example, the subject in 118 could be captured by proposing a non-volitional "cause" thematic role above theme and arguably below agent. Such a proliferation of thematic types on the hierarchy, however, would miss an important generalization. There appear to be only three possible types of subjects which in turn depend on three ways that DPs can be licensed by the verb: by the verb root itself inside VP, by *=ni* inside datP, or by the v° head, which is frequently reflected in the overt morphology by the causative prefix *di-* or by the choice of aspectual prefix. Considering these points then, we are lead to the conclusion that syntactic licensing is more important in determining the syntactic subject than is thematic role assignment.

While the thematic hierarchy in 76 illustrates the canonical behavior of agents, experiencers/recipients, and themes, the more abstract licensing hierarchy in 106 (repeated below) is needed to capture the behavior of the full range of thematic types.

106. ***MacZ Thematic Licensing Hierarchy*:**
vP > datP > VP

Regardless of the particular thematic roles they receive, DPs licensed in [Spec,vP] will be realized as the syntactic subjects. If vP is not projected, then a DP originating in [Spec,datP], if present, will be realized as subject. Finally, if neither vP nor datP is projected, VP arguments will be realized as subject.

As we have now seen, the expanded VP structure combined with the EPP and MLC provides a complete account for the distribution of vP and VP licensed subjects in MacZ. A similar approach can account for the realization of the grammatical function of *=ni* arguments, both as subjects and objects.

5.3.2.2 Syntax of =ni Licensed Arguments

Recall the thematic subject hierarchy for MacZ proposed in 76 and repeated below:

76. ***MacZ Subject Hierarchy*:**
agent > experiencer/recipient > theme/patient

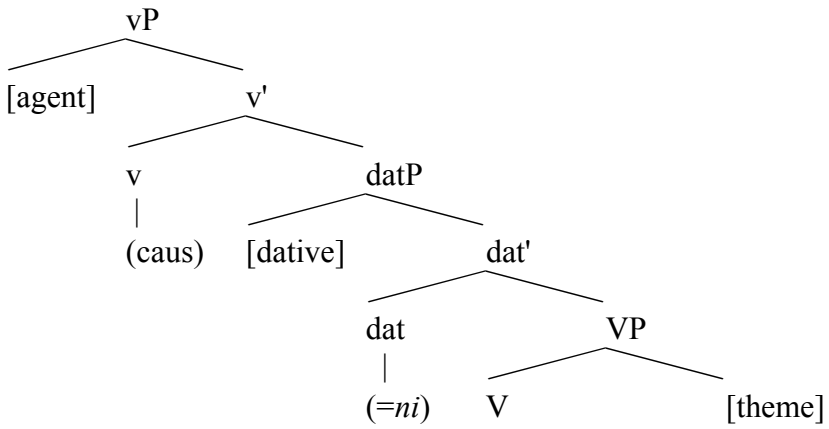
The agent > theme hierarchy is captured structurally via the argument-licensing structure of verbs in which an agent is obligatorily licensed in a higher structural position than theme arguments (vP > VP). The realization of these arguments as subjects is then driven by EPP features and constrained by the Minimal Link Condition (MLC).

The *=ni* subjects can be structurally licensed via a similar mechanism. A VP-shell that licenses dative arguments and is positioned between vP and VP will account for the availability of dative subjects. As this VP-shell will license thematic roles typically associated with datives, I will label it dat(ive)P. This completes the structural hierarchy presented in 106 and repeated below

106. ***MacZ Thematic Licensing Hierarchy*:**
vP > datP > VP

Assuming that in MacZ *=ni* serves as the overt head of datP, we have the following structure:[22]

119.



The verb will undergo overt head movement, checking/acquiring *=ni* and causative morphology, if they are present, as the verb moves to T° to check its tense features. The highest argument in the structure will (covertly) raise to [Spec,TP] to satisfy the EPP.

This structure accounts for the grammatical relations of the full range of *=ni* arguments, both subjects and objects. As we saw with the vP and VP hierarchy, the dative argument will raise to subject only if no higher argument is available, that is, only

[22] Another possibility is that *=ni* does not originate as part of the thematic-licensing structure, but should be considered a case-licenser outside the (expanded) VP. See Section 5.3.4 below for some discussion of this possibility and for some suggestions involving case assignment.

if vP is not projected. If vP is projected, however, the DP licensed inside vP will necessarily be realized as subject and a *=ni*-licensed DP will surface as an object.

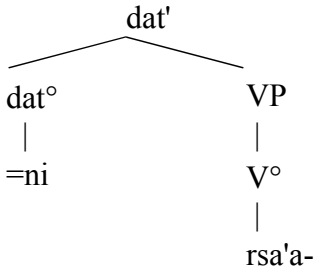
For intransitive *=ni* verbs like those in 120-121 below, there is only one DP argument available—the one licensed by *=ni*—to satisfy the EPP requirements of TP. It will necessarily be this DP then that raises covertly to [Spec,TP] and is thus realized as the syntactic subject.

120. **Rsa'ani Felipeà'.**
rsa'a=ni Felipe =à'
H/be.angry=PREP Felipe =DIST
Felipe is angry.

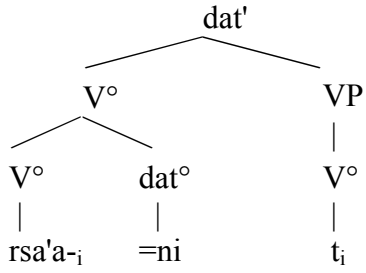
121. **Duusitè'.**
duusi=ni =ntè'
S/be.drunk=PREP =1SD
I'm drunk.

The derivation for intransitive *=ni* verbs proceeds as outlined below in 122-125. The dat° head selects a VP complement (122a), and then the verbal head, *rsa'a-* in this example, undergoes head movement to dat°, adjoining with *=ni*, as shown in 122b.

122. a.

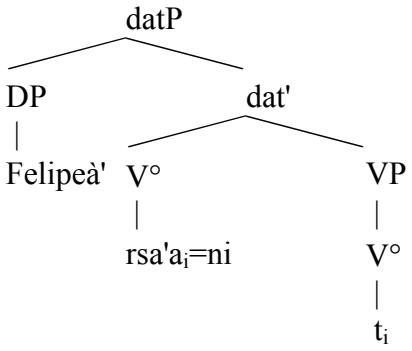


b.



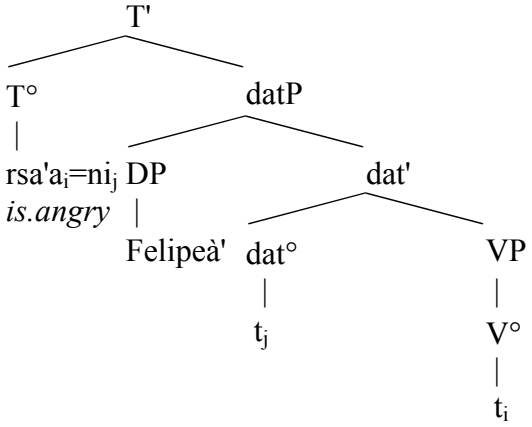
The single DP argument then receives its thematic licensing in [Spec,datP], as shown in 123 below:

123.



The complex head *rsa'a=ni* finally undergoes head movement to T° in order to check its strong tense/aspect features, producing the observed spell-out form of the sentence as shown in 124:

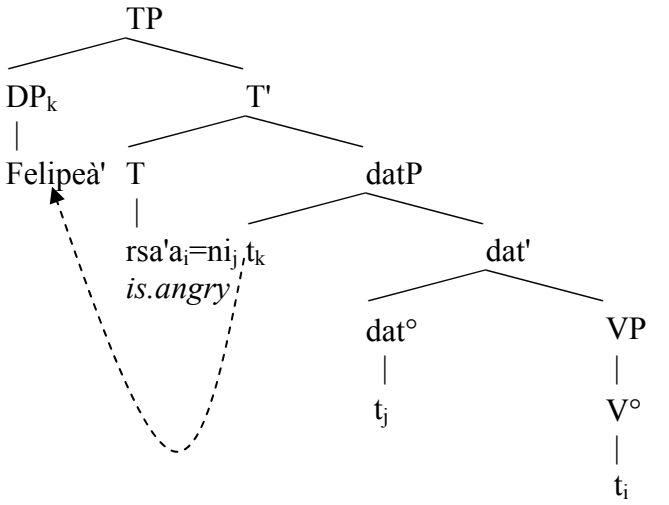
124. (structure at spell-out)



Rsa'ani Felipeà'
Felipe is angry.

The weak EPP feature associated with TP must still be satisfied. The only DP which is available to check this feature is the DP, *Felipeà'*, which is introduced in [Spec,datP]. Thus, *Felipeà'* undergoes covert movement to satisfy the weak EPP features of TP, as represented below in 125, the LF-structure of the clause:

125. (LF-structure)



A question now arises about the nominative case features of T. This issue is addressed below in Section 5.3.4. Unlike other languages with dative subjects, such as Icelandic (Andrews 1976) and Chickasaw (Munro 1999), it is not the case that nominative case marking shows up on other, non-subject DPs in such sentences in MacZ. This suggests that nominative case is not either not assigned in dative subject clauses or that it can be satisfied by the dative subject. If the latter, then the resulting case conflict could be resolved at PF as developed in Bejar and Massam 1999. Thus, *Felipeà'* in 123-125 above receives inherent dative case in [Spec,datP] and subsequently covertly checks the nominative case features of T. Since full DPs in MacZ do not show overt case distinctions, no case conflict arises at PF and the DP can be realized as *Felipeà'*, a form which is consistent with both case requirements. In the case of bound clitic pronouns, case conflicts may arise, and these are typically resolved in favor of the inherent case, resulting in overtly marked dative subjects as in 121 above.

Dative subjects can also appear in transitive contexts when the verb licenses another argument within VP as in 126-128 below.

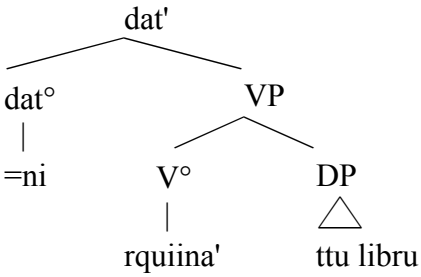
126. **Rquiina'ni Felipeà' ttu libru.**
rquiina' =ni Felipe =à' ttu libru
H/be.needed =PREP Felipe =DIST a book
Felipe needs a book.

127. **Ìntè' rtoottse'ntè' lagooni.** {ii286e}
ìntè' rtoo =ttse' =ni =ntè' lagoo =ni
IND/1SN H-MID-eat =well =PREP =1SD food =PROX
This food tastes good to me. (*I like the taste of this food.*)

128. **Beseelantè' ca llave chò'á lle'e carru chò'á.** {d228c}
beseela =ni =ntè' ca llave chò' =á lle'e carru chò' =á
C/be.found =PREP =1SD PL key of/2SG =INVIS in car of/2SG =INVIS
I found your keys in your car.

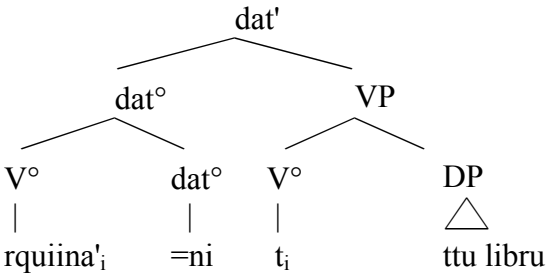
The derivations of such sentences are essentially identical to those of intransitive *=ni* subject clauses. The only difference is that in transitive sentences, *=ni* combines with a complex VP complement containing the verbal head and object, as seen below in 129 for 126 above:

129.



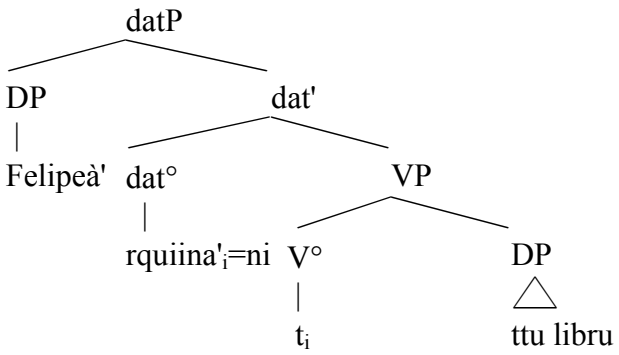
The derivation then proceeds as for the intransitive *=ni* subject verb above, as seen below in 130-133. The verb undergoes head movement combining with the head of datP, *=ni*.

130.



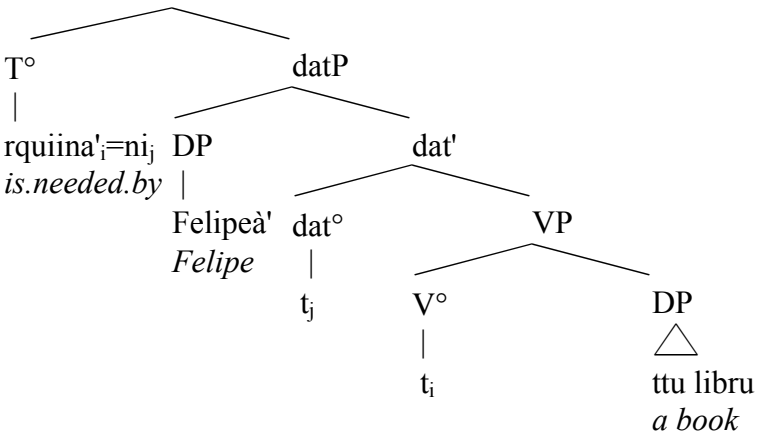
The dative argument, *Felipeà'*, then merges into the structure and receives its thematic licensing in [Spec,datP]:

131.



Finally, the complex verbal head, *rquiina'ni*, raises to T°, checking its strong tense/aspect features. This yields the pronounced surface string in 132 below:

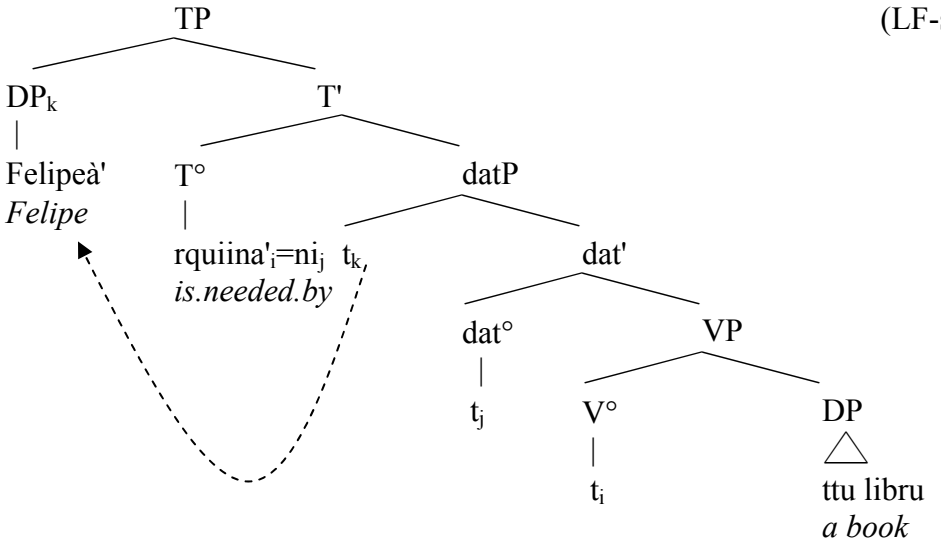
132. (structure at spell-out)



Rquiina'ni Felipeà' ttu libru.
Felipe needs a book.

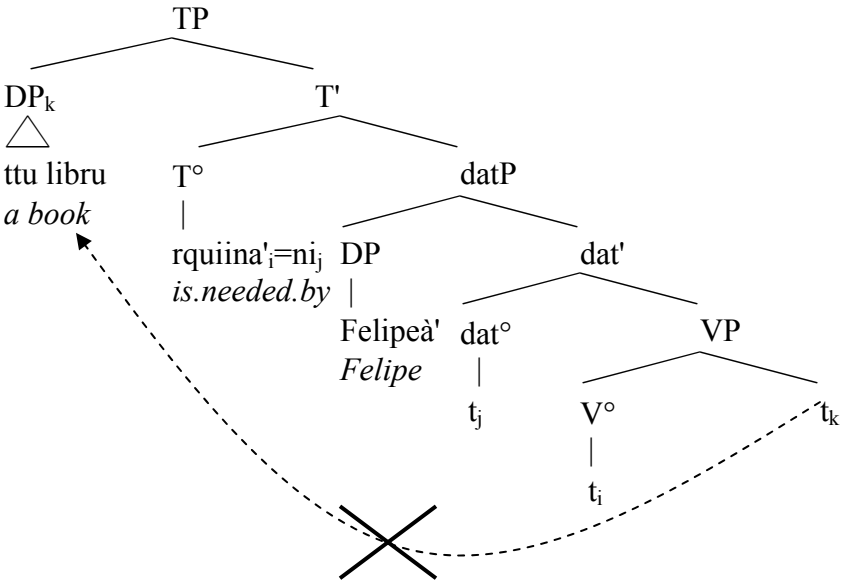
Additional movement occurs at LF as *Felipeà'* raises to [Spec,TP] to satisfy the weak EPP features (and nominative case features) associated with T. This marks the dative argument as the grammatical subject of the clause.

133. (LF-structure)



The VP-licensed argument, *ttu libru*, is blocked from raising to [Spec,TP] to be realized as the grammatical subject. Such a move would violate the Minimal Link Condition since *ttu libru* would have to move over a closer constituent, *Felipeà'*, which is capable of satisfying the featural requirements of T.

134. (LF-structure)



As a result, when the only thematic projections are datP and VP, then the DP licensed in [Spec,datP] must be the argument that raises (covertly) to [Spec,TP] to check the EPP features and be realized as the grammatical subject. An argument originating in VP can only move to [Spec,TP] to be realized as the subject when no other thematic projections are licensed. Only when neither vP nor datP are projected can a VP-licensed argument be realized as subject, as in the examples in 135-137 below, the intransitive counterparts to 126-128 respectively:

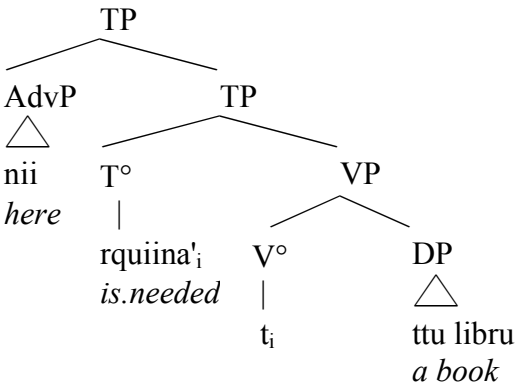
135. **Nii rquiina' ttu libru.**
nii rquiina' ttu libru
here H/be.needed a book
A book is needed here.

136. **Rtoottse' lagooni.**
r-t-oo =tse' lagoo =ni
H-MID-eat =well food =PROX
This foood tastes good.

137. **Ca llave chò'á beseelacanà lle'e carru chò'á.**
ca llave chò' =á beseela =ca =nà lle'e carru chò' =á
PL key of/2SG =INVIS C/be.found =PL =3N in car of/2SG =INVIS
Your keys were found in your car.

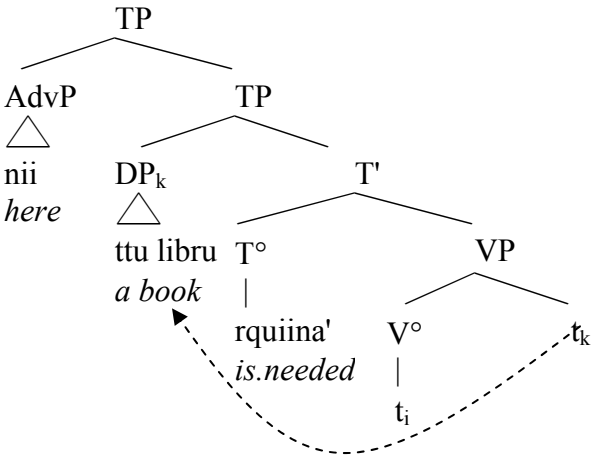
The spell-out structure for 135 is given below in 138. This simple structure is derived via the merger of the verb *rquiina'* 'is needed' and its object. The verb then moves to T° to check its strong tense/aspect features and the adverbial phrase, *nii* 'here', adjoins to the structure.

138.



Since VP represents the only thematic position within the structure, the DP licensed there may raise at LF to [Spec,TP] to satisfy the weak EPP features of T. In fact, since it is the only constituent present in the structure capable of satisfying the EPP, it must raise as shown below in 139:

139.



Being associated with [Spec,TP], a theme argument of VP would serve as the grammatical subject of the sentence and receive nominative case, as evidenced by 140-141 below. When the VP-licensed subject of a verb is a clitic pronoun, the pronoun must surface in a nominative form, like *=ya'* =1SN, rather than in dative or accusative case, such as =(*n*)*tè'* =1SD/A.

140. **Rquiina'yà'/*(n)tè'.**
rquiina' =ya'/*=(n)tè'
H/is.needed =1SN/*=1SD/A
I am needed.

141. **¿Bartoottse'yà'/*(n)tè'?**
ba r-t-oo =ttse' =ya'/*=(n)tè'
EMP H-MID-eat =well =1SN/*=1SD/A
Do I taste good?

When a vP is projected, neither dative nor theme arguments may appear as subject. Instead, the argument licensed inside vP must be realized as the grammatical subject. Being in the highest thematic projection, the vP argument is the closest DP capable of satisfying the EPP features (and nominative case features) associated with a tense head. By the Minimal Link Condition, it is therefore the only DP that can move to

satisfy these features and as a result, the only DP that can serve as the grammatical subject of such clauses.

If *=ni* attaches to a verb that projects a vP, then the argument licensed by *=ni* cannot surface as the grammatical subject. The *=ni* licensed arguments, blocked from being subjects, instead surface as objects. This is illustrated below by the sentences in 142-143 which have verbs that project vPs and optionally take *=ni* (subjects are in bold in the interlinearization; *=ni* and the argument it licenses are underlined):

142. a. **Ruyhiia' béccú'à'.** V S
ruyhiia' **béccú' =à'**
H/bark **dog** **=DIST**
The dog is barking.

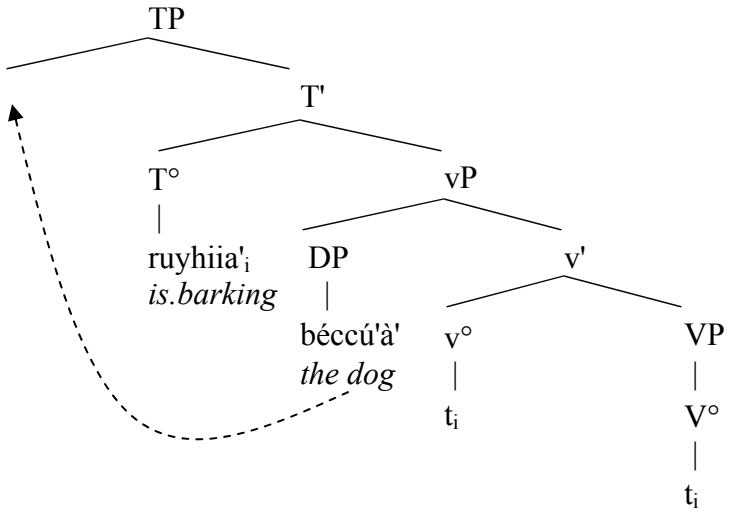
b. **Ruyhiia'ni béccú'à' Felipeà'.** V=ni S DO
ruyhiia' =ni **béccú' =à'** Felipe =à'
H/bark =PREP **dog** **=DIST** Felipe =DIST
The dog is barking at Felipe.

143. a. **Gutti'nà ttu la'ri íttsá gallia peesu.** V=s DO …
gutti' **=nà** ttu la'ri íttsá gallia peesu
P/sell **=3N** a blanket twenty peso
He will sell a blanket for twenty pesos. {ii158f'}

b. **Gutti'innà bèttsì'nià' ttu la'ri íttsá gallia peesu.** V=ni=s IO DO …
gutti' =ni **=nà** bèttsì' =nì =à' ttu la'ri ittsá gallia peesu
P/sell =PREP **=3N** man's.brother =3G =DIST a blanket twenty peso
He will sell a blanket to his brother for twenty pesos. {ii156e'}

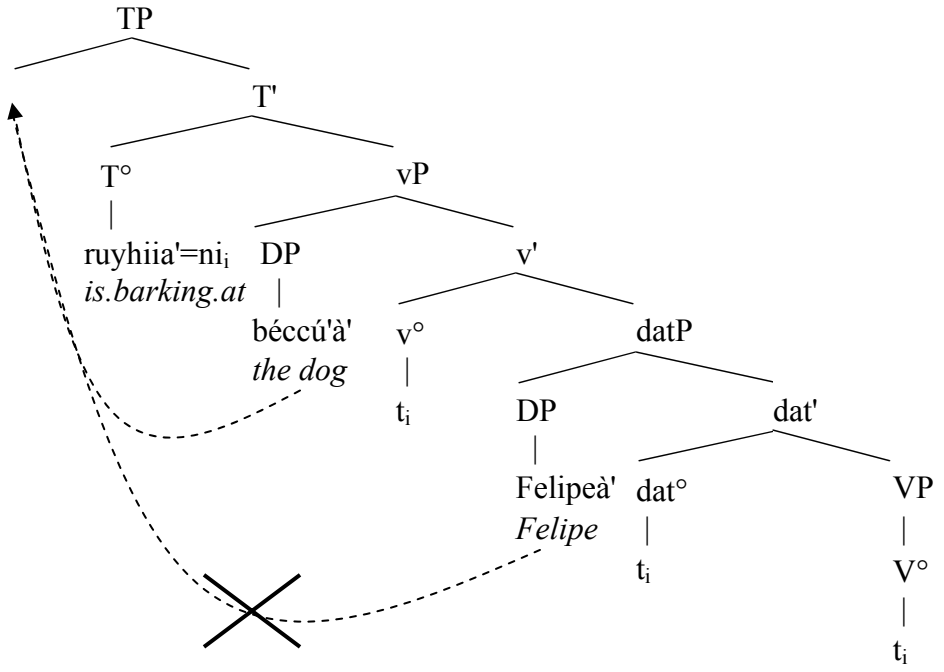
Since the vP represents the highest thematic position, then any DP licensed there will necessarily be the one that raises (covertly) to [Spec,TP] to be marked as the grammatical subject. This holds for both intransitive verbs like that in 142a and transitive verbs (those with a VP-licensed argument) like the verb in 143a. This is illustrated below in 144, the structure corresponding to 142a above.

144.



As the vP is also positioned above datP, this will account for the unavailability of dative subjects in the presence of vP-licensed arguments. If movement is constrained by the Minimal Link Condition, then it can only be the closest element capable of satisfying some featural requirement that undergoes movement to satisfy that requirement. Since vP is structurally superior to datP, then the argument licensed in vP will always represent the closest DP capable of checking the EPP (and nominative case) features associated with the tense head. Therefore, the vP-licensed argument, when present, must be the DP argument that moves (covertly) to satisfy the EPP and be marked as the grammatical subject. As shown below in 145, the structure for 142b above, if a *=ni*-licensed argument were to raise past vP to [Spec,TP], it would be raising over the intervening argument in [Spec,vP]. This would produce a Minimal Link Condition violation since the vP-licensed DP is also capable of satisfying the requirements of T° and is closer to TP. As a result, *Felipeà'*, the *=ni*-licensed argument, cannot (covertly) raise to [Spec,TP] and cannot be the grammatical subject. The vP-licensed argument, *béccú'à'* 'the dog', is the only possible subject in such a clause.

145.



While vP is structurally superior to datP, datP is higher than VP. We have already seen evidence for this above when we noted that VP-licensed arguments are blocked from subjecthood when datP is projected. Additional evidence for this relative positioning comes from sentences like those in 143 above in which *=ni* is added to a transitive verb. The ordering of the *=ni*-licensed argument relative to the VP object indicates that datP is projected above VP.

As discussed in Section 5.2.3.1, indirect objects and direct objects may freely reorder (IO/DO or DO/IO) unless both IO and DO are clitic pronouns, in which case, they occur in a fixed =io=do order. These possibilities are illustrated below in 146-147:

146. a. **Beeyà' bettsi'yà'nà.** V=S IO=DO {ii1f}
bee =ya' bettsi' =ya' =nà
C/give =1SN man's.brother =1SG =3A
I gave it to my brother.

b. **Beeyà'nà bettsi'yà'.** V=S=DO IO {ii1g}

147. **Bee'yà'canànà.** V=S=IO=DO
bee' =ya' =ca =nà =nà
C/give =1SN =PL =3A =3A
*I gave it to them. *I gave them to him.*

Indirect objects licensed by *=ni* interact with direct objects in the same way. They may occur in either ordering unless both are pronominal:

148. a. **Betti'cainnà Pedruà' ttu la'rittsa.** V=ni=S IO DO {ii292f}
betti' =ca =ni =nà Pedru =à' ttu la'rittsa
C/sell =PL =PREP =3N Pedro =DIST a blanket
They sold a blanket to Pedro.

b. **Betti'cainnà ttu la'ri ittsa Pedruà'.** V=ni=S DO IO {ii292d}

149. **Betti'nyà'cayénà.** V=ni=S=IO=DO
betti' =ni =ya' =ca =yé =nà
C/sell =PREP =1SN =PL =3D =3A
*I sold it to them. *I sold them to him.*

If we make the reasonable assumption that the fixed order of the clitic pronouns in 147 and 149 reflect the thematic order and that the alternative DO/IO order involves extra movement, then we have evidence that *=ni*-licensed arguments precede VP-licensed ones in the thematic structure. If precedence indicates dominance as is generally assumed, then datP must be structurally superior to VP.

Unsurprisingly, arguments licensed by *=ni* are also blocked from appearing as subjects when *=ni* subject verbs are causativized as seen below in 150-153 (subjects in bold, *=ni* and its argument underlined):

150. a. **Raasinriu'.**
raasi=ni **=riu'**
H/be.afraid=PREP **=1INCLD**
We're scared./We're afraid.

b. **Ca beyeeti'á$_i$ rudigaasicainnà$_i$riu'.** {ii115c}
ca beyeeti' =á ru-di-gaasi=ni **=ca =nà** =riu'
PL bat =INVIS H-CAUS-be.afraid=PREP **=PL =3N** =1INCLD
Bats scare us./Bats make us afraid.

151. a. **Guduusintè' nasee'á.** {v185m}
guduusi=ni **=ntè'** nasee'=á
C/be.drunk=PREP **=1SD** last.night=INVIS
I got drunk last night./I was drunk last night.

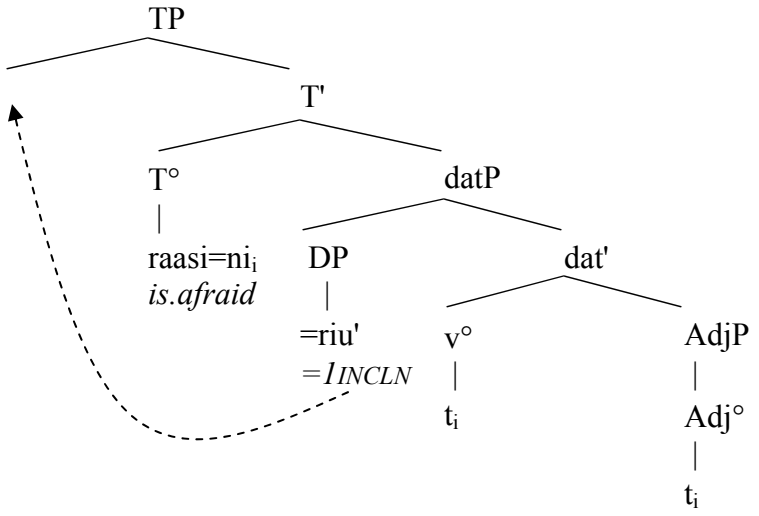
152. b. **Margaritani$_i$ bethuusiinnà$_i$ntè' nasee'á.** {v186a}
Margarita =ni bethuusi=ni **=nà** =ntè' nasee'=á
Margarita =PROX C/make.drunk=PREP **=3N** =1SD last.night=INVIS
Margarita got me drunk last night.

153. a. **Bitiisi'ntè' làànì Felipeà'.** {v185h}
bitiisi'=ni **=ntè'** làànì Felipe =à'
C/be.angry=PREP **=1SD** with Felipe =DIST
I'm mad at Felipe.

154. b. **Felipeà'$_i$ bequiisi'innà$_i$ntè'.** {v185e}
Felipe =à' bequiisi'=ni **=nà** =ntè'
Felipe =DIST C/anger=PREP **=3N** =1SD
Felipe got me angry.

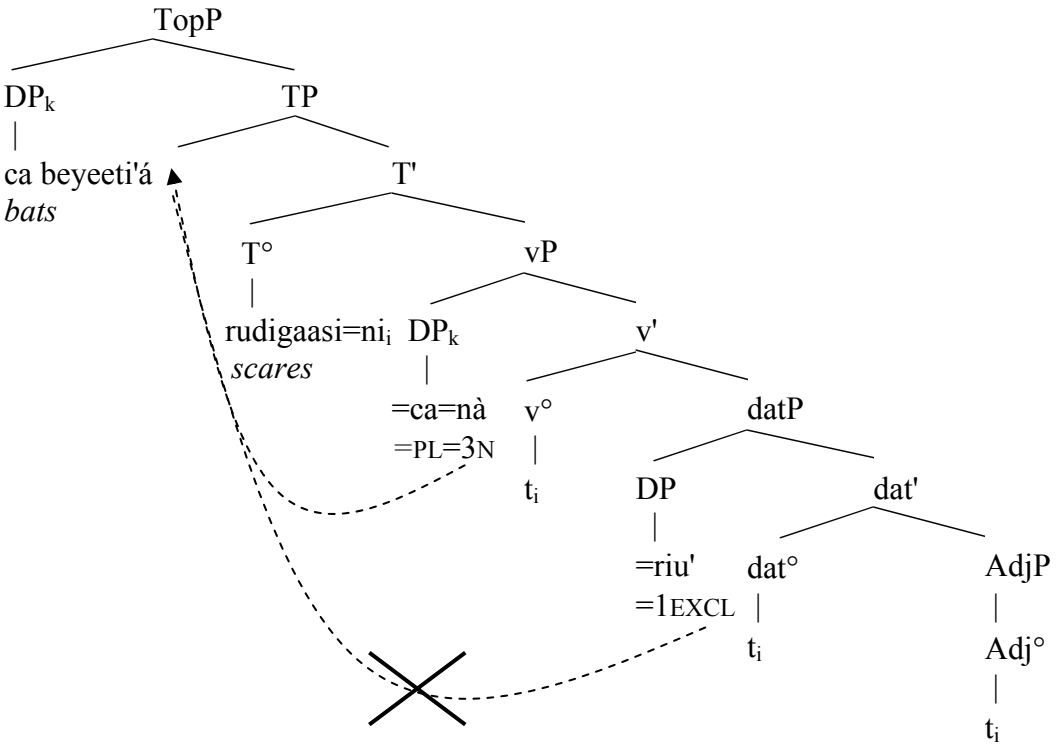
This can be straightforwardly accounted for if we assume that causativization involves the addition of a v° head, sometimes overtly seen as *di-* as in 150b above, which projects a vP and licenses an additional argument. This argument, licensed in a projection above datP, must be the one that (covertly) moves to [Spec,TP] to be marked as the grammatical subject. This is illustrated below in 155-156, the structures for 150a-b respectively:

155.



Raasinriu'.
We're afraid.

156.



Ca beyeeti'á$_i$ rudigaasicainnà$_i$riu'.
Bats scare us.

The presence of a vP always blocks a *=ni* argument from appearing as subject regardless of whether the vP-licensed argument is a volitional, animate agent as in 150-

153 above or not. Thus, inanimate causes licensed in vP also block *=ni* arguments from being realized as subjects as seen below in 157 (cf. 151 above) and 158. Although in both 157 and 158b, *=ni* licenses animate experiencer arguments, they do not function as grammatical subjects due to the presence of the vP-licensed argument.

157. **Ca margarita canu' gu'gwiyà' nasee'á$_i$ bethuusicainnà$_i$ntè'.** {v186b}
ca margarita ca nu' gu'gwi =ya' nasee'=á bethuusi=ni
PL margarita PL REL C/drink =1SN last.night=INVIS C/make.drunk=PREP
=ca =nà =ntè'
=PL =3N =1SD
The margaritas that I drank last night made me drunk.

158. a. **Resáátè'.** {v186f}
resáá=ni **=ntè'**
H/be.tired=PREP **=1SD**
I'm tired.

159. b. **Siina$_i$ rudisaainnà$_i$ntè'.** {v187b}
siina ru-di-saa=ni **=nà** =ntè'
work H-CAUS-be.tired=PREP **=3N** =1SD
Work makes me tired.

As we have now seen, the *=ni* applicative clitic may introduce either a subject or object, depending on the verb it attaches to. This distribution of arguments can be straightforwardly accounted for with the simple thematic hierarchy presented in 160 below and other well-established constraints on movement such as the Minimal Link Condition.

160. ***MacZ Thematic Licensing Hierarchy*:**
vP > datP > VP

One of the arguments licensed in these positions will move (covertly) to [Spec,TP] to check the EPP features associated with T°, marking that argument as the grammatical subject. Due to the Minimal Link Condition which always looks to the

closest element capable of checking a feature to trigger movement, the argument that raises to [Spec,TP] will always be the one that is in the highest projected thematic position. Thus, whenever a vP is present, the vP-licensed argument must surface as the subject. In such cases, a *=ni* argument, licensed in datP, is blocked from appearing as subject and can only be realized as a grammatical subject. Only when no vP is projected can an argument originating in datP serve as subject. Finally, if neither vP nor datP are projected, then an argument originating in VP may move to [Spec,TP] becoming the grammatical subject.

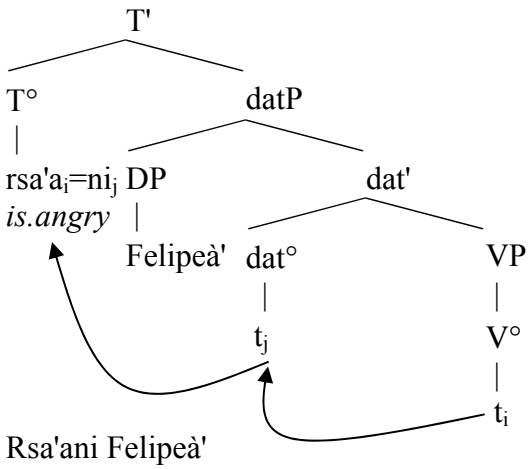
One set of facts, however, pose a complication for the the Thematic Licensing Hierarchy in 160. Although it correctly predicts the grammatical relation that will be realized by a *=ni* licensed argument, it faces problems in how the *=ni* datP clitic head behaves. We have assumed that the verb root undergoes movement through dat°, adjoining to the *=ni* clitic. Generally, this looks to be a very plausible approach, but clitic adverbs show an interesting ordering restriction with respect to *=ni* which calls this into question. This is issue is addressed below in Section 5.3.3. Then in Section 5.3.4, I turn to dative case assignment and the licensing of non-nominative subjects.

5.3.3 The Syntax of *=ni*, Clitic Adverbs and the Plural Marker *ca*

In Section 5.3.2.2, we posited that *=ni* represents the head of a thematic licensing position, datP, which selects a VP or AdjP complement. The head verb or adjective subsequently undergoes head-movement to dat°, adjoining to *=ni*. This complex head then continues raising through other thematic positions, vP if projected, and subsequently

moves to T° to check the strong tense/aspect features of the tense head. This is illustrated below in 161:

161.

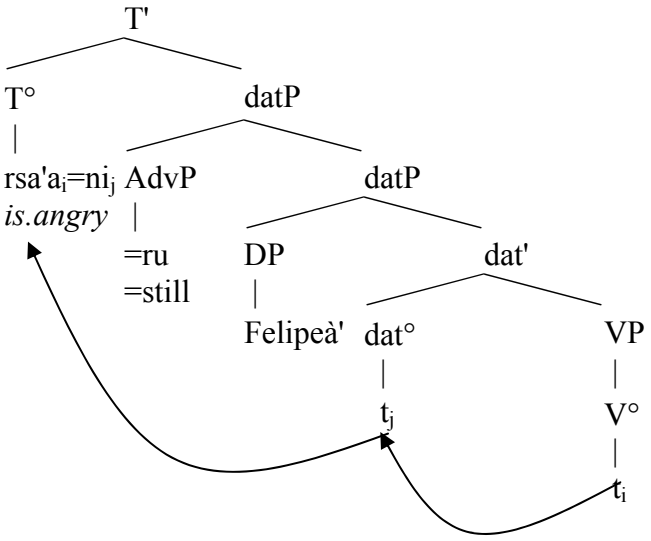


Rsa'ani Felipeà'
Felipe is angry.

For simple verb strings like *rsa'ani* 'is angry' in 161 that consist of only a verb root and *=ni*, this account is entirely adequate. However, in complex verb strings, *=ni* shows unexpected ordering restrictions. This occurs, for example, when clitic adverbs attach to the the verb.

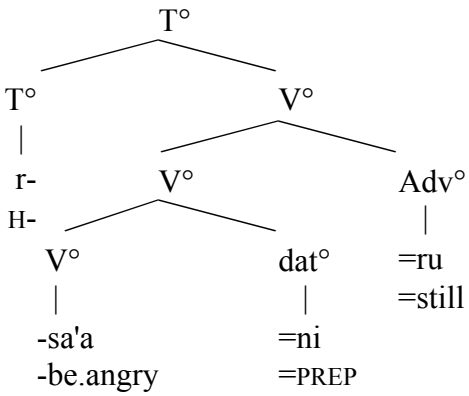
A priori, we would expect adverbs to not be part of the thematic licensing structure but to adjoin outside of it, as represented in 162 below, where the clitic adverb *=ru* 'still' is added to the structure in 161 above with the intended meaning of *Felipe is still angry*.

162.



Given the structure in 162, we would expect *=ni* to precede the clitic adverb. This would also be expected even if *rsa'ani* passes through Adv° with *=ru* adjoining to the verb, creating the complex head as given in 163:[23]

163.



Thus in 163 too, we would expect the adverb to be external to *=ni*, assuming the ordering of morphemes reflects the order of syntactic composition whereby morphemes that attach first to a root should be closer to the root than morphemes that attach later (even ignoring whether these morphemes are marked prefixes/proclitics or suffixes/enclitics). If two

[23] I have made the assumption that MacZ word structure is generally head-initial.

suffixes or enclitics attach to a word in succession, =CL1 then =CL2, we would expect the order root=CL1=CL2. Since *=ni* adjoins first (=CL1) and the clitic adverbs adjoin second (=CL2), we predict the order root=ni=adv as in 163.

This is not the observed morpheme order, however. The clitic adverb always precedes *=ni*, it can never follow it. Thus, 162 above surfaces as 164a below instead of as 164b (in the interlinear gloss, I maintain the ordering in 162/163, which I argue below is the syntactic order).

164. a. **Rsa'aruni Felipeà'.** {mm}
rsa'a=ni =ru Felipe =à'
H/be.angry=PREP =still Felipe =DIST
Felipe is still angry.

b. ***Rsa'an(i)ru Felipeà'.** {mm}

This ordering restriction holds of all *=ni* verbs and adverbial enclitics, as shown below in 165:

165. rtoo=ttse'=ni/*=ni=ttse' tee=rsa=ba=ni/*=ni=rsa=ba raasi=gwa=ni/*=ni=gwa
H/taste=well=PREP S/exist=INT=EMP=PREP H/be.scared.of=also=PREP
tastes good to *has a lot of* *is also scared of*

rlua'=xia=ni/*=ni=xia rnnee=ru=ba=ni/*=ni=ru=ba {ii114/ii125}
H/look=maybe=PREP H/talk=still=EMP=PREP
looks maybe to *still calls*

There are two possible ways to account for this unexpected ordering. Possibly the clitics do not attach in the order we have supposed, but instead, adverbs attach first, and then *=ni*. This could happen if *=ni* is external to the thematic licensing hierarchy, perhaps representing the head of a case licensing projection. Another possibility is that *=ni* and the clitic adverbs do attach in the proposed way but other factors, such as

phonological requirements, force the reordering of the clitics.[24] Two pieces of evidence argue in favor of the latter possibility of post-syntactic (PF) reordering: the behavior of clitic adverbs with respect to compound verbs and the interactions between *=ni* and the plural pronominal proclitic *ca*.

If PF reordering is the correct analysis, then it could be derived from two plausible mechanisms: attraction of the clitic adverb to the verb root or attraction of *=ni* to the right-edge of the word (technically to the first following clitic personal pronoun). Both mechanisms have independent support in the grammar and both may in fact be active processes within the language.

Attraction of the clitic adverbs to the verb root is supported by the fact that not only can clitic adverbs separate (bound) verb roots from *=ni*, they can also intervene between (bound) verb and noun roots in verbal compounds. This is illustrated below in 166-167 with the adverb *=ru* 'still' and the compound verb *arcalaasi'* 'want' from *arca* 'is' and *-laasi'* 'self'. (This ordering, unlike that between clitic adverbs and *=ni*, is optional; the clitic adverb usually precedes the nominal portion of the compound, but it may follow it as well.)

166. a. **¿Barcarulaa'lù'?**

ba=	arca	=ru	=laa(si)'	=lù'
EMP=	H/is	=still	=self	=2G

Do you want more?

[24] The ordering cannot derive from a failure of *=ni* to cliticize to the verb. Not only would this violate the Head Movement Constraint (Baker 1988), but more significantly, it is not empirically motivated. If *=ni* does not attach to the verb root, then we have no mechanism to account for how *=ni* comes to precede the argument it licenses and arguments licensed in vP, a higher thematic projection.

b. **¿Barcalaasi'rulù'?**
ba= arca =laasi' =ru =lù'
EMP= H/is =self =still =2G
Do you want more?

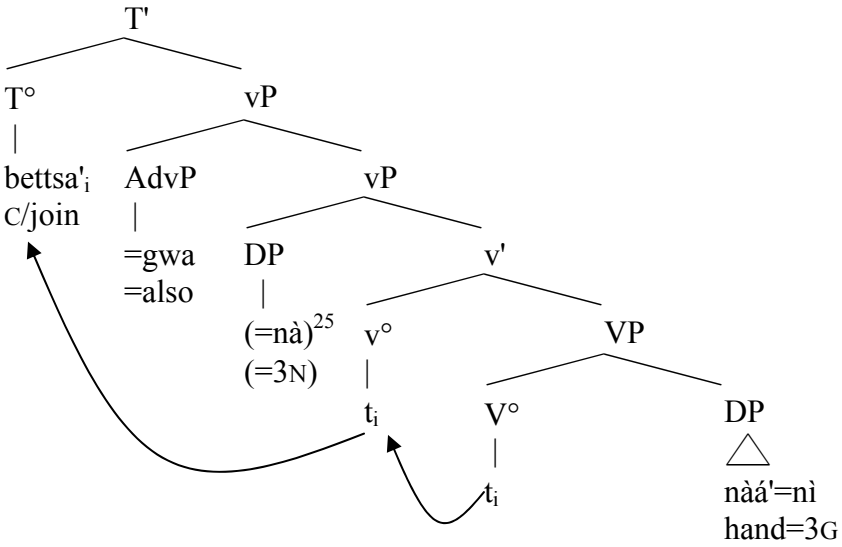
167. a. **Bettsa'gwanàá'nì.**
bettsa' =gwa =nàá' =nì
C/join =also =hand =3G
He also got married.

b. **Bettsa'nàá'gwanì.**
bettsa' =nàá' =gwa =nì
C/join =hand =also =3G
He also got married.

Like the *=ni* verbs, the compound verbs are generally single lexical items, as evidenced by their typically having bound roots and/or idiomatic meanings. In addition, the nominal root is not likely to be a case-licensing head, the first alternative we considered for *=ni*. This suggests we need some other mechanism to account for compound-adverb ordering, a mechanism which would likely apply to *=ni* verbs as well, making the case-licensing head alternative redundant.

We might expect the noun root to originate inside the VP since it historically was probably an argument of the verb, as represented below in 168, the proposed historical source for 167a above:

168.



Bettsa'gwa(nà) nàá'nì.
He also joined his hand.

This source for the compound verbs provides an historical motivation for the observed verb=adv=noun ordering in compounds. Prior to compounding, only the verb would have raised to T°, placing it alone before the adverb, thus yielding the order verb=adv(=subj) obj=poss. Eventually the verb and noun were reanalyzed as forming a complex head (a compound) with the intervention of the adverbs remaining as an historical relic.

Historical factors could also help explain the relative ordering of adverbs and *=ni*. I argued in Section 3.1.6.3 that *=ni* derives from an independent preposition. As a result, *=ni* originally would not have been attached to the verb. The verb would have raised alone to T°, placing it before the adverbs with (=)*ni* following afterwards. This original

[25] The subject clitic *=nà* is placed in parentheses here since this sentence represents the environment in which Covert Subject Binding could apply. In CSB, to be discussed in Chapter 6, a subject may be covert if it is coreferent with a following possessor. The CSB structure, then, probably represents the immediate stage prior to compounding. The differences between compound verbs with genitive subjects and CSB clauses are expounded upon in Chapter 6.

ordering is still reflected in the modern verb=adv=ni order, even though =*ni* now adjoins with the verbal head and undergoes movement together with it.

Although the historical considerations are enlightening with respect to the origin of adverb ordering, there still must be some synchronic mechanism which derives this order. If both =*ni* verbs and compound verbs form complex heads early in the derivation, before the adjunction of the clitic adverbs, then no later syntactic mechanisms which are consistent with the rest of the grammar can produce the observed clitic adverbial placement pattern. This suggests that some post-syntactic consideration is involved in producing the surface realization of adverbs. A morphophonological condition, whereby clitic adverbs are attracted to the verb root, could account for the fact that the clitic adverbs may separate the verb root from both =*ni* and compounded nominal roots.[26]

Although such a process seems necessary to capture the relative ordering of clitic adverbs with compound verbs, this process alone is not sufficient to account for all of the facts concerning the ordering of =*ni*. For example, while attraction to the verb root may account for the appearance of the clitic adverb before the compounded noun as in 166-167a, it apparently does not require it, as shown in 166-167b. With =*ni*, however, there is not this variability; the clitic adverbs must always precede =*ni* as shown in 164-98.

This suggests that some additional factor is at work, forcing the observed ordering. I suggest here that there is an additional (morpho)phonological requirement on =*ni* such that it is attracted to the right-edge of the verb, or perhaps more accurately to the

[26] Some sort of (morpho)phonological reordering is also supported by the interaction that occurs between clitic adverbs and other, non-verbal items. For example, (*l*)*abíí* NEG < (*l*)àà- BASE? + *bíí* NEG may combine with the clitic adverb =*ru* 'still' as (*l*)*abííru* or (*l*)*arubíí* 'no more'.

first following person clitic. This attraction may be motivated in part by the fact that person clitics trigger various phonological changes in *=ni*, including vowel deletion and metathesis (see Section 2.6.2.2). Such a requirement is also supported not only by the ordering of clitic adverbs and *=ni*, but also by the interaction between *=ni* and a following plural pronominal clitic *ca*.

Surprisingly, the clitic plural marker *ca* behaves similarly to the clitic adverbs with respect to ordering relative to *=ni*. When any immediate following argument clitic contains the plural marker *ca*, the *=ni* clitic intervenes between *ca* and the person clitic. Stated another way, third person plural clitics are composed of the plural nominal marker *ca* and one of four third person clitic pronouns. When they appear cliticized to a *=ni* verb, the *=ni* clitic follows the plural marker, appearing before the clitic pronoun. As discussed in Section 2.6.2, the following pronoun then triggers metathesis and vowel deletion in *=ni* with metathesis before *=nà* and vowel deletion before the other person clitics:

169.	rquiina'=ni=ca=nà	underlying order	rquiina'=ni=ca=yé
	rquiina'=ca=ni=nà	*=ca/=ni* reordering	rquiina'=ca=ni=yé
	rquiina'=ca=in=nà	+ metathesis or deletion	rquiina'=ca=n=yé
	they need		*they* (F) *need*

Interestingly then, *ca* behaves similarly to the clitic adverbs with respect to ordering relative to the applicative clitic *=ni*. Both must be followed by (a copy of) the *=ni* clitic.[27] This might suggest that *ca* too is actually a clitic adverb or otherwise part of the verbal morphology, perhaps a plural agreement morpheme. Indeed, various Zapotec

[27] For some speakers, a copy of *=ni* also appears preceding *ca*. See Section 2.6.2.2 for additional discussion of the phonological properties of *=ni*.

languages have incorporated into their verbal morphological systems plural morphemes that presumably were historically part of nominal morphology. For example, this seems to have happened in Yalálag Zapotec (López and Newberg 1990). In Yalálag Zapotec, the plural morpheme *–(g)ak* attaches to verbs, indicating that at least one of the third person clitic argument pronouns attached to the verb is plural. This produces the order V-*gak*-s-o (where –s and –o stand for subject and object suffixes/clitics) regardless of whether it is the subject or object that is plural. And as seen below in 170 and 171, the plural morpheme does not necessarily form a contiguous string with the argument that is pluralized, since a bound subject pronoun may intervene between *–gak* and a plural third person object pronoun. (Note that 171 is ambiguous as to whether the third person subject or object is plural.) This behavior suggests then that *-gak* is a plural agreement morpheme suffixed to the verb, instead of being a plural prefix/proclitic on the argument pronouns.[28]

170. B-et -gak -a' -ba' {p.11 ex. c}
PRET-kill -PL -1SN -3ANML
I killed them (animals).

171. B-che' -gak -e' -be' {p. 11}
PRET-take -PL -3RESP -3FAM
He took them. They took him.

This is not the correct analysis for *ca* in MacZ, however. *Ca* is neither a clitic adverb nor an agreement marker. Apart from its exceptional interactions with *=ni*, *ca* is always part of a contiguous string with the nominal element (pronominal or independent) it modifies. *Ca* appears as part of a clitic pronoun and is not attracted to the verb root

[28] Even more extensive reanalysis of a plural marker as part of the verbal system is reported for Albarradas Zapotec (Adam 2003).

over other intervening morphemes. Thus in contrast to Yalálag Zapotec, in a V=s=o sequence with a plural object pronoun, *ca* occurs as part of the object pronoun and not as a verbal suffix as illustrated below in 172a-b:

172. a. **¿Barquiinanlù'canà?**

ba=	rquiina'	=ni	=lù'	=ca	=nà
EMP=	H/be.needed	=PREP	=2SD	=PL	=3A

Do you need them?

b. ***¿Ba=rquiina'=ca=ni=lù'=nà?**

Furthermore, the interaction between *=ni* and *ca* only occurs with cliticized pronominal instances of *ca*. When *ca* modifies an independent nominal as in 173a-b, no such interaction takes place, nor does *ca* ever cliticize to the verb unless it is part of a pronominal clitic argument. In addition, there is no (plural) agreement between a verb and a post-verbal argument, as shown in 173c.

173. a. **Rquiina'ni ca béccú'á lagóó.** {mm}

rquiina'	=ni	ca	béccú'	=á	lagóó
H/is.needed	=PREP	PL	dog	=INVIS	food

The dogs need food.

b. ***Rquiina'cani béccú'á lagóó.**

c. ***Rquiina'cani ca béccú'á lagóó.**

We can conclude then that *ca* is neither a verbal suffix nor an adverbial clitic, but it is instead a proclitic nominal quantifier. If it is part of the pronominal constituent, how then does *=ni* come to intervene between *ca* and the personal pronoun it modifies?

For a sentence like 174 below, if the plural pronominal argument *=canà* is introduced into the derivation as a constituent as represented in 175, then it seems unlikely that syntactic movements alone could produce the observed surface order of

rquiina'=ca=ni=nà (note that *=ni* undergoes metathesis before *=nà*). Instead, the derivation is postulated to proceed as represented in 176 (see also 162 above).

174. **Rquiina'cainnà ttu libru.**
rquiina' =ni =ca =nà ttu libru
H/be.needed =PREP =PL =3D a book
They need a book.

175. $[_{datP}$ =ca=nà $[_{dat'}$ =ni $[_{VP}$ rquiina' ttu liibru]]]
$[_{datP}$ =PL=3D $[_{dat'}$ =PREP $[_{VP}$ H/be.needed a book]]]

176. a. $[_{datP}$ =ca=nà $[_{dat'}$ rquiina'$_i$=ni $[_{VP}$ t_i ttu liibru]]]
b. $[_{T}$ [rquiina'$_i$=ni]$_j$ $[_{datP}$ =canà $[_{dat'}$ t_j $[_{VP}$ t_i ttu liibru]]]]
rquiina'=ni=ca=nà ttu libru

As can be seen, the syntactic derivation yields the wrong surface word order with *=ni* preceding the entire pronominal argument, *=ca* included. Some post-syntactic process then must account for the reordering of *=ni* and *=ca*.

I suggest that this results in part because *=ni* is attracted to the right edge of the verb stem. This accounts for the fact that *=ni* follows adverbial clitics, which, as discussed above, is an unsual ordering in and of itself since *=ni*, which licenses arguments, would be expected to be licensed within the VP and should be internal to adverbial adjuncts peripheral to the VP.

This does not fully account for the behavior of *=ni* with clitic pronouns, since if the clitic pronouns are part of the stem, *=ni* should follow them, and if not (as represented in 175-176), then *=ni* should precede *=ca*. Instead, the interaction between *=ni* and *=ca* can better be accounted for if *=ni* is attracted to the first following clitic marked for person. This is a reasonable hypothesis since all phonological changes associated with *=ni* are triggered by the personal pronouns (see Section 2.6.2.2).

In addition, this phonological account is further supported by the frequent repetition of *=ni* both before and after *ca* and (less frequently) with the adverbial clitics. As illustrated below in 102, certain speakers frequently have two copies of the *=ni* clitic, one on each side of the plural marker (the two copies of *=ni* are underlined):

177.	rquiina'=ni=ca=nà	underlying order	rquiina'=ni=ca=yé
	rquiinan<u>n</u>ca<u>in</u>nà	surface realization	rquiinan<u>n</u>ca<u>n</u>yé
	they need		*they (F) need*

The first copy of *=ni* appears before *ca* with the vowel deleted, while another instance of *=ni* appears after *ca* before the third person pronoun, which triggers vowel deletion or metathesis in the second copy of *=ni*. These two copies can be understood as reflecting the underlying position of *=ni* in the first instance and the right-edge-attracted, personal-pronoun-attracted copy in the second instance.

I have argued that the composition of *=ni* and the verb proceeds straightforwardly in the syntax but is frequently distorted post-syntactically by PF considerations. Constraints on the positioning of *=ni* and clitic adverbs result in several unexpected surface orders. Clitic adverbs are attracted to a position immediately following a verb root, thus separating *=ni* from the verb. Conversely, *=ni* also appears to be attracted to the right edge of the phonological verb, particularly to the position immediately preceeding clitic personal pronouns. This results in an even more surprising word order in which *=ni* intervenes between the plural pronominal clitic *ca* and the pronoun it modifies. As I argue in the next section, post-syntactic, PF processes are important not only in realizing the relative ordering of the *=ni* head but also in the realization of dative case, which *=ni* assigns to the argument it licenses.

5.3.4 Dative Case Assignment

As we saw in section 5.3.4, both vP-subject and VP-subjects exhibit nominative case forms. Both take the *=ya'* nominative form of the first singular pronoun. Subjects licensed in datP, however, typically appear in the dative form instead of nominative.[29] Thus, we more frequently get *duusi=tè'* as in 121 above for 'I'm drunk' than *duusin=ya'* with the nominative subject. Since nominative case is not overtly reflected in the form of the pronoun in such sentences, we have no direct evidence that the nominative case feature associated with T is being satisfied.

There are two possible accounts of this. One possibility is that case-assignment does not involve feature checking and therefore there is no nominative case feature to be left unchecked with a dative subject. Under this view, case would instead be determined post-syntactically in the PF component (as has been suggested by Marantz (1991) and Harley (1995)). Another possibility is that a single DP can check multiple case features (as proposed, for example, in Massam 1985, McCreight 1988, Harbert 1989, Yoon 1996 and Bejar and Massam 1999). As *=ni* subjects are generally realized with dative case, then dative or inherent cases in general must be preferentially realized over nominative and other structural cases. Again, this is presumably determined in the PF interface (see Bejar and Massam 1999 for discussion).

Interestingly, since both approaches require a post-syntactic determination of the correct case form, covert case assignment/checking should pose a problem for either theory (as noted by Bejar and Massam (1999:77-8)). If case is determined at PF, but a

[29] Occasionally, we do get nominative *=ni* subjects as a variant of the more common dative *=ni* subject.

DP does not receive or check case until LF, then the PF interface would have insufficient information to make the correct choice of overt case morphology. A solution to this problem can be found if we adopt the particular theory of movement as copy and deletion in which all movement takes place prior to being sent to the PF interface which then determines which copies are to be pronounced (see Brody 1995, Bobaljik 1995, 2002, Pesetsky 1998 and Groat and O'Neil 1996 among others). If the PF component privileges the highest copy, then the result is "overt" movement. If a lower copy is overtly realized, this yields "covert" movement. As a result, the PF interface has access to all positions to which a constituent may move, and this information can be used to determine not only in which position a DP should be pronounced but also the correct case realization. Below, I discuss both of these approaches to case assignment/licensing and the particular instantiation of copy and PF deletion that they will need to make use of.

5.3.4.1 PF Case Assignment

One way to handle the apparent unchecked nominative case feature in dative subject sentences is to assume that there isn't one. If (nominative) case assignment does not derive from syntactic features, then a derivation cannot crash because of an unchecked case feature.[30] Under this view, case would not be directly manipulated by the

[30] If this account is the correct one, it must be that nominative case never involves feature-checking, but is always assigned in some other way. That is, it cannot be the case that there is no nominative case feature to check only when a dative subject is present and that in other clause types, a nominative case feature is present. It might be possible to have the optionality of the nominative case feature depend on the type of TP involved: the tense head that selects a datP complement would not bear a nominative case feature while the tense head selecting other types complements, such as vP and VP would bear a case feature. At first, such an approach seems appealing since it is standard to assume that non-finite tense heads do not have a nominative case feature (cannot assign nominative case). However, this approach will not work for genitive subjects and Covert Subject Binding, both of which are discussed in Chapter 6. Genitive subjects do not appear to involve a distinct projection (like datP) but most likely involve an incorporated noun originating inside VP. As we have already seen with unaccusative verbs, however, when T° selects a VP

syntax, but merely reflect the syntactic structure resulting from other syntactic processes. Thus, case would be determined post-syntactically in some other component of the grammar, such as at the PF interface, an approach which has been in proposed, for example, by Marantz (1991) and Harley (1995).

Under such an account, DPs would move only to satisfy other, non-case related features. Once those (strong) features have been satisified, the resulting syntactic structure would be sent to the PF component of the grammar. There, the correct morphological case form would be supplied, depending on the structural position of a DP. Thus, a DP in [Spec,datP] in MacZ would be realized with dative case, as illustrated below in 178. The first singular pronoun, represented here by =1SN, does not raise to [Spec,TP] since we have argued that the EPP in MacZ is weak and there are no case features driving the pronoun to move. As a result, it occupies [Spec,datP] at PF and is accordingly pronounced in the dative form *=(n)tè'*.[31] Since there is no nominative case feature, or any other case feature, the derivation converges, rather than crashing due to an unchecked feature.

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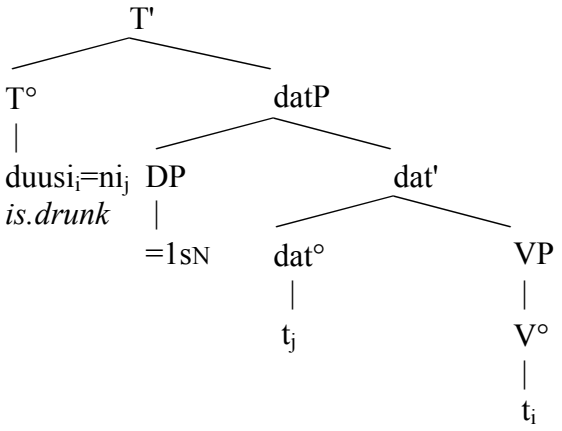
complement, it also assigns/checks nominative case. Since nominative case does not show up elsewhere in the clauses of genitive subjects, we again would be left with an unchecked nominative case feature. Likewise, Covert Subject Binding (CSB) lacks an overt subject, but there is no indication that T° has a distinct complement in such cases. As such, it should bear a nominative case feature which again would go unchecked in such constructions. See Chapter 6 for more discussion.

[31] This could either be achieved via a model of late-insertion of phonetic material or by some modification (in this case suppletion) of a default phonetic form.

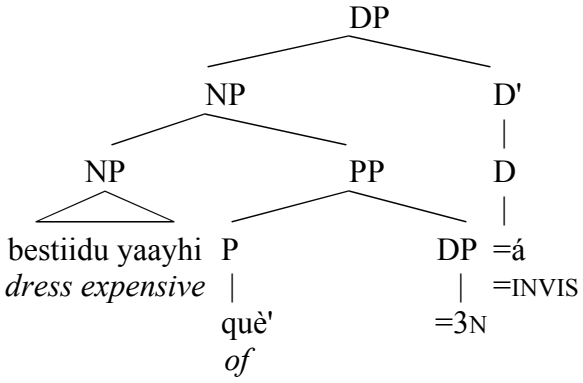
178.



Duusitè'
I'm drunk.

Similarly, a DP complement of *què'* 'of', or its non-overt counterpart in the case of inherent possession, receives genitive case. Thus in 179 below, the third person pronoun, =3N, is realized with the genitive pronominal form *=nì*.

179.



bestiidu yaayhi què'niá
her expensive dress

Likewise, nominative case will be assigned to those DPs that occupy [Spec,TP]. But unless the subject overtly moves to a preverbal position, this will only occur covertly, leading to the problem of how a post-syntactic module can make case assignments based on movement occurring at LF. This important question will be addressed in Section 5.3.4.3 below.

Putting that issue aside for now, let us consider a desirable result of the PF case assignment approach. As case features are not involved, nothing prevents a DP from appearing in more than one position to which case might be assigned. This is a necessary feature since we are still positing that the dative subject will covertly move to [Spec,TP]—the locus of nominative case—to check the weak EPP feature associated with tense. Such a move would be impossible in a system in which a DP could check or receive exactly one case. Of course, the PF component must have some way of determing exactly which case form to realize, the dative of [Spec,datP] or [Spec,TP]. Clearly in MacZ dative case must be preferred to nominative. This could perhaps be part of a more general crosslinguistic pattern whereby more marked cases like dative and genitive are preferentially realized over less marked case like nominative and accusative (McCreight 1988). If this preference is not absolute, however, it would account for the occasional instances of nominative *=ni* subjects in MacZ.

In spite of this advantage of PF case marking, nominative case still poses a glaring problem for this approach. If nominative case is only assigned to DPs in [Spec,TP], and there are no strong features associated with [Spec,TP] driving movement of a DP into this position, then nominative case should rarely be assigned in MacZ. As currently construed, the only time it should be assigned is when a DP passes through [Spec,TP], being driven to some higher projection by a strong feature, such as a *wh*-feature. Such movements, however, do not result in any differences in realization of morphological case since *wh*-words and other DPs that can move to a preverbal position

do not show overt case distinctions. As a result, there should not be any distinct nominative pronouns, but, of course, there are.

It cannot be the case that nominative represents a default case form to be used when a DP is not in [Spec,datP] or the complement of *què'* 'of'. As discussed in Section 3.2.1.4, nominative case in MacZ is almost exclusively associated with overt (finite) tense/aspect inflection (and also with quantified DPs). Accusative case, instead, appears to be the default: base-generated topicalized DPs appear in accusative form and the accusative form can be used in simple one-word utterances in which no structural licensing appears to be available. Thus, in response to a question like *¿Núúní gutoo lagooá?* 'Who ate the food?', one could respond *Ìntè'* 'Me' but not **Ya'/lààya'* *'I'.

In addition, nominative case also cannot just be a property of DPs in [Spec,vP]. While all DPs originating in [Spec,vP] do show nominative case, nominative case also occurs with unaccusative subjects licensed inside VP as discussed in Section 5.3.2.1 above. But VP cannot be involved in nominative case licensing since DPs licensed there appear in accusative form when the verbs are transitivized. Again, this suggests that DPs must move to some distinct position to receive nominative case, yet they do not do so overtly.

As will be discussed below in Section 5.3.4.3, all of these difficulties involving case assignment can be simply and elegantly handled if we adopt a copy theory of movement in which all movement occurs prior to the PF interface which then determines which copy to pronounce and which case form to produce. In this way, a copy may covertly occupy [Spec,TP] but remain visible to the PF component which can then assign

the movement chain nominative case. Before developing this approach in detail, however, I want to consider another approach to case assignment, multiple case checking.

5.3.4.2 Multiple Case Checking

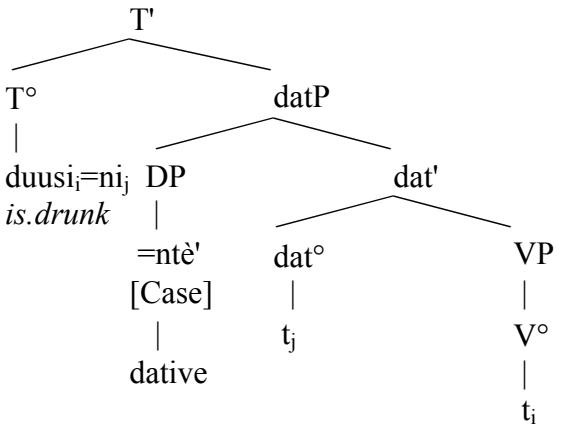
If case assignment/checking is not restricted to the PF interface but is instead represented by features manipulated in the syntax, then we again are left with the question as to how a nominative case feature is satisfied in a clause with a dative subject. This can be accounted for if we adopt a theory of Multiple Case Checking in which a single DP may bear more than one case as discussed in Massam 1985, McCreight 1988, Harbert 1989, Yoon 1996 and Bejar and Massam 1999. Under this approach, a dative-marked DP in MacZ could still check or receive nominative case although only the dative form of the pronoun would be overtly realized. Below, I consider in particular how the approach to Multiple Case Checking developed by Bejar and Massam (1999) (B&M) could be applied to MacZ dative subjects.

In B&M's formulation, Multiple Case Checking with non-nominative subjects is achieved via an abstract Case node which can satisfy structural case features, independently of any inherent case-marking a DP may bear. Thus, an inherently case-marked dative DP still has an abstract Case node which is capable of receiving/checking some structural case, such as nominative or accusative. Applied to MacZ, a *=ni* subject would receive an inherent dative case but still be able to undergo covert movement at LF to [Spec,TP] in order to check its nominative case feature.

B&M take the approach that case is both checked and assigned. A DP carries an abstract Case node which checks case features. In turn, it is assigned a specific case

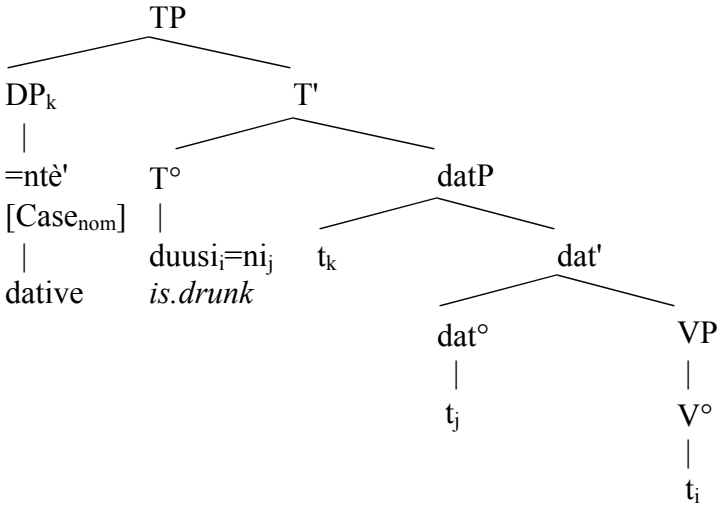
(represented by a subscript). For example, if T carries a [+nom] feature, then a DP with a Case node can move to [Spec,TP], erasing the feature and receiving nominative case DP [$Case_{nom}$]. This is implemented in the MacZ derivation given below in 180-181. In 180, the *=ni* subject is licensed in [Spec,datP] where it is also marked with inherent dative case. Subsequently at LF, the DP undergoes movement to [Spec,TP] checking the weak EPP feature there along with the weak nominative feature as shown in 181. The DP in addition is assigned structural nominative case as represented by the *nom* subscript.

180. (dative subject at Spell-Out)



Duusitè'
I'm drunk.

181. (LF-structure)



Despite this dual case assignment, it is the dative case form that is typically realized. According to B&M, the overt form of the morphological case is resolved at PF. They adopt a late-insertion model of lexical items in which the lexical form of an inserted DP will match the most marked case label that that DP bears. Since inherent cases are more marked than structural ones (McCreight 1988), the inherent case will be the one that is realized. Thus, a DP that is marked with both an inherent dative case and a structural nominative case will be overtly marked as dative. And in MacZ, a first singular *=ni* subject will be realized in the dative form *=(n)tè'* instead of the nominative form *=ya'* as seen above 180.[32]

B&M, however, make one observation which is problematic for applying this approach to MacZ. They note that a late-insertion model of case resolution (or any PF case assignment module) will be incompatible with weak, covertly checked case features (p. 77-8). When a structure like 180 goes to PF, a weak case feature will not have been checked/assigned and the PF component will be unable to determine which case form to pronounce. Perhaps, this is not an issue for those DPs bearing an inherent case. Even if they check an additional structural case, it will not affect their overt case realization; an inherent case will always be realized, regardless of whether or not the DP goes on to check some structural case. However, for those DPs that only check/receive a structural case at LF and are not inherently case-marked, they will arrive at PF without having been

[32] Under this proposal, it is unclear why nominative case would ever be allowed, but as mentioned previously, MacZ does occasionally allow nominative *=ni* subjects. Possibly, *=ni* only optionally assigns an inherent dative case to its specifier. We will return to this issue in Section 5.3.4.3.

assigned a case. This is exactly the situation we have in MacZ with regular nominative subjects.

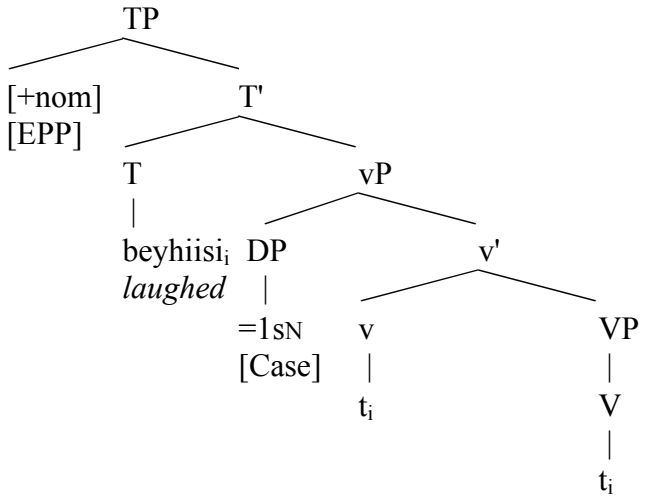
I had assumed that nominative case features (along with the EPP features) are weak in MacZ, in part, to account for the observed VSO word order. Nominative case is tied to finiteness in MacZ—only those lexical items, such as verbs and quantifiers (see Section 3.2.1.4), that overtly inflect for tense/aspect take arguments marked with nominative case. Nominative case in MacZ, then, is likely assigned via a tense head. But if case is checked in a spec-head configuration, this cannot take place overtly as the subject does not obligatorily precede the verb and instead, typically follows it. This leads to the conclusion that nominative case features must be weak.[33]

If nominative case features in MacZ are weak, then it has exactly the configuration for which B&M predicted that case selection at PF should not be resolvable. For example, a simple nominative subject sentence like 182 would have the spell-out structure in 183:

182. **Beyhiisiyà'.**
beyhiisi =ya'
C/laugh =1SN
I laughed.

[33] There are other possibilities, of course. It could be that the verb raises to a still higher position above TP. As discussed in Section 4.1, however, the verb certainly does not raise as high as CP and it is unclear exactly which other landing positions might be available.

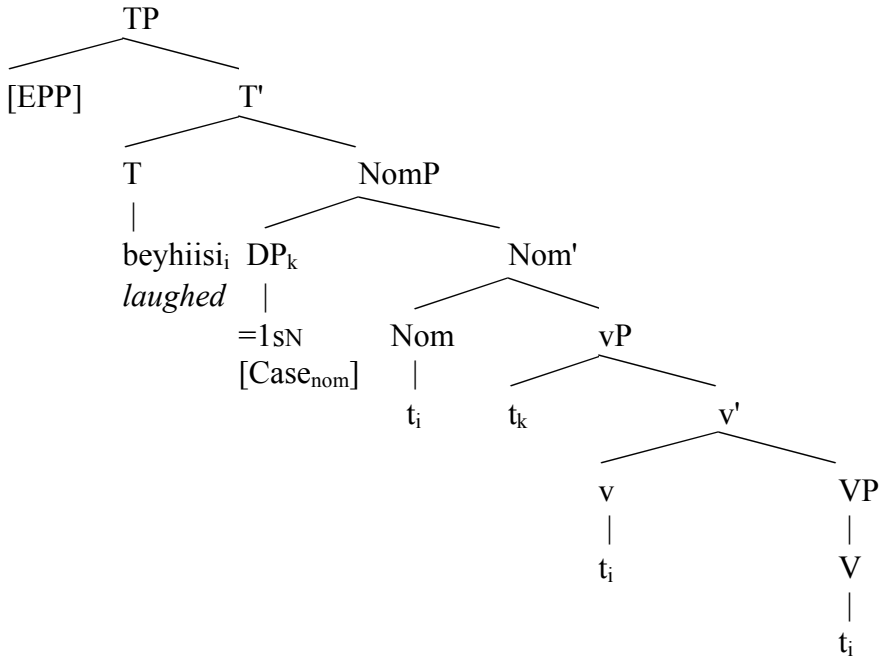
183.



Adopting B&M's approach to case checking and assignment, then the PF component would receive a structure in which TP has unchecked EPP and nominative case features while the first person singular argument has an abstract Case node, but no particular case assignment. As a result, the PF component should be unable to determine which form of the pronoun to pronounce. And as discussed in the previous section, a default nominative case form would not be inserted since the default case in MacZ appears to be accusative.

An initially promising way to avoid the lack of case assignment is to assume that nominative case is not in fact checked in [Spec,TP] but in some lower functional projection, which for sake of argument we can call Nom(inative)P. Nominative case could then be associated with a strong feature and movement and case assignment could then occur in the overt syntax. The resulting spell-out structure of 182 would be that of 184 below:

184.



Now the subject, =1SN, is specified for case and the pronoun can correctly be pronounced as *=ya'*.

Unfortunately, this hypothesis still presents problems for other parts of the grammar, such as Covert Subject Binding (CSB). As discussed in Section 5.2.3.2, CSB constructions like that in 185 below lack an overt subject.

185. **Beyuuni carru què' Felipeà'.**
beyuuni carru què' Felipe =à'
C/repair car of Felipe =DIST
Felipe$_i$ fixed his$_i$ car.

As argued in detail in Chapter 6, *Felipeà'* in 185 is syntactically a possessive DP, and there is no evidence that CSB sentences have different functional projections from non-CSB sentences. Thus, we would still expect a NomP, if such exists, to be present in 185, but its case features would apparently have to go unchecked in CSB environments since

no DPs overtly receive nominative case in such sentences.[34] Since CSB clauses are grammatical and do not cause a derivation to crash, however, we again are left to conclude that nominative case, if it is associated with a feature that must be checked, is checked covertly rather than overtly.[35] If nominative case features are weak, then DPs should routinely be sent to PF unspecified for case instead of marked for nominative. If nominative case features are strong, then CSB sentences should fail to converge.

It was primarily CSB sentences, as opposed to VSO considerations, which in the first place led to the conclusion that both EPP features and nominative case features are weak in MacZ. If we conclude that nominative case features must still be weak, then NomP does not present us with any advantages over assuming that nominative case is checked/assigned in [Spec,TP] and we can dispense with it as a redundant projection. This of course still leaves the question of how nominative case is checked/assigned in MacZ. As noted by B&M, if case is not checked or assigned overtly, then a PF component should not be able unable to produce the correct case form, leading to a default insertion or an unpronounceable string, neither of which occurs.

As discussed in the next section, we can get out of this conundrum if we adopt the particular view of movement as copy and delete in which all movement takes place prior

[34] The possessor, when pronominal, shows genitive case, and *carru què' Felipeà'* 'Felipe's car' is not able to receive nominative case either. This is evidenced by the fact that this possessed DP does not have to immediately follow the verb as would be expected of any DP bearing nominative case. Other DPs may intervene between it and the verb and it can also be embedded inside other phrases, such as inside a prepositional phrase, which presumably cannot receive/check case, nominative or otherwise. Since the possessed DP shows no subject properties, we safely conclude that it does not occupy or pass through [Spec,TP]. See Chapter 6 for further discussion.

[35] Another possibility is that some non-overt element checks case. As argued in Chapter 6, this element cannot be *pro*, PRO, or some null expletive element. Instead, I argue it that it is an LF copy of the possessor DP, an idea which is compatible with the theory of case checking/assignment I am developing in the present chapter.

to the PF interface which then determines which copies to pronounce. This will have the effect of also providing the PF component with sufficient information to determine the correct morphological case form of a DP.

5.3.4.3 Copy Theory and Case Assignment

As B&M point out, any theory which relies on case determination at the PF interface should be incompatible with LF case checking or assignment, since the PF component will necessarily receive insufficient information to determine the correct morphological case form. B&M's assertion is correct, however, only so long as these LF processes actually involve covert movement not visible to the PF component. The PF component, however, will have sufficient information to resolve case inflection, if the effects of such "covert movement" are visible to the PF interface. This is possible if we adopt a certain theory of movement as copy and deletion whereby all movement occurs prior to PF which then determines if a higher copy is to be pronounced, yielding overt movement, or a lower copy is pronounced, resulting in covert movement (see Brody 1995, Bobaljik 1995, 2002, Pesetsky 1998 and Groat and O'Neil 1996 among others). As a result, all copies will be visible to the PF component. It can then pronounce a DP with a case that is assigned covertly, which will simply mean pronouncing a copy of that DP in a position lower than where case is checked or assigned. The form of the DP will be chosen based on the case checked or assigned to the higher copy, which will be visible to the PF component, but not ultimately pronounced.

Chomsky (1993, 1995) adopted the view that traces represent copies of material that has undergone movement, but assumes that PF always deletes the lowest copies and pronounces the highest copy at spell-out. Under this view, covert LF movement to some still higher position would not be visible to the PF component, or else by assumption, this higher copy would be pronounced.

Many subsequent authors (including see Brody 1995, Bobaljik 1995, 2002, Pesetsky 1998 and Groat and O'Neil 1996 among others), however, have suggested alternative coneptions of the grammar in which PF does not exclusively target the highest copy, but may be driven to pronounce either higher or lower copies. This provides an elegant parallel between overt and covert movement. Instead of requiring different stages of syntactic movement, all movement takes place prior to being sent to the interface levels (PF and LF). It is the PF component which determines whether movement will be overt or covert. If the highest copy is pronounced, movement is overtly visible. If a lower copy is pronounced, then movement will not be visible in the phonological output, but will remain covert. Within this approach, all movement copies will be available to the PF component, which will subsequently determine which to pronounce.

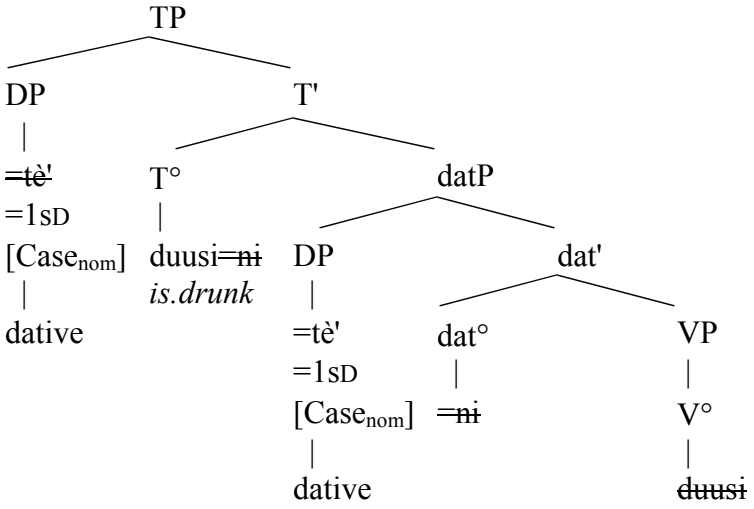
If we adopt this latter theory of movement for MacZ, then all movement, both "overt" and "covert", will be visible to PF. The PF component will then be able to realize the correct morphological case form of each lexical item, even if that case is only assigned/checked "covertly". As a result, case realization can now proceed as outlined in the previous two sections, either via Multiple Case Checking (MCC) resolved at PF or through PF-case assignment.

The MCC theory allowed for a DP to bear an inherent case but to still check a structural case feature. This double case marking is resolved at the PF interface which determines which case form of a DP to pronounce. The PF interface will select that pronunciation that corresponds to the most marked case form in a movement chain, with inherent cases being more marked than structural ones.

Under this approach, a MacZ dative subject sentence like 121 above, repeated below, would have the post-PF structure presented in 186.

121. **Duusitè'.**
duusi=ni =ntè'
S/be.drunk=PREP =1SD
I'm drunk.

186.



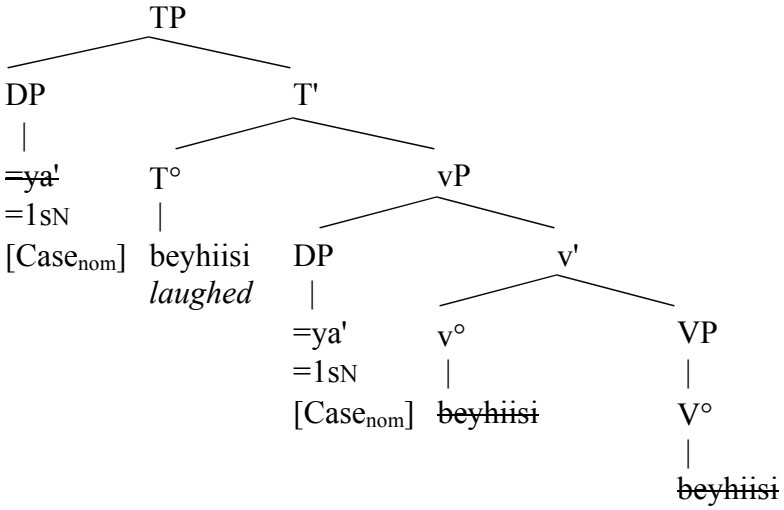
In 186, although not pronounced, the copy of the first singular pronoun *=tè'* in [Spec,TP] checks the nominative case feature associated with the finite tense head. The DP chain also bears inherent dative case due to the copy occupying [Spec,datP]. The pronoun is ultimately pronounced with this case since inherent cases are more highly specified (marked) than structural cases. As a result, the PF component resolves the case conflict

in favor of the dative case form, pronouncing the pronoun as dative *=(n)tè'* instead of nominative *=ya'*.

With regular nominative subjects like that in 182 above, repeated below, there is no case conflict to resolve. As can be seen in 187, an unpronounced copy of the subject pronoun occupies [Spec,TP], checking the nominative case feature. Since this is the only case that the DP chain bears, the overt copy of the pronoun is realized in the nominative form *=ya'*.[36]

182. **Beyhiisiyà'.**
beyhiisi =ya'
C/laugh =1SN
I laughed.

187.



One problematic fact for this approach is that, as noted, *=ni*-licensed subjects can optionally be realized with nominative case instead of the expected dative case. Thus,

[36] Potentially, there might be one instance in which a "regular" nominative subject would still involve Multiple Case Checking and require PF-resolution of the case form. If accusative case involves feature checking by DPs licensed in low VP-shells, then we might wonder if nominative subject DPs likewise originating inside VP (as opposed to vP) might also check accusative case in addition to the nominative case, which is overtly realized. This approach would be possible so long as all such case conflicts are resolved in favor of nominative case, which would be expected since accusative in MacZ appears to be the default and therefore would presumably be the least specified case.

'I'm drunk' can be realized not only with the dative pronoun yielding *duusitè'* as in 121 but also with the nominative pronoun producing *duusinyà'*. Since an inherent dative case is more marked than a structural nominative case, we would expect only the dative case form to be acceptable. Possibly then this indicates that [Spec,datP] only optionally assigns inherent dative case. When it does, the dative pronoun is used. When it fails to do so, the nominative case form is realized.

PF case assignment works similarly, although there are slight differences between the approaches. Under PF case assignment, case does not involve feature checking and does not drive movement. Instead, DPs undergo movement to satisfy other features. They are then assigned case according to which structural positions they occupy or which structural positions a copy occupies. Thus, DPs receive dative case in [Spec,datP], a position they occupy because that is where their thematic licensing takes place. A DP moves to [Spec,TP], not to check nominative case, but to satisfy the EPP. The PF interface, subsequently, realizes such DPs with nominative case assuming they are not part of chain linked to another case position. Possessors merge into the syntactic structure as complements of the prepositions *què'* 'of' or ~~*què'*~~, its unpronounced counterpart. DPs occupying or originating in this position exhibit genitive case. Accusative case, being the default case, is not associated with a particular structural position but occurs on those DPs that do not occupy, or have not moved through, any of the case positions. So, any DP chain that does not have a copy in [Spec,TP], [Spec,datP] or in [Comp,*of*P] receives accusative case. When a DP chain occupies more than one

case position, the PF-interface must still resolve the resulting case conflict, presumably in a way similar to that discussed with Multiple Case Checking.

The copy and PF-deletion theory allows information from "covert" case checking to be visible at PF where it can influence case selection. But not only must the PF interface resolve the case form of a DP, but it must also decide which copy of the DP to pronounce. The PF component will contain not only an algorithm for case assignment/resolution, but also an algorithm that determines which copy of a moved element to pronounce or, similarly, at which position to insert an overt lexical item. For example, in 187 above, the DP is associated with a minimal chain consisting of only two links, and the PF component must determine whether to pronounce the overt pronoun in [Spec,datP] or in [Spec,TP] (or in both). Obviously, the copy in [Spec,datP] is ultimately favored. I discuss in the following section how this might come about?

5.3.4.4 PF Evaluation of Copies

I will not develop here a complete theory of PF copy realization, but it is helpful to consider some principles that have been proposed to constrain it and that might be relevant in developing this approach in MacZ. The first principle, which is widely accepted, is that PF generally privileges the highest copy, pronouncing it and deleting lower copies (as espoused in Bobaljik 1995, Pesetsky 1998, and Franks 1998 among others). Chomsky (1993, 1995) adopts this as an inviolable property of PF in his original formulations of movement as copy and deletion within the Minimalist framework, thus requiring covert movement to occur post-Spell-Out at LF. We, however, are adopting the viewpoint that covert "movement" is not a syntactic operation, but is the result of a lower

copy being realized at PF. Obviously then, while higher copies may generally be preferred, this tendency must be violable. Other considerations must override the preference for higher copies.

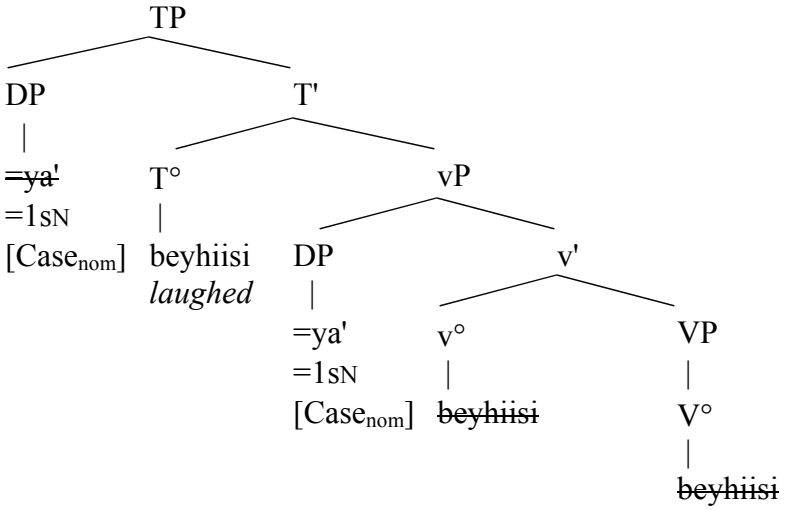
One possible set of competing demands would likely come from other phonological requirements. Such interactions, for example, are used by Bobaljik 2002 to provide a PF deletion account of Holmberg's Generalization, the observation that object shift in VO Germanic languages is blocked when the verb remains VP-internal (Holmberg 1986). Bobaljik proposes that in such instances, the higher, object-shifted copy of an object DP interrupts the PF adjacency requirement between the inflectional head and verb, just as *not* blocks inflection on English verbs. To avoid this disruption between verb and inflection, the higher copy of the DP cannot be pronounced. Instead, the lower, VP-internal copy is realized.

Additionally, Franks (1998) employs a copy and delete theory interacting with PF considerations to account for second position clitics in Slavic languages. Franks argues that these second position clitics obligatorily move to the highest functional position in a clause. However, since they are phonologically weak, they must attach to a preceding phonological phrase in order to be prosodically licensed. If there is no preceding phonetic material, then the clitic cannot be pronounced in this position. A lower copy instead must be realized, maintaining the clitic in second position.

Similar factors could also be operative in MacZ copy realization. Phonological considerations would certainly block the pronunciation of copies of clitic pronouns which occur in [Spec,TP] to check EPP and nominative case features. Like the Slavic second

position clitics, the clitic pronouns in MacZ are phonologically weak and must adjoin at PF to a preceding word for prosodic support. Frequently, as seen in 187 repeated below, no overt phonological material precedes [Spec,TP], and copies of clitic pronouns cannot be pronounced in this position. Instead, PF must realize a lower instance of the pronoun, one that can attach at PF to a preceding word. Thus, in 187, the highest copy of *=ya'* checks the EPP and nominative case features associated with TP, but this copy cannot be overtly realized due to its lack of prosodic support. However, the lower instance of *=ya'* occupying the DP's thematic licensing position can be pronounced since it can phonologically cliticize to the preceding verb. That the higher copy is phonologically unsupported results in the realization of a lower copy despite PF's general preference for the highest copy.

187.



Beyhiisiyà'.
I laughed.

Even in cases in which phonological material does precede [Spec,TP] as happens with topicalization, an intonation boundary may follow such material, though further research is needed on prosodic phrasing in MacZ. If a boundary does occur in such a

position, it would block phonological support of any clitic pronoun copy occupying [Spec,TP]. This again would force pronunciation of the pronoun in a lower position. Alternatively, subject clitic pronouns may be sensitive to the syntactic category of the preceding element, requiring not only that overt material precedes them, but that that overt material belongs to the category verb. Thus, the pronominal copy in [Spec,TP] would still not be prosodically licensed even if overt phonetic material preceded it, since preverbal material is always nominal, adverbial or prepositional in nature.

Of course, even though phonological restrictions may play a role in forcing lower links in a pronominal clitic movement chain to be realized, they do not appear to account for the full range of data. Phonologically independent full DPs also appear postverbally rather than in [Spec,TP]. As they lack the same phonological restrictions as clitic pronouns, something else must be leading to the DP being realized in a lower position.

Another possible factor in determing which copy is realized at PF may be LF considerations. Bobaljik (2002) argues for an economy condition, similar to Diesing's (1997) Scope Principle, "which prefers isomorphism between PF and LF" (p. 251). This condition, which he labels Minimize Mismatch, states that PF and LF should ideally privilege the same copy. The copy of a DP that is overtly realized by PF should represent the scope/interpretative position of the DP at LF and vice versa.

Such an economy condition could explain why DPs in MacZ are realized in lower positions rather than higher in [Spec,TP]. DP copies appear in [Spec,TP] to check EPP features and possibly nominative case features as discussed above. But these are non-interpretable features (see, for example, Lasnik 1995, Chomsky 2000); they do not in and

of themselves contribute to the semantic interpretation of the clause. Furthermore, definite DPs do not exhibit scopal properties, and there is no interpretative difference deriving from their occupation of [Spec,TP]. In contrast, the lowest position occupied by definite DPs is their thematic licensing positions, which are crucial for interpretation. As a result, LF may favor these positions for interpretation. If an economy condition like Bobaljik's (2002) Minimize Mismatch holds between LF and PF, then it can only be satisfied if PF also privileges (i.e. pronounces) the lower instance of the DP in its thematic position.[37]

In a language like English, subjects, definite or otherwise, are not generally pronounced in their thematic position. Additional factors in English then must be overriding Minimize Mismatch. A likely culprit would be a strong EPP feature in English requiring overt phonetic material in [Spec,TP].

The Minimize Mismatch condition might help explain why MacZ has overt Quantifier Raising as discussed in Section 4.2.7. Since quantified DPs exhibit scope interactions, a distinct interpretation may obtain from interpreting a higher copy of a DP, as seen in 20 above:[38]

[37] Such a derivation in which both PF and LF privilege a lower link in a movement chain would be an instance of what Bobaljik (2002:199) calls a Lower Right Corner effect combining covert "movement" and reconstruction. In contrast, if both favor the highest copy, normal overt "movement" is the result. If PF favors a higher copy while LF targets a lower position, the result is reconstruction effects while covert "movement" is the result of LF favoring a higher copy over PF.

[38] It is unclear if any of these sentences represent the subject overtly occupying [Spec,TP]. There is, however, a subject/object asymmetry with respect to overt QR with overt QR more readily applied to subjects than objects. This could be accounted for if overt QR can target [Spec,TP], a position that is available to subjects but not objects. Additional research on this point is needed.

188. a. **Nààyá' ìyhéé bènnè' àbíí gutoo ~~ìyhéé bènnè'~~ ca etta chà'á.** {mm}
náàyá' ìyhéé bènnè' gutoo ca etta chà' =á àbíí
yesterday many people C/eat PL tortilla of/1SG =INVIS NEG
Yesterday, many people didn't eat my tortillas.

b. **Nààyá' àbíí gutoo ìyhéé bènnè' ca etta chà'á.** {mm}
Yesterday, not many people ate my tortillas.

If LF targets a higher copy for interpretation, then PF should also privilege this copy for pronunciation, assuming Minimize Mismatch holds and there are no other countervailing requirements.

The main difficulty with the Minimize Mismatch condition is determining exactly how PF and LF communicate with each other. We are assuming that the syntax proper sends a complete derivation with all copies available in the structure to both PF and LF, which then respectively determine which copies to pronounce and which to interpret. For Minimize Mismatch to apply, there must be some way of determining whether or not both PF and LF have privileged the same copy. Either there must be some evaluative component which compares the two or one of PF and LF or both must have access to the mechanisms of the other.

There is at least one other mechanism that could be used for determining which copy to realize at PF. If PF could evaluate whether copies satisfied strong or weak features, this information could be used in privileging copies at PF. In the copy and PF deletion theory of movement adopted here, syntactic copying (i.e. movement) operations apply only once, prior to PF and LF, which then privilege certain copies for pronunciation and interpretation over others. The syntax must perform any necessary copying and discharge all features before the syntactic structure is sent to these interfaces

for evaluation. It is not possible for the syntax to satisfy only certain (strong) features, while delaying other (weak) features until LF. Under this view, the syntax proper does not distinguish between strong and weak features and this differentiation of features could be dropped.

Another possibility, however, is that while the syntax does not respond to this distinction, PF is sensitive to it. If PF can determine which copies were created to satisfy strong features and which to check weak features, this information could be used in privileging the former over the latter. But under standard views (such as Chomsky 1995), information about features is erased from the structure when the features are checked and the strong/weak distinction would not be transmitted to PF. Feature strength, however, could be encoded in the copies themselves in the form of strong and weak copies, thus allowing PF evaluation of feature (or copy) strength. Strong features would result in strong copies, needing overt realization. Weak features would produce weak copies which are not or cannot be pronounced.

A strong copy would result whenever a copy is created to satisfy at least one strong feature. A weak copy would be produced when a copy checks only weak features. A simple PF evaluation component would then determine which copies should be pronounced. The conditions needed for this are given in 189 below:

189. **Copy Realization Conditions (CRCs)**
   1. Pronounce exactly one link in a chain **(1Link)**.
   2. Pronounce the highest strong copy **(HighStrong)**.
   3. Do not pronounce weak copies (**NoWeak)**.

Only one link per chain should be realized. The highest strong copy should be pronounced. Weak copies, in contrast, should be deleted (not realized) if possible.[39]

We can see how these Copy Realization Conditions (CRCs) function by considering an example like that in 190a, the syntactic output for 190b.

190. a. [$_{CP}$ NÚÚní [$_{TP}$ núú GUTOO [$_{vP}$ núú GUTOO [$_{VP}$ gutoo etta chà'á]]]]

b. **¿Núúní gutoo etta chà'á?**
núú =ní gutoo etta chà' =á
who =COMP C/eat tortilla of/1SG =INVIS
Who ate my tortilla?

The structure in 190a is generated by the syntax and sent to PF and LF for pronunciation and interpretation respectively. Upper case letters represent strong copies while lower case represents weak copies. The structure is generated as follows. The verb *gutoo* 'ate' merges with the direct object *etta chà'á* 'my tortilla', giving the DP a theme theta-role. The verb is subsequently copied into v° to check causative features and license the agentive DP. I assume this is a strong copy, since there are never instances of this position being left unfilled, but it is impossible to be certain of this as verbs in MacZ always overtly appear in T°. Finally, another, strong copy of the verb appears in T° to check the strong tense features. *Núú* 'who' merges into the structure in [Spec,vP], receiving an agent theta-role. A copy is also generated in [Spec,TP] to satisfy the EPP feature and nominative features associated with tense. This is only a weak copy, however, since both features are weak. A final copy, this time a strong one, is also merged into [Spec,CP] checking the strong *wh*-feature of C°.

[39] These conditions may be overridden by other considerations. For example, as discussed in Section 4.2.7, parsing considerations may force the inclusion of a resumptive pronoun, thus causing two links in a chain to be overtly realized and violating the first condition of the CRCs.

PF then privileges those copies that best satisfy the CRCs (and other conditions), yielding the output seen below in 191:

191. [$_{CP}$ NÚÚní [$_{TP}$ ~~núú~~ GUTOO [$_{vP}$ ~~núú~~ ~~GUTOO~~ [$_{VP}$ ~~gutoo~~ etta chà'á]]]]

The *núú* 'who' chain contains one strong copy. Pronouncing only the highest copy satisfies all of the CRCs. Only one link is realized satisfying the first condition (1Link). The highest strong copy is pronounced satisfying the second condition (HighStrong). And no weak copy is pronounced in accordance with the last condition (NoWeak).

The *gutoo* 'eat' chain is treated in essentially the same manner. The only difference is that we have posited that there are two strong copies in the chain. Only one of these can be pronounced per the 1Link Condition. According to the HighStrong Condition, it must be the highest strong copy that will be pronounced.

Finally, *etta chà'á* 'my tortilla' represents a vacuous chain consisting of only one link.[40] Per the first condition, this single instance of *etta chà'á* must be pronounced even though it does not satisfy any strong features. Since there are no strong copies, the HighStrong Condition does not apply. Whether or not the NoWeak Condition is violated depends on the nature of thematic relations and the meaning of copy. The answers to these questions are crucial for evaluating non-trivial chains which lack a strong copy.

If we maintain a configurational approach to theta assignment (as in Chomsky 1995), then *etta chà'á* does not represent a weak copy, because it is not involved in feature checking, weak or strong. Weak copies would only be created when weak features are checked, and therefore, the NoWeak Condition also would not apply in

[40] Potentially, it is part of a non-vacuous chain if it must move to check/receive accusative case. I am assuming that accusative is assigned as a default case for MacZ as discussed previously.

evaluating 190 to produce 191. However, in the next chapter, we find motivation for adopting the viewpoint presented in Hornstein 1998, 1999 and Bošković and Takahashi 1998, among others, that theta-assignment involves the checking of theta-features. Furthermore, we must conclude that these features are weak in MacZ. Even if *etta chà'á* represents a weak copy, it is obviously still pronounced as attested by the output in 191. This suggests that NoWeak can perhaps be violated. Possibly it is violated to satisfy the ILink Condition.

This solution, however, encounters a problem when a non-trivial chain satisifies only weak features, as with the chain for *béccú' què'nìni* 'his dog' in 192a below:

192. a. [$_{TP}$ béccú' què'nìni ROO [$_{vP}$ béccú' què'nìni ROO [$_{VP}$ roo etta chà'ni]]]

b. **Roo béccú' què'nìni etta chà'ni.**
roo béccú' què' =nì =à' etta chà' =ni
H/eat dog of =3G =DIST tortilla of/1SG =PROX
His dog is eating my tortilla.

c. ***Béccú' què'nìni roo etta chà'ni.**

The lower instance of *béccú' què'nìni* 'his dog' merges into the structure to check the weak agent theta-role feature of v°. The higher copy checks EPP and nominative case features, which we have also concluded are weak. If both of these count as weak copies, the CRCs provide no means of selecting one copy over the other for pronunciation. Pronouncing either would satisfy the 1Link Condition while violating the NoWeak Condition and either instance should be viable. As can be seen in 192b-c, however, it is only the lower instance that is privileged in such cases.

Possibly, this can be resolved by other principles, such as the Minimize Mismatch economy condition discussed above. As noted, LF would privilege the lower instance for

thematic interpretation, possibly requiring PF to follow suit. Another possibility is that such examples indicate that an additional CRC is needed, one that will privilege the tail of a chain. Another resolution to this issue might come from reconsidering the specific definition of a copy. The foot of the chain represents the point of initial merger into the syntactic structure. If a copy only results from movement (or remerge) as given in the revised definitions in 193, then the original merge constituent would not count as a copy.

193. **Strong/Weak Copy Definitions**
A strong copy results from movement (remerging) which checks at least one strong feature.
A weak copy results from movement (remerging) which checks only weak features.

As a result, the CRCs, repeated below, would privilege the original syntactic insertion of *béccú' què'nìni* 'his dog' in 192 for pronunciation.

189. **Copy Realization Conditions**
1. Pronounce exactly one link in a chain **(1Link)**.
2. Pronounce the highest strong copy **(HighStrong)**.
3. Do not pronounce weak copies (**NoWeak)**.

The higher copy, generated to satisfy only weak features, would violate the NoWeak Condition. Pronouncing the DP in its thematic position, however, would not, since the original merger does not count as a copy. As a link in the movement chain, however, it would satisfy the first condition, the 1Link Condition.

These revised definitions would not alter the realization of the other chains in the sentence. The highest copy of the verb, *roo* 'is eating', would still be pronounced in accordance with the HighStrong Condition. Pronouncing the original instance of the verb would not violate the NoWeak Condition, but would result in either a violation of 1Link or HighStrong depending respectively on whether the higher copy is pronounced or not.

Either way would be a less desirable result than pronouncing only the highest, strong copy. Likewise, *etta chà'ni* 'my tortilla' would still be pronounced in its base position as this represents the only instance of the DP. This generates the correct output for 192 as represented below in 194:

194. [$_{TP}$ ~~béccú' què'nìni~~ ROO [$_{vP}$ béccú' què'nìni ~~ROO~~ [$_{VP}$ ~~roo~~ etta chà'ni]]]
[$_{TP}$ ~~this dog of his~~ EATS [$_{vP}$ this dog of his ~~EATS~~ [$_{VP}$ ~~eats~~ this tortilla of mine]]]
His dog is eating my tortilla.

As discussed previously, although PF privileges copies for pronunciation in only certain positions, it can evaluate the entire chain in determining case realizations. Thus, while the higher copy of *béccú' què'nìni* 'his dog' in 194 above is not targeted for pronunciation, it can determine the case form of the copy that is realized. Since it checks (or receives) nominative case, the chain is marked as nominative. As that is the only case borne by the chain, any pronounced link within the chain must be marked with nominative case, and when the subject DP in 194 is replaced with a pronoun, it must be a nominative pronoun.

When a chain satisifies (or receives) more than one case, then some mechanism must be employed to determine which case will be realized. This must occur, for example, with =*ni*-licensed subjects like 195 below, where 195b represents the PF evaluation of the syntactic output. In 195b, the higher copy of the first singular pronoun is in [Spec,TP], checking/receiving nominative case while the lower copy checks/receives dative case. As we have been discussing, it is usually the dative case form which is realized.

195. a. **Rquiina'tè' ttu pluma.**
rquiina' =ni =(n)tè' ttu pluma
H/is.needed =PREP =1SD a pen
I need a pen.

b. [$_{TP}$ ~~=tè'~~ RQUIINA'=NI [$_{datP}$ =tè' ~~RQUIINA'=ni~~ [$_{VP}$ ~~rquiina'~~ ttu pluma]]]

As discussed in Section 5.3.4.2 above, the preference for dative case in sentences like 195 may be the result of a more general, crosslinguistic preference for realizing inherent cases over structural ones. Another possibility, however, is that when possible, PF attempts to privilege the same copy for pronunciation and case assignment. Analogous to Bobaljik's Minimize Mismathch discussed above, we might label this tendency Minimize Case Mismatch as defined below:

196. **Minimize Case Mismatch**
If a copy is pronounced in a case-marked position, then pronounce the copy with the case that is licensed in that position.

A copy realized in [Spec,TP] should be pronounced with nominative case; a copy pronounced in [Spec,datP] should be marked with dative case. Since it is the lower copy in [Spec,datP] that is privileged in 195b, then the DP should be realized with dative case to satisfy Minimize Case Mismatch. That nominative case is also possible in such sentences suggests that [Spec,datP] is not always conceived of as a case-licensing position.

As we have seen, dative (and other non-nominative subjects) in MacZ appear to require either PF (post-syntactic) case assignment or Multiple Case Checking with PF case resolution. As observed in Bejar and Massam 1999, however, such PF case evaluation would appear to be incompatible with covert case checking/assignment. PF should not be able to assign case or resolve Multiple Case Checking for a DP that only

moves into a case-licensing position at LF. The copy theory of movement can provide a way around this problem if we assume that all copies are visible to PF, which then subsequently determines which copies to delete and which to pronounce. Under this view, "covert movement" does not involve LF-movement, but merely results from pronunciation of a lower copy. All movement takes place prior to PF, and PF may assign or realize case based on a higher copy even if that copy is itself not privileged for pronunciation. This is the exceptional pattern, however, and PF generally tries to pronounce a DP copy with the case of the position it occupies. This, in turn, helps explain why MacZ allows dative case-marked subjects. PF privileges copies in [Spec,datP], the dative case marking position, rather than in [Spec,TP], the nominative case licensing position. PF, accordingly, realizes arguments in [Spec,datP] with dative case.

5.4 Conclusion

In this chapter, I have provided evidence that =*ni*-licensed arguments can appear as subjects in MacZ. Although such subjects are generally marked with dative case as opposed to nominative, they exhibit several behavioral properties uniquely associated with grammatical subjects in MacZ. For example, the =*ni* subjects show the same restrictions on word order and movement as do nominative subjects. In addition, the =*ni* subjects also participate in Covert Subject Binding and can be used in imperatives just like nominative subjects.

Of course, =*ni*-licensed arguments are not always realized as subjects. This can only happen when no other thematically higher argument is licensed; that is, only when

there is no vP-projection. Constrained by the Minimal Link Condition, it must be the highest DP within the thematic hierarchy which raises (covertly) to [Spec,TP] to satisfy the weak EPP features of TP. As vP will always be the highest thematic licensing projection, any DP licensed there will always be the subject. Only when no vP-projection is licensed can a DP originating in [Spec,datP], the next highest thematic position, covertly move to [Spec,TP] to serve as the grammatical subject. The presence of vP otherwise blocks this, forcing the =*ni* licensed argument to be realized as an object.

As subjects originating in both vP and VP (and sometimes even in datP) are realized with nominative case, we must conclude that nominative case is not merely a feature of vP but is associated with some functional projection external to the thematic hierarchy. The most economical solution is to assume that this projection is TP. Whether nominative case is licensed in [Spec,TP] or in the specifier of some other projection, the question arises as to what happens to nominative case assignment when clauses have dative subjects.

In such clauses in MacZ, nominative case does not appear on any other, non-subject DP either but is left unrealized. This lead to the hypotheses that either dative subjects involve Multiple Case Checking with PF resolution of case (as developed in Bejar and Massam 1999) or that case does not involve feature-checking in MacZ but is assigned configurationally by the post-syntactic PF component (along the lines of Marantz 1991 and Harley 1995). Both of these hypotheses face a problem in light of the Covert Subject Binding construction, which suggests that nominative case assignment must be covert in MacZ. As observed by Bejar and Massam (1999), PF case realization

should be incompatible with covert case checking/assignment. PF will have insufficient information to determine the correct case form of a DP if that DP does not check a case feature (or does not occupy a case position) prior to Spell-Out and the PF interface. This limitation can be avoided by adopting the view that all movement takes place prior to PF, which then subsequently determines which copies to pronounce and which to delete (as proposed in Brody 1995, Bobaljik 1995, 2002, Pesetsky 1998 and Groat and O'Neil 1996 among others). This will allow PF to have available the information necessary to make the correct case assignment since covert "movement" will not be the result of movement at LF but will result from PF-deletion of a higher copy.

As we will see in the next chapter, the copy and PF-deletion theory of movement not only has advantages for understanding case assignment in MacZ but will also be fundamental for understanding Covert Subject Binding (CSB) in MacZ. In CSB, a subject may be covert if it is coindexed with a genitive DP lower in the clause. Superficially, this construction appears to involve the second type of non-nominative subjects in MacZ, genitive subjects. While MacZ allows genitive subjects, the genitive arguments in CSB are syntactic possessors, not grammatical subjects. The subject tests we developed in Chapter 4 and employed in this chapter to evaluate dative subjects are able to tease apart genitive subjects from CSB. All evidence concerning CSB points to a construction in which the grammatical subject remains covert, this being licensed by a structurally inferior coindexed DP later in the structure. Adapting ideas from Hornstein 1999 and Polinsky and Potsdam 2002, I propose that such clauses contain copies of the genitive DP in the thematic and case positions of the subject. As such positions contain

weak features, however, these copies are deleted at PF; only the possessor copy is overtly realized.

6 Genitive Subjects and Covert Subject Binding

Dative subjects are not the only type of non-nominative subject found in MacZ; the language also has verbs that take genitive subjects. Such verbs, exemplified below in 1-3, always contain an incorporated inalienable noun root (underlined below):[1]

1. **Bettsa'nàá' Felipeá.**
   bettsa'-nàá' Felipe =á
   C/join-hand Felipe =INVIS
   C/get.married
   Felipe got married.

2. **Ruttha**laasi' **béccú'à' què' lagóó.**
   ruttha-laasi' béccú' =à' què' lagóó
   H/think-being dog =DIST of food
   That dog is thinking about food.

3. **Ribiisi**laasi' **ca untosaa.**
   ribiisi-laasi' ca unto -saa
   H/be.dry-being PL child -DIMPL
   H/be.thirsty
   The children are thirsty.

The incorporated nouns account for the subject's genitive case marking, which is only distinctly realized with pronouns. Thus, when the subjects of 1-3 are replaced by a pronoun, the genitive form of the pronoun, *=nì* =3SG or *=canì* =3pG, must be used. The nominative forms, *=nà* and *=canà* are ungrammatical in these contexts as seen below in

[1] There is another class of verbs used in predicative possessive constructions that superficially appear to take genitive subjects in MacZ. 'Have' in MacZ is expressed via an existential verb with an indefinite theme argument and a genitive possessive expression. As I argue in Foreman (in preparation), the indefinite (when containing an alienable noun) and possessor do not form a constituent, yet neither one seems to serve as the grammatical subject of such clauses, which appear to be subjectless. For a crosslinguistic overview of this and other types of possessive constructions, see Freeze 1992 and Freeze and Georgopolous 2000.

4-6 (subjects are underlined). (Recall that nominative and genitive case are only distinguished with third person non-formal pronouns as discussed in Section 3.2.1.)

4. **Bettsa'nàá'<u>nì/*nà</u>.**
He got married.

5. **Rutthalaasi'<u>nì/*nà</u> què' lagóó.**
He is thinking about food.

6. **Ribiisilaasi'<u>canì/*canà</u>.**
They are thirsty.

The genitive argument is introduced into the structure as a possessor of the noun, which subsequently incorporates, allowing the genitive argument to raise (covertly) to [Spec,TP] to check EPP features and be marked as the grammatical subject.

Interestingly, MacZ and a number of other Zapotec languages have another superficially similar, though typologically unusual, construction (see for example, Butler 1976, Black 1996, 2000, Avelino 2004 and Avelino et al. 2004, Foreman 2004, Sonnenschein 2004). In this construction, which I will refer to as Covert Subject Binding or (following Black 1996, 2000) backward binding, a genitive DP—grammatically, a possessor of some non-subject argument—also provides the semantic subject interpretation, but unlike genitive subject verbs, it does not serve as a syntactic subject. Instead, the subject is null. Its interpretation is controlled by the genitive DP, even though the latter follows the null subject and is structurally inferior to it.

Since Covert Subject Binding (CSB) clauses lack an overt subject and contain a possessed DP, they initially appear to be additional instances of genitive subject verbs. Compare, for instance, 7-9 below to 1-3 above and 10-12 to 4-6 (below, a blank represents the covert subject while the overt possessors are underlined):

7. **Gutii ___ ca nàá' Felipeá.**
gutii ca nàá' Felipe =á
C/wash PL hand Felipe =INVIS
Felipe$_i$ washed his$_i$ hands.

8. **Reyuuni ___ carru què' Felipeà'.**
reyuuni carru què' Felipe =à'
H/repair car of Felipe =DIST
Felipe$_i$ is fixing his$_i$ car.

9. **Ribeesiya'ani ___ luesi' ca untosaa.**
ribeesiya'a =ni luesi' ca unto -saa
H/yell =PREP ANAPH PL child -DIMPL
The children are yelling at each other.

10. **Gutii ___ ca nàá'nì/*nà.**
He$_i$ washed his$_i$ hands.

11. **Reyuuni ___ carru què'nì/*nà.**
He$_i$ is fixing his$_i$ car.

12. **Ribeesiya'ani ___ luesi'canì/*canà.**
They are yelling at each other.

Despite such similarities, we will see in this chapter that genitive subject verbs and CSB clauses have quite distinct structures.

In the first part of the chapter, I investigate genitive subject verbs, providing evidence of their nominal incorporation and subjecthood of the genitive argument. In the second part, I explore CSB clauses. Such clauses cannot be analyzed as resulting from genitive subject verbs since they show no evidence of incorporation and the genitive DP does not exhibit any subject properties. Combined with positive evidence that the genitive DP is a subconstituent of the possessum, this latter fact also rules out any alternative analysis in which the genitive argument serves as grammatical subject. Furthermore, it cannot be the case that the possessum is the syntactic subject; it lacks

subject properties, does not have to be an argument of the verb, and would be inconsistent with the verbal morphology and semantic interpretation. Instead, all evidence indicates that the genitive argument is structurally a possessor with the typologically unusual ability to control the interpretation of a preceding, structurally superior null subject.

After establishing the correct syntactic structure of CSB clauses, I develop an analysis of CSB along the lines of Polinsky and Potsdam's (2002, 2003) analysis of backward control. Adapting their ideas, I argue that CSB involves covert copies of the genitive DP that are generated to acquire the thematic role of the subject and to check EPP and nominative case features. Like Polinsky and Potsdam's analysis, this approach crucially relies on the ability of a DP to bear multiple thematic roles as proposed in Hornstein 1999 among others. This covert movement account also requires both the EPP and nominative case features to be weak since both are satisfied by covert copies. In addition, multiple case checking/licensing must also be available as the same chain checks/receives genitive and nominative case. As we saw in the previous chapter, this property is independently motivated by non-nominative subjects. If a DP can acquire both multiple theta-roles and multiple cases, however, wild overgeneration should result. Therefore, we are lead to restrict multiple theta-role assignment to only be available from distinct theta-assigners, an adaptation of proposals in Reinhart and Reuland 1993 and Reinhart and Siloni 2005.

The covert movement analysis not only accounts for the CSB structures in MacZ and other Zapotec languages, but also explains in part why such structures are

typologically unusual. CSB requires a large number of independent factors to all work in conjunction to produce backward binding: EPP and nominative case features must both be weak while both multiple case licensing and multiple theta assignment must be possible. If one of these parameters behaves differently, CSB will not be available in the language.

6.1 Genitive Subjects

MacZ not only has dative non-nominative subjects as described in the previous chapter, but also has genitive non-nominative subjects. Genitive subjects occur with verbs that contain an incorporated noun root, like those in 1-3 above, repeated below (the incorporated noun is underlined):

1. **Bettsa'<u>nàá'</u> Felipeá.**
   bettsa'-nàá' Felipe =á
   C/join-hand Felipe =INVIS
   C/get.married
   Felipe got married.

2. **Rutthalaasi' béccú'à' què' lagóó.**
   ruttha-laasi' béccú' =à' què' lagóó
   H/think-being dog =DIST of food
   That dog is thinking about food.

3. **Ribiisilaasi' ca untosaa.**
   ribiisi-laasi' ca unto -saa
   H/be.dry-being PL child -DIMPL
   H/be.thirsty
   The children are thirsty.

Properties of these and other compound verbs are discussed in Section 3.1.4. Here, I note a few of the properties relevant for discussion of genitive subjects.

In genitive subject verbs, the incorporated noun root is always an inalienable noun root, usually a body part like *nàá'* 'hand' in 1 above. The noun triggers the genitive case marking on the subject. The genitive subjects take on the same pronominal case form the same as possessors as shown in 13 and which are distinct from nominative pronouns like those in 14:

13. a. bettsa'nàá'=nì
C/get.married=3G
he/she got married

cf. b. nàá'=nì
hand=3G
his/her hand

14. a. gutoo=nà
C/eat=3N
he/she ate

b. gunaaba=nà
C/ask.for=3N
he/she asked for

Unlike *=ni* subjects, which usually appear with dative case marking but may also surface with nominative case, subjects licensed by incorporated nouns strictly surface with genitive case; nominative case for such subjects is judged ungrammatical as seen in 4-6, repeated below:[2]

4. **Bettsa'nàá'<u>nì/*nà</u>.**
He got married.

5. **Rutthalaasi'<u>nì/*nà</u> què' lagóó.**
He is thinking about food.

[2] Genitive case licensing, however, is blocked when a verb contains both an incorporated noun root and the applicative clitic *=ni*, which typically licenses dative case. With these verbs, genitive case marking of the subject appears to be blocked and the subject is instead realized with nominative case. This can be seen in the example below where the subject is licensed by *–nàá'* 'hand'. The presence of *=ni* licensing the object *riu'* 'us', however, blocks the expected genitive case marking of the subject. The subject appears in the nominative form *=canà* instead of the genitive *=canì*.

i. **Lààcanà gutittsa'<u>nàá'</u>cainnà riu'.** {v233a}

làà=ca=nà	gutittsa'	-nàá'	=ca	=ni	=nà	riu'
ind=pl=3	C/snap	<u>-hand</u>	=PL	=PREP	=3	1INCLA

They snapped their fingers at us.

6. **Ribiisilaasi'canì/*canà.**
They are thirsty.

The most common incorporated noun is *laasi',* which means 'being, essence' as seen in the following:

15. **Allá' què' riu' inaabanriu'yé ituute laasi'riu' biiyhanna…** {Capilla}
allá' què' riu' inaaba =ni =riu' =yé ituute laasi' =riu'
if for 1INCLG P/ask.for =PREP =1INCLG =3F all being =1INCLG
bii -yha =nna
what -INDEF =and
If we ask him for something for us with all our being…

It is found in a number of predicates, mostly psych-verbs, such as those below in 97:[3]

16. *rulaasi' arcalaasi' ruyulaasi' runnalaasi' rutthalaasi' riisia'laasi'*
'likes' 'wants' 'is upset' 'remembers' 'thinks' 'hates'

Many of the genitive subject verb roots are bound forms only occurring in a combined form with the possessed noun, usually *laasi'*. Thus, *rutthalaasi'* 'thinks' in 5 and *rulaasi'* 'likes' in 97 have bound verb roots: neither *ruttha-* nor *ru-*, exist as independent verbs.

Even those verbs that contain one or more free roots often have lexicalized, idiomatic meanings. Thus, verbs like *arcalaasi'* 'wants' contain verb roots that do occur as free forms (*arca* 'is, occurs' in this case), but have lexicalized, non-compositional meanings. Some genitive subject verbs, however, do have fairly transparent meanings such as *gutittsanàá'* 'snapped (one's) fingers' from *gutittsa* 'snapped' and *nàá'* 'hand' and *ribiisilaasi'* 'gets thirsty' in 6 from *ribiisi* 'gets dry' plus *laasi'* 'being'.

[3] As we saw in the previous chapter, *=ni* also licenses experiencer/psych subjects. The difference seems to be that *=ni* typically occurs with verbs involving the senses and external stimulation while *laasi'* verbs denote internal experiences. However, there is some overlap between the two—in fact some verbs can occur with either *=ni* or *laasi'* and retain the same meaning as discussed in Section 3.1.6. As a result, the choice of *=ni* or *laasi'* is somewhat arbitrary and exceptions to the general pattern, at least, must be stored in the lexicon.

In light of Covert Subject Binding clauses, which are superficially similar to genitive subject sentences, we need diagnostics that can distinguish between the two. Genitive subject verbs can be identified by two properties, both of which are lacking in CSB. Genitive subject verbs show evidence that the genitive-licensing noun has been incorporated into the verb and the genitive argument itself exhibits numerous subject properties. These points are discussed below.

6.1.1 Incorporation Evidence

In genitive subject verbs, the verb-noun compound can be seen to function as a unit, showing evidence of incorporation/compounding. The first pieces of evidence that we are dealing with an incorporation/compound structure comes from the fact that certain genitive subject verbs have bound verbal roots, occurring only with *laasi'* 'being' as discussed above. Furthermore, *laasi'* cannot be modified in such verbs, which is consistent with it being part of a compound. Thus, while *laasi'* can be modified by *ituute* 'all, entire' when it occurs as an independent word as in 15 above, but it cannot be when it occurs as an incorporated noun as shown below:

17. a. **Rulaasi'yà'nà.**
rulaasi' =ya' =nà
H/like =1SG =3A
I like it.

b. ***Ru-ituute-laasi'yànà.**
ru- ituute -laasi' =ya' =nà
H/like all -being =1SG =3A
**I like it with all my being.*

Additional evidence of incorporation comes from the position of adverbial clitics and the clitic applicative *=ni*. Adverbial clitics, which follow verb stems, can also follow

compound verb-noun stems. Similarly, the applicative clitic *=ni*, which occurs at the right edge of the verb stem, obligatorily follows the compound verb stem. This provides solid evidence of incorporation.

6.1.1.1 Clitic Adverbs

As discussed in Section 3.1.5, MacZ has a number of clitic adverbs which routinely attach to verbs. In the case of simplex verbs, they attach immediately to the end of the verb root and precede any argument clitics. Some examples are given below in 18 (the adverbs are underlined):

18. a. **Pam illangwanà retíín ttsúnná.** {v71b}
Pam illani =gwa =nà retíín ttsúnná
Pam P/arrive =also =3 o'clock three
Pam will also arrive at three o'clock.

b. **Bèttóòxiàyà' puertaà'.** {i172a}
bèttóò =xià =yà' puerta =à'
C/close =quickly=1s door =DIST
I quickly closed the door.

c. **Reenrunà Estadus Unidus.** {i191g}
reeni =ru Estadus Unidus
H/be.located=still United States
He is still in the United States.

d. **Serafín beenttse'nà íttsí què' ttu gringu.** {v11f}
Serafín beeni =ttse' =nà íttsí què' ttu gringu
Serafín C/do =well =3 part of a gringo
Serafín played the part of a gringo well.

e. **Làànà ra'athisiinà.** {i169g}
làànà ra'athi =sii =nà
3IND H/sleep =quietly =3
He sleeps quietly.

The clitic adverbs cannot follow the pronominal clitics nor can they follow independent arguments of the verb. Thus in 19, we can see that placing the clitic adverb after a subject clitic pronoun results in ungrammaticality (cf. 17e above). In 20 and 21, we can see that clitic adverbs are dispreferred following independent arguments of the verb, both for subjects (20) and objects (21):

19. ***Ra'athinàsii.** {mm}
ra'athi =nà =sii
H/sleep =3N =quietly
**He sleeps quietly.*

20. a. **Ruunttse' Serafín íttsí què' ttu gringu.** {mm}
ruuni =ttse' Serafín íttsí què' ttu gringu
H/do =well Serafín part of a gringo
Serafín plays the part of a gringo well.

b. **?*Ruuni Serafínttse' íttsí què' ttu gringu.** {mm}

21. a. **Betthiattse' puertà'.**
betthia =ttse' puerta =à'
C/close =well door =DIST
Close the door well.

b. **?*Betthia puertà'ttse'.**

With genitive subject verbs, the position of the clitic adverbs provides independent justification that these verbs form single words. With genitive subject verbs, the clitic adverbs still typically attach directly to the verb root, preceding the nominal element of the compound. However, there is some variability with the compounds and the clitic adverbs can also follow the entire complex verb. Thus, for a complex word like *arcalaasi'* 'want' (from *arca* 'H/happen' + *laasi'* 'being'), a clitic such as *=ru* 'still' may either attach to the verb root *arca* and precede the nominal *laasi'* (22a) or it may follow the entire verb *arcalaasi'* (22b).

22. a. **Barca<u>ru</u>laa'lù'.**
ba= arca =<u>ru</u> -laa' =lù'
emp= H/happen =<u>still</u> -being =2SG
Do you still want (more)?

b. **Barcalaa'<u>ru</u>lù'**

This provides evidence that compound strings such as *arcalaasi'* do in fact form word-level units. Such evidence also supports the word status of other compound verbs such as *gwettsa'nàá'* 'get married' (from *gwettsa'* 'join' + *nàá'* 'hand'):

23. a. **Angwa intu' bettsa'<u>gwa</u>nàá'tù'.** {v24f}
angwa intu' bettsa' =<u>gwa</u> =nàá' =tù'
also us (EXCL) C/join =<u>also</u> =hand =1EXCLG
We also got married.

b. **Angwa intu' bettsa'nàá'<u>gwa</u>tu'.** {v24g}
angwa intu' bettsa' =nàá' =<u>gwa</u> =tu'
also us (EXCL) C/join =hand =<u>also</u> =1EXCLG
We also got married.

24. a. **Diiatù' gwettsa'<u>xia</u>nàá'.** {v32h}
diia =tù' gwettsa' =<u>xia</u> =nàá'
S/go =1EXCL N/join =<u>quickly</u> =hand
We are on our way to quickly get married.

b. **Diiatù' gwettsa'nàá'<u>xia</u>.** {v32i}
diia =tù' gwettsa' =nàá' =<u>xia</u>
S/go =1EXCL N/join =hand =<u>quickly</u>
We are on our way to quickly get married.

6.1.1.2 The Clitic Applicative *=ni*

As discussed in Section 3.1.6 and the previous chapter, MacZ has a prepositional/applicative clitic, *=ni*, which attaches to verbs. Unlike the adverbial clitics, its position is rather fixed. It always occurs at the end of the entire verb stem, including after any incorporated nominals.

The clitic *=ni*, a valency increasing morpheme, attaches to the end of the verbal head as illustrated below:

25. a. **Ruyhiia' béccú'nà'.** {mm'}
ruyhiia' béccú' =nà'
H/bark dog =DIST
That dog is barking.

b. **Ruyhiia'<u>ni</u> béccú'nà' ttu miiyhi.** {mm'}
ruyhiia' <u>=ni</u> béccú' =nà' ttu miiyhi
H/bark <u>=PREP</u> dog =DIST a cat
That dog is barking at a cat.

The clitic *=ni* appears at the end of the syntactic verbal head. When subjects and other arguments are encoded as pronominal clitics, they attach to the end of the syntactic verb, following *=ni*.[4]

26. **Béccú'nà' ruyhiia<u>in</u>nàcanà.**[5] {v65g}
béccú' =nà' ruyhiia' =ni =nà =ca =nà
dog =DIST H/bark =PREP =3 =PL =3A
That dog is barking at them.

The clitic *=ni* cannot follow arguments of the verb, whether they are clitic pronouns or independent words. Compare 27 below with 26 above and 28 with 25b:

27. a. ***Béccú'nà' ruyhiianà<u>ni</u>canà.** {mm'}

b. ***Béccú'nà' ruyhiianàcanà<u>ni</u>.** {mm'}
(*That dog is barking at them.*)

28. a. ***Ruyhiia' béccú'nà'<u>ni</u> ttu miiyhi.** {mm'}

b. ***Ruyhiia' béccú'nà' ttu miiyhi<u>ni</u>.** {mm'}
(*That dog is barking at a cat.*)

[4] Note that *=ni* does actually follow the plural morpheme *ca* of the subject; see Section 2.6.2.2.4.

[5] For a description of the phonological behavior of *=ni*, including the metathesis seen in this example, see section 2.6.2.2.

The =*ni* clitic does follow any material that occurs as part of the verbal head. So, for example, it follows various kinds of verbal suffixes (29a-b):

29. a. **Làànà gureesiya'ainnàntè'.** {v67d}
làànà gureesi -ya'a =ni =nà =ntè'
IND=3 C/cry -AGRES =PREP =3 =1A
C/yell
He yelled at me.

b. **¿Núúni àbíí guteeliini nu' rnniia'?** {v85j}
núúni àbíí gutee -lii =ni nu' rnnii =yà'
who neg C/pass -straight =PREP rel H/say =1s
C/understand
Who didn't understand what I said?

Likewise, it follows clitic adverbs, as shown below in 30a-c (the relevant clitic adverbs are underlined):

30. a. **¿Barlua'xiáinnà Felipeà' què' duusiinnà.** {ii114c}
ba= rlua' =xiá =ni =nà Felipe =à' què' duusi=ni =nà
EMP= H/look =maybe=PREP =3A Felipe =DIST of S/be.drunk=3A
Does Felipe maybe look drunk to her?

b. **Felipeà' rnneerubainnà Pedruà'.** {ii125d}
Felipe =à' rnnee =ru =ba =ni =nà Pedru =á
Felipe =DIST H/say =still =EMP =PREP =3N Pedro =INVIS
Felipe still calls Pedro.

c. **Teersabani Felipeà' belliu'.** {ii22i}
tee =rsa =ba =ni Felipe =à' belliu'
S/there.is=INT =EMP =PREP Felipe =DIST money
Felipe has a lot of money.

In verb-noun compounds, we find the same pattern. The prepositional =*ni* clitic attaches to the end of the entire verbal head, following both the verbal and nominal roots. This is illustrated below in 31 with *gunaabatiisa'ni* 'asked a question of' a compound verb taken a nominative subject:

31. **¿Núúni gunaabatiisa'ni Felipeà' la'unnà'?** {v134c}
núúni gunaaba -tiisa' =ni Felipe =à' la'unnà'
who C/request -word =PREP Felipe =DIST that
C/ask(a question)
Who asked Felipe that?

This is also true of genitive subject verbs indicating that the noun has been incorporated and is part of the syntactic verbal head. (Note that the presence of *=ni* interferes with genitive case assignment; the subject receives a default nominative case. This is the only instance in which genitive subject verbs exhibit nominative case marking.)

32. a. **Obíí taa' retthiloonlù'.** {v264a}
o- bíí taa' retthi -loo =ni =lù'
I.don't.know- what FOC H/? -face =PREP =2N
I don't know what you were thinking/what was going on inside your head.

b. **Lààcanà gutittsa'nàá'cainnà riu'.**[6] {v233a}
làà=ca=nà gutittsa' -nàá' =ca =ni =nà riu'
IND=PL=3 C/snap -hand =PL =PREP =3N 1INCLA
They snapped their fingers at us.

Genitive subject verbs always contain an inalienable noun root which has been incorporated into the verbal head. As we have seen, this syntactic structure is supported by evidence from bound verbal roots, lack of nominal modification, clitic adverb placement, and *=ni* applicative placement. In addition, the genitive argument licensed by (or assigned case by) the nominal head surfaces as the grammatical subject of the clause. This fact is supported by our subject diagnostics; genitive subjects exhibit a full range of grammatical subject properties, as discussed below.

[6] This example is interesting in that we normally have a genitive subject, *=canì*, with the incorporated noun.

6.1.2 Genitive Subject Evidence

Genitive subjects like those in 1-3, repeated below, exhibit a full range of syntactic subject properties:

1. **Bettsa'nàá' Felipeá.**
   bettsa'-nàá' Felipe =á
   C/join-hand Felipe =INVIS
   C/get.married
   Felipe got married.

2. **Rutthalaasi' béccú'à' què' lagóó.**
   ruttha-laasi' béccú' =à' què' lagóó
   H/think-body dog =DIST of food
   That dog is thinking about food.

3. **Ribiisilaasi' ca untosaa.**
   ribiisi-laasi' ca unto -saa
   H/dry-body PL child -DIMPL
   H/be.thirsty
   The children are thirsty.

Although they lack nominative coding properties, genitive subjects possess a variety of behavioral subject properties, passing all such applicable subject diagnostics. They show the same word order restrictions as nominative subjects and behave the same with respect to imperatives, non-finite verb forms, Covert Subject Binding and movement. These diagnostics support the identification of the genitive arguments in 1-3 as being syntactic subjects. The application of these diagnostics is discussed in detail below.

6.1.2.1 Word Order

Genitive subjects show the same word order restrictions as the nominative subjects discussed in Section 4.2.3. No other arguments, nor any phonologically

independent words for that matter, can intervene between the genitive subject and the verb, as shown below in 33-35 (cf. 33 to 2 above).

33. ***Rutthalaasi' què' lagóó <u>béccú'à'</u>.** {mm'}
(*That dog is thinking about food.*)

34. a. **Arcalaasi' <u>Felipeà'</u> ttu carru.** {mm'}
arcalaasi' Felipe =à' ttu carru
H/want Felipe =DIST a car
Felipe wants a car.

b. ***Arcalaasi' ttu carru <u>Felipeà'</u>.** {mm'}

35. a. **Rulaasi'<u>yà'</u> béccú'à'.** {mm'}
rulaasi' =ya' béccú' =à'
H/like =1SG dog =DIST
I like that dog.

b. ***Rulaasi' béccú'à'<u>yà'</u>.** {mm'}

If the genitive arguments represented objects, we would not expect this restriction. As we saw in our discussion of *=ni* arguments (section 5.2.3.1), objects can be freely reordered with respect to one another. Thus, this restriction on word order exhibited in 33-35 is consistent with the genitive arguments representing subjects.

6.1.2.2 Imperatives

A second subject diagnostic is provided by imperatives. As discussed in Section 4.2.4, second singular informal subjects are omitted in positive imperatives. If the subject is omitted in positive imperatives, it provides good evidence that the omitted argument is occupying the subject position. Failure to delete an argument does not conclusively prove it is not the subject. But such a failure, of course, is consistent with a non-subject status.

The imperative diagnostic is, of course, limited to volitional contexts in which the subject referent has some control over the event denoted by the verb. Imperatives are only semantically compatible with volitional predicates. This does significantly restrict the number of genitive subject verbs to which this test can be applied since many such verbs are non-volitional including, for example, *rulaasi'* 'likes,' *arcalaasi'* 'wants,' and *ribiisilaasi'* 'is thirsty'. However, a few volitional verbs do take genitive subjects and can be tested with the imperative diagnostic. They can occur in imperative contexts, as seen below in 36 (the omitted genitive subject is indicated by an underscore):

36. a. **Betthalaasi'___ chà'.** {v28a}
betthalaasi' chà'
C/think of/1SG
Think about me.

b. **Bettsa'nàá'___ lààntè'.** {v21f}
bettsa'nàá' lààní =ntè'
C/get.married with =1SA
Marry me.

Each of the verbs in 36 has a genitive subject which, as we can see, is omitted in imperative contexts. *Betthalaasi'* contains the *laasi'* 'being' nominal while *bettsa'nàá'* 'got married' is a compound of *bettsa'* 'joined' and *nàá'* 'hand.' These examples establish that genitive subjects, although marked with genitive case, can behave just as other subjects of volitional predicates do when in imperative contexts. This provides positive evidence that the genitive arguments of genitive subject verbs are in fact subjects. Genitive subjects are associated with [Spec,TP] and can therefore be omitted in the imperatives of

volitional predicates. Similar results obtain with the non-finite verb forms as discussed below.

6.1.2.3 Non-Finite Verbs

Another subject diagnostic is provided by the non-finite form of MacZ verbs. MacZ has a non-finite verbal form which functions something like an infinitive (see Section 3.1.1.6 and 4.2.5). Like non-finite verbal forms in many languages, the ones in MacZ do not license an external argument; they cannot have overt syntactic subjects. This predicts then that if the genitive subjects are syntactic subjects, they should not be compatible with non-finite verb forms. An overt genitive subject should be impossible with non-finite verbs. As expected, this holds of genitive subjects.

The non-finite form of a verb in MacZ, which is typically indicated by the prefix *gw-*, cannot license an external argument and therefore does not have an overt subject. The semantic subject instead must be computed based on some higher, controlling subject of the containing clause. An example with an omitted nominative subject is given below in 37 (again an underscore following the non-finite verb marks the position in which the subject of that verb would appear if the verb were finite):

37. **Diia'yà' gwediia____ ttu carta.** {v21j}
diia' =yà' gwediia ttu carta
S/go =1s N/write a letter
I'm on my way to write a letter.

Attempting to express the subject of the non-finite form of the verb results in ungrammaticality, as shown below:

38. **Diia'yà' gwediia(*yà') ttu carta.** {mm}

The inability of the *gw-* non-finite verb to license a subject extends to genitive subject verbs. Even though their subjects are marked with genitive case instead of nominative, they cannot be overt when the verbs occur in non-finite form. For example, the verbs *ruttsa'nàá'* 'gets married' and *rutthalaasi'* 'thinks' each take genitive subjects licensed by *nàá'* 'hand' and *laasi'* 'being' respectively. However, when these verbs appear in the non-finite form, their genitive subjects are omitted. Leaving the subject overt results in ungrammaticality, just as with nominative subjects:

39. a. **Gwíácayé Debiinà gwettsa'nàá'.** {Wedding Story.3}
gwíá =ca =yé Debiinà gwèttsà' -nàá'
C/go.to =PL =3F Luvina N/join -hand
N/get.married
They had gone to Luvina to marry.

b. **Làànà diia'nà gwettsa'nàá'(*nì).** {v21c}
làà=nà diia' =nà gwettsa'nàá' (*=nì)
IND=3 S/go =3 N/get.married (*=3G)
He's on his way to get married.

40. **Gwetthalaasi'(*yà') chò' reenyà'.** {v28c}
gwetthalaasi' (*=yà') chò' reeni =yà'
N/think (*=1SG) of/2SG H/be(PROG) =1S
I'm thinking about you.

This evidence supports the conclusion that these verbs have genitive subjects. Furthermore, it shows that *gw-* forms of verbs force the omission of the subject, no matter the case of the subject, whether nominative or some other case such as genitive.

Recall, however, that like the imperative test, the non-finite verb diagnostic is limited in scope. It too can only apply to verbs with volitional subjects. Not all verbs have a non-finite verb form. The only ones that do are those that have volitional subjects (project a vP). Thus, while this diagnostic supports the subjecthood of the genitive

argument of verbs like *ruttsa'nàá'* 'gets married' and *rutthalaasi'* 'thinks', it cannot be applied to non-volitional subject verbs like *rulaasi'* 'likes' and *ribiisi'laasi'* 'is thirsty'. The subjecthood of the genitive argument of these verbs is supported, however, by other diagnostics such as Covert Subject Binding (Section 6.1.2.4) and movement (Section 6.1.2.5) discussed below.

6.1.2.4 Covert Subject Binding

Genitive subjects, like nominative subjects, also participate in Covert Subject Binding (CSB). As discussed in Section 4.2.6, subjects, but no other arguments, may be rendered null by CSB, an unusual backward binding construction in which the interpretation of a null subject is controlled by the possessor of some lower argument. This is schematized below in 41 with an example in 42.

41. Verb $\varnothing_i$ … [$_{DP}$ N… Possessor$_i$ …] …

42. **Reyuuni~~nà~~$_i$ carru què'nì$_i$á**
reyuuni =~~nà~~ carru què' =nì =á
H/repair =~~3~~ car of =3G =INVIS
He$_i$ is fixing his$_i$ car.

Since this construction only licenses null subjects, it provides a diagnostic for subjecthood. If an argument can be null under coreference with a following possessor, then it must be a subject.

As expected, genitive subjects do participate in CSB. As shown below in 43-46, the genitive argument of a *laasi'* verb may be null when it is coreferential with the possessor of a following DP (the covert subject is indicated by an underscore).

43. **Rennalaasi' ___ luesi'canì** {mm}
rennalaasi' luesi' =ca =nì
H/remember ANAPH =PL =3G
They remember each other.

44. **Rutthalaasi' ___ què' siina chà'á.** {mm}
rutthalaaasi' què' siina chà' =á
H/think of work of/1SG =INVIS
I'm thinking about my work.

45. **Rulaasi' ___ ca béccú' què' luesicanì.** { v184e}
rulaasi' ca béccú' què' luesi =ca =nì
H/like PL dog of ANAPH =PL =3G
They like each other's dogs.

46. **Felipeá arcalaasi' ___ cambiu què'nìá.** {mm}
Felipe =á arcalaasi' cambiu què' =nì =á
Felipe =INVIS H/want chang of =3G =INVIS
Felipe$_i$ wants his$_i$ change.

Since only null subjects are the only null arguments licensed by CSB, this provides strong evidence that the arguments we have identified as genitive subjects are in fact syntactic subjects.

Interestingly, CSB appears superficially similar to genitive subject verbs, and the former may be the historical source for the latter. CSB clauses minimally contain a verb, noun and genitive DP as is found in 43, for example. CSB clauses and genitive structure verbs, however, are structurally distinct. This will be explored in Section 6.2.

6.1.2.5 Movement

Movement provides another subject diagnostic property which helps us establish that verbs with incorporation of inalienable noun roots have syntactic genitive subjects. As discussed in Chapter 4, indefinite subjects of various types are fronted to a pre-verbal position with an **optional** resumptive pronoun appearing postverbally. If

compound/incorporated verbs have grammatical genitive subjects, then the subjects should exhibit the same behavior with respect to movement as more prototypical nominative subjects do. In particular, it should be possible to move them to a preverbal position, via *wh*-movement for example, without always requiring a resumptive pronoun. This is exactly the pattern that we find for compound/incorporated verbal genitive subjects

There are three types of relevant movement of arguments which can be used in investigating genitive subjects: *wh*-movement, relativization, and overt quantifier raising, represented here by negative indefinite pronouns. All three function identically in terms of diagnosing subjects. The subject of the appropriate type—*wh*-word, relative pronoun, or negative indefinite pronoun—is obligatorily fronted before the verb, often with the addition of an optional resumptive pronoun occurring in the postverbal argument position. This is illustrated below in 47-49 (the fronted subjects are underlined, and the optional resumptive pronouns are in parentheses):

***wh*-movment:**

47. **¿<u>Núúní</u> gucchu(nà) ittsicchalù'?** {d84c/d}
núú =ní gucchu (=nà) ittsa-icchá =lù'
who =COMP C/cut (=3) hair-head =2s
Who cut your hair?

rel-pronoun movement:

48. **Nabiia'tè' bènnè' <u>nu'</u> gucchu(nà) ittsicchálù'.** {d84f'}
nabiia'=ni =tè' bènnè' (nu') gucchu (=nà) ittsa-icchá =lù'
S/know=PREP =1SA person (REL) C/cut (=3) hair-head =2SG
I know the person who cut your hair.

neg-indef movement:

49. **<u>Ànúúdi</u> gucchu(nà) ittsicchá**yà'. {d84e'}
ànúúdi gucchu (=nà) ittsa-icchá =yà'
nobody C/cut (=3) hair-head =1SG
Nobody cut my hair.

Recall from Chapter 4 that there are two cases in which the subject resumptive pronouns are required and which should be briefly mentioned. The first case involves instances in which the object of a transitive verb is also encoded by a clitic pronoun. When that occurs, the subject resumptive clitic is required, as shown below:

50. **¿<u>Núúní</u> gucchu*(nà)nà?** {mm'}
núú =ní gucchu *(=nà) =nà
who =COMP C/cut *(=3) =3A
Who cut it?

The second case in which the resumptive subject pronouns are required is to resolve potential ambiguity (see Section 4.2.7 for a discussion). Due to MacZ's impoverished case-marking, it would frequently not be possible to tell if a moved argument represented a subject, an object or some other argument. For example, in the sequence *wh*-word Verb DP, is the *wh*-word a raised subject from immediately after the verb or an object from after the DP? MacZ resolves this ambiguity by consistently interpreting the first DP following the verb as the subject so long as that DP fulfills the selectional restrictions on the subject. Thus, in 51 for example, only *Felipeà'* 'Felipe' can be interpreted as the subject, although both *núúní* 'who?' and *Felipeà'* 'Felipe' both fulfill the selectional restrictions for the subject of *begwiia'* 'look at' and neither possesses case-marking to distinguish their grammatical relations. *Felipeà'* is interpreted as the subject because it is the first satisfactory DP following the verb.

51. **¿Núúní begwiia' Felipeà'?** {v144g}
núú =ní begwiia' Felipe =à'
who =COMP C/look.at Felipe =DIST
Who did Felipe see?
**Who saw Felipe?*

In order to get the other interpretation with *núúní* as the subject, a resumptive pronoun in the subject position must be used. The *wh*-word is then linked with a DP immediately following the verb which occupies the surface subject position and will be interpreted accordingly:

52. **¿Núúní begwiia'nà Felipeà'.** {v144f}
núú =ní begwiia' =nà Felipe =à'
who =COMP C/look.at =3 Felipe =DIST
Who saw Felipe?
**Who did Felipe see?*

Thus, when a subject undergoes movement which could result in ambiguity, a resumptive pronoun in subject position is required.[7] If the DP immediately following the verb does not fulfill the selectional restrictions for the subject, then the parser may look elsewhere in the clause—such as at to a preverbal position—for a subject and no resumptive pronoun is required. These restrictions hold for the other types of movement as well.

Now that we have reviewed the basics of movement, we can begin to consider each type individually and apply it to the genitive subject data. Since subjects may be moved without needing a resumptive pronoun (barring certain exceptions discussed in Chapter 4 and below), then the genitives subjects should allow movement without resumptives if they are subjects.

[7] Interestingly, the resumptive is blocked for objects though. This is discussed more in Section 4.2.7.

6.1.2.5.1 Wh-Movement

As noted above, MacZ has *wh*-movement whereby *wh*-words are moved to a preverbal position, typically at the beginning of the clause. When a subject nominal is involved in *wh*-movement, a resumptive pronoun is optionally placed in the surface subject position immediately following the verb. This is illustrated below in 53:

53. **¿Núúní gucchu(nà) ittsicchalù'?** {d84c/d}
núú =ní gucchu (=nà) ittsa-icchá =lù'
who =COMP C/cut (=3) hair-head =2s
Who cut your hair?

This also holds of genitive subjects. The subjects of these verbs can undergo *wh*-movement without requiring a resumptive pronoun (though one may be used). This is exemplified below in 54 (recall that the genitive form of the pronoun is *=nì* instead of the nominative *=nà*):

54. a. **¿Núúní bettsa'nàá'(nì)?** {v30d'}
núú =ní bettsa' -nàá' (=nì)
who =COMP C/join -hand (=3G)
C/get.married
Who got married?

b. **¿Núúní ribiisilaasi'(nì)?** {v146c/e}
núú =ní ribiisi-laasi' (=nì)
who =COMP H/be.dry-being (=3G)
H/be.thirsty
Who is thirsty?

c. **¿Núúní arcalaasi'(nì) etta?** {v284c}
núú =ní arca-laasi' (=nì) etta
who =COMP H/happen-being (=3G) tortilla
H/want
Who wants tortillas?

This indicates that genitive subjects behave just as nominative subjects do with respect to *wh*-movement. Neither the genitive case of the subject nor any other factor about being the subject of a verb with an incorporated noun interferes with *wh*-movement or requires an overt resumptive subject pronoun. The genitive subject allows, but does not generally require, a resumptive pronoun with movement.

As with nominative subjects, resumptive genitive subject pronouns are required to avoid ambiguity, as illustrated below in 55. To keep *bettsí'yà'ni* 'my brother' from being interpreted as the subject in 55a, a resumptive subject pronoun coindexed with the intended subject *núúní* 'who', must be overtly realized after the verb. Failure to do so results in the interpretation in 55b.[8]

55. a. **¿Núúní rulaasi'*(nì) bettsí'yà'ni?**
núú =ní rulaasi' =nì bettsí' =ya' =ni
who =COMP H/like =3G brother.of.a.man =1SG =PROX
Who likes my brother?

b. **¿Núúní rulaasi'(*nì) bettsí'yà'ni?**
Who does my brother like?

With respect to *wh*-movement, genitive subjects exhibit the same behavioral properties as nominative subjects. This suggests that genitive subjects, too, are associated with [Spec,TP] where they check the EPP features of T° and are marked as the grammatical subject. Other types of movement lead to the same conclusion as seen below.

[8] It is unclear if a resumptive subject pronoun is required with a following object clitic pronoun if the referent of the latter can be disambiguated based on context. Further investigation of this point is needed.

6.1.2.5.2 Relativization

The relativization subject diagnostic works exactly like the *wh*-diagnostic and reveals the same facts about genitive subjects. It, too, supports the grammatical subject status of the genitive subjects.

MacZ's relative clause formation is consistent with its head-initial, VSO word order typology. The head noun precedes the modifying clauses which are introduced by relative pronouns, although under certain circumstances these may be omitted. The argument role of the relativized phrase is indicated by a gap in the relative clause. For subjects, that gap immediately follows the verb. This gap may sometimes be filled by a resumptive pronoun and is obligatorily so for subjects under the two restrictions on movement already mentioned: when the subject gap is followed by a clitic pronoun or by an ambiguous object which could fulfill the selectional restrictions on the subject. Apart from these two exceptions, a subject relative pronoun (usually *nu'* for animate and inanimate DPs) can be moved to front of the relative clause without requiring a resumptive pronoun as shown below (gapped subjects are indicated by an underline or by resumptive pronouns in parentheses):[9]

56. **Nabiiatè' nu' gutoo(nà) iyaate' ca etta.** {v209j}/{vi3f}
nabiia'=ni nu' gutoo (=nà) iyaate' ca etta
S/know=PREP rel C/eat (=3) all pl tortilla
I know the one who ate all the tortillas.

Subjects behave the same under relativization as they do under *wh*-movement. A relative pronoun corresponding to the subject appears at the beginning of the relative clause and

[9] See Section 4.2.7 for additional examples and further discussion.

either a corresponding resumptive pronoun or gap may appear in the post-verbal subject position.

The genitive subjects behave just in this fashion, like regular nominative (and dative) subjects. The genitive subject resumptive pronoun is optional (except for the two restrictions on all movement previously mentioned). This is exemplified below:

57. a. **Nabiia'tè' beyùú' nu' guttsa'nàá'(nì)á.** {v30j}/{vi3f}
nabiia'=ni =ntè' beyùú' nu' guttsa'nàá' (=nì) =á
S/know=PREP =1SA man rel P/get.married (=3G) =INVIS
I know the man who will get married.

b. **Gweeyà' inda ca bennè' ribiisilaasi'(canì).** {v284d'}
gwee =yà' inda ca bennè' ribiisi-laasi' (=ca =nì)
P/give =1S water PL person H/be.dry-body (=PL =3G)
I will give water to the people who are thirsty.

These genitive subjects behave just like the nominative subjects in 56 with respect to relativization. The resumptive pronoun is not required to fill the subject gap of the relative clause. They do not behave like relativized possessors, which always require the resumptive pronoun, as seen in the examples below:

58. a. **Ìntè' begwiia'yà' niula nu' gucchulù' ittsicchá*(nì)á.** {d84a}
ìntè' begwiia' =yà' niula nu' gucchu =lù' ittsa-iccha =nì =á
me C/look.at =1S woman REL C/cut =2S hair-head =3G =INVIS
I saw the woman whose hair you cut.
lit. *I saw the woman who$_i$ you cut her$_i$ hair.*

b. **Ìntè' nabiiatè' bennè' beyuunlù' carru què'*(yé)á.** {d83f}
ìntè' nabiia'=ni =ntè' bennè' beyuuni =lù' carru què' =yé =á
me S/know =1SA person C/repair =2S car of =3F =INVIS
I know the person whose car you fixed.
lit. *I know the person who$_i$ you fixed their$_i$ car.*

Although they have genitive case, the genitive arguments of the compound verbs in 57 behave not like possessors, but like subjects with respect to relativization. They do not require a subject resumptive pronoun, but do optionally allow one under relativization.

6.1.2.5.3 Quantificational Movement

Genitive subjects also behave like nominative subjects with respect to the movement of indefinite quantified DPs. Such DPs can undergo movement to a preverbal position, possibly for scope reasons. As is the case with *wh*-movement and relativization, a resumptive clitic pronoun may mark the underlying post-verbal argument position of the quantified DP, but this resumptive is not generally required. This is unlike the case of definite DPs and topicalization in which a co-indexed pronoun is always required. Recall, of course, that a subject resumptive pronoun can be required with all types of movement if the post-verbal subject position is followed by a clitic pronoun or by a DP which could be interpreted as the subject.

This movement is usually optional, though with the negative indefinite pronouns, such as *ànúúdi* 'nobody' and *àbíídi* 'nothing,' the movement is obligatory; these words must raise to a pre-verbal position. Since we are interested in testing genitive subjects with respect to movement, the quantificational movement data presented here will focus on negative indefinite fronting, as movement is obligatory. This allows the test to be more broadly applicable, since confounding factors which might block or impede optional quantificational movement are not relevant. However, it should be kept in mind that the negative indefinite data provided is representative of a larger set of quantified movement data.

To evaluate the subject properties of genitive subjects, we must first review how incontrovertible subjects behave with respect to negative indefinite fronting. Like cases involving *wh*-movement and relativization, negative indefinite pronoun subjects are obligatorily moved to a preverbal position. A resumptive pronoun may fill the post-verbal subject position, but crucially, one is not generally required. This is illustrated below in 59 (the post-verbal subject position is indicated by a resumptive pronoun in parentheses):

59. **Ànúúdi gucchu(nà) ittsiccháyà'.** {d84e}/{vi10e}
ànúúdi gucchu (=nà) ittsa-icchá =yà'
nobody C/cut (=3) hair-head =1SG
Nobody cut my hair.

Not only do nominative subjects like those in 59 exhibit this pattern, but so do genitive subjects. They, too, undergo negative indefinite fronting without requiring a resumptive subject pronoun, as shown below:

60. a. **Ànúúdi bettsa'nàá'(nì).** {v30e}/{vi10j}
ànúúdi bettsa'- -nàá' (=nì)
nobody C/join- -hand (=3G)
C/get.married
Nobody got married.

b. **Ànúúdi rutthalaasi'(nì) chà'.** {v285a/b}
ànúúdi ruttha-laasi' (=nì) chà'
nobody H/think-being (=3G) of/1SG
Nobody thinks about me.

c. **Ànúúdi arcalaasi'(nì) indiayi'.** {v271f}/{vi10k}
ànúúdi arca-laasi' (=nì) indiayi'
nobody H/happen-being (=3G) atole
Nobody wants atole.

The subject pronouns in 60 receive genitive case, indicated by the presence of *=nì* instead of *=nà*, presumably assigned by (their relationship with) the incorporated nouns,

nàá' 'hand' in 60a and *laasi'* 'being' in 60b-c. Despite this, they do not behave like possessors, which require pied-piping along with negative indefinite fronting (Note that the negative indefinite possessor has been raised to the beginning of the pied-piped constituent):

61. a. **Ànúúdi ittsicchá què' gucchuyà'.** {d83h}
ànúúdi ittsa-iccha què' gucchu =yà'
nobody hair-head of C/cut =1s
I didn't cut anybody's hair.

b. **Ànúúdi xnáá gwayuulaasi'cayé guttsa'nàá'lù' lààní yhi'nicayé.** {vi11d}
ànúúdi x-náá gwayuulaasi' =ca =yé guttsa'nàá' =lù'
nobody POSS-mother I/like =PL =3FG P/get.married =2SG
lààní yhi'ni =ca =yé
with child =PL =3F
Nobody's mother would like for you to marry their daughter.

The genitive arguments in 60 behave not like the possessors in 61 but like subjects with respect to negative indefinite fronting. They allow movement without pied-piping of the nominal and do not generally require a resumptive pronoun.

Of course, the resumptive pronoun is required in the two environments in which subject resumptives are always required. When the object is a clitic pronoun, a resumptive genitive subject pronoun is required as seen in 62 below. Likewise, a resumptive pronoun must also be used to avoid having an object parsed as the subject as illustrated by the sentences in 63.

62. **Ànúúdi arcalaasi'*(nì)nà.** {mm}
ànúúdi arcalaasi' *(=nì) =nà
nobody H/want *(=3G) =3A
Nobody wants it.

63. a. **Ànúúdi rulaasi'*(nì) bettsí'yà'ni.** {mm}
ànúúdi rulaasi' =nì bettsí' =ya' =ni
nobody H/like =3G brother.of.a.man =1SG =PROX
Nobody likes my brother.

b. **Ànúúdi rulaasi'(*nì) bettsí'yà'ni.** {mm}
My brother doesn't like anybody.

The distribution of resumptive genitive subject pronouns provides strong evidence that MacZ has genitive subjects.

6.1.3 Summary of Genitive Subject Properties

We have now seen convincing evidence that verbs with an incorporated inalienable noun root license a genitive argument which is realized as the grammatical subjects of their clauses. The subjecthood of the genitive argument is supported by its behavior with respect to syntactic subject diagnostics. Apart from their genitive case-marking, such subjects exhibit the full range of syntactic subject properties associated with nominative (and dative subjects). These properties are summarized below in Table 6-1:

	Nominative Subjects	**Dative Subjects**	**Genitive Subjects**
word order	VSO/*VOS	VSO/*VOS	VSO/*VOS
imperative subject	optional	optional	optional
non-finite subject	*subject	N/A	*subject
Covert Subject Binding	available	available	available
resumptives & movement			
wh-*movement*	optional/required	optional/required	optional/required
relativization	optional/required	optional/required	optional/required
overt quantifier raising	optional/required	optional/required	optional/required

Table 6-1 Subject Properties of Genitive Subjects

Like nominative and dative subjects, postverbal genitive subjects cannot be separated from the verb but must always immediately follow it. Nominative, dative and

genitive subjects can all be omitted in imperatives, and neither nominative nor genitive subjects can appear with non-finite verb forms (no dative subject verbs have a non-finite form). Nominative, dative and genitive subject resumptive pronouns are generally optional except when an object is also a clitic pronoun or when an object might be interpreted as the subject. In those cases, the resumptive pronoun is required.

The genitive arguments of verb-noun complexes are marked as the grammatical subject by the same mechanism as nominative and dative subjects discussed in Chapters 4 and 5. They undergo (covert) movement to [Spec,TP] where they check the EPP features associated with T°. They also satisfy any nominative case features associated with this position in the same way that dative subjects do (as discussed in Section 5.3.4). In this position, the genitive argument can then exhibit the full range of syntactic properties associated with grammatical subjects.

Now, we can consider another construction in MacZ, Covert Subject Binding, which, at first glance, appears to represent the same phenomena of nominal incorporation and promotion of a genitive argument to subject. Despite initial appearances, however, Covert Subject Binding represents a distinct structure; it lacks an overt subject and the genitive DP that appears in such clauses remains a syntactic possessor. In the next section, I explore the structure of this unusual construction.

6.2 Covert Subject Binding

MacZ has a structurally distinct construction, Covert Subject Binding (CSB), which initially seems to be the same as genitive subject verbs: CSB minimally consists of a verb, noun and genitive DP like the example in 64 below.

64. **Gutii ca nàá'nì.**
gutii ca nàá' =nì
C/wash PL hand =3G
He$_i$ washed his$_i$ hands.

As we will see in this section, however, CSB clauses have an unusual structure that is quite distinct from genitive subject verbs. They lack an overt subject and the genitive argument surfaces structurally as a syntactic possessor, showing no grammatical subject properties.

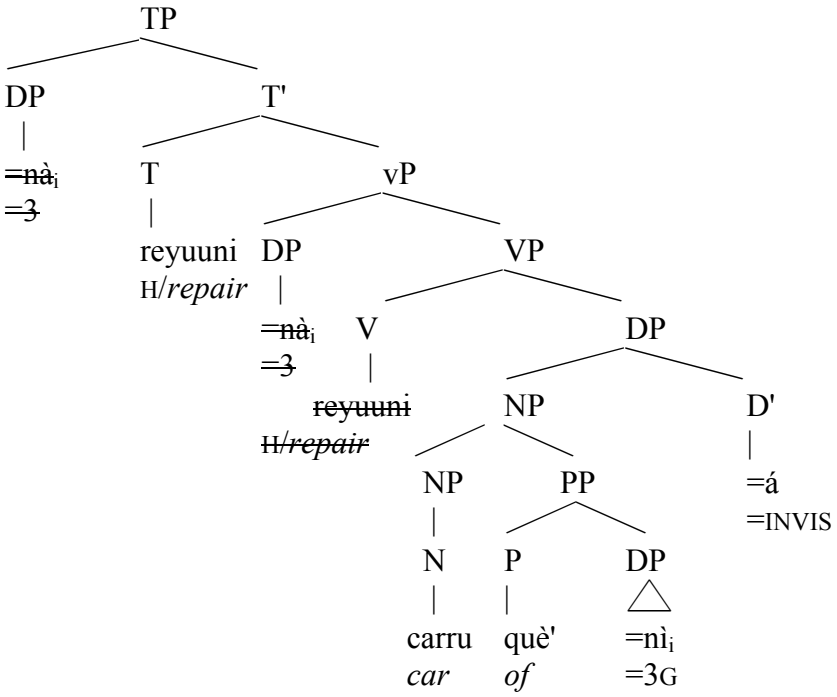
In CSB, an obligatory backward binding interpretation holds between a covert subject and the possessor of some following non-subject argument.[10] In a schematic sequence like that in 65a, the syntactic subject (nominative, dative or genitive) can be covert as in 65b. Thus, the interpretation of the covert subject depends on the following, structurally inferior possessor. This is represented in the example in 66 with the syntactic structure in 67:

65. a. Verb Subject$_i$ … [$_{DP}$ N… Possessor$_i$ …] …
b. Verb ∅$_i$ … [$_{DP}$ N… Possessor$_i$ …] …

66. **Reyuuni~~nà~~$_i$ carru què'nì$_i$á**
reyuuni =~~nà~~ carru què' =nì =á
H/repair =~~3~~ car of =3G =INVIS
He$_i$ is fixing his$_i$ car.

[10] There are some cases in which the subject interpretation may be controlled by a non-possessor. These cases are less certain though, so we will focus on the prototypical instances involving possessors.

67.



Reyuuni ___ carru què'nìá.
He$_i$ is repairing his$_i$ car.

This is a typologically very unusual construction. Typically, arguments controlling the interpretation of some bound element must either c-command the bound element or at least precede it (at some point in the derivation), usually both. In surveying subject properties crosslinguistically, Keenan (1976) observes that (basic) subjects "cannot be made to depend on the reference of other NPs which follow it. [I]f two NPs in a b[asic]-sentence are to be stipulated as being the same in reference it will either be the non-subject which gets marked (perhaps deleted) or the rightmost NP" and concludes that "autonomous reference is plausibly a universal necessary condition on b[asic]-subjecthood" (p. 313-4). The Zapotec CSB construction apparently violates both of these observed patterns. It is the subject, not a non-subject, which is marked (deleted in this case) and the interpretation of the subject depends on a DP which follows it. The

genitive DP is embedded inside the possessed DP and therefore cannot c-command the subject position. And since objects strictly follow subjects in MacZ (see Section 4.2.3), it does not even precede the subject position.

As this is such an unusual construction, it is important to be certain that the structure I have given in 67 is essentially correct and that this is not actually derived from some other means which places the CSB genitive in a c-commanding position. For example, it will be important to show that CSB, while similar in appearance to genitive subject verbs, does not derive via incorporation of the nominal. To establish the structure in 67 then, I will first show in Section 6.2.2 that CSB does not involve incorporation of the possessed nominals and is thus distinct from genitive subject verbs. In Section 6.2.3, I provide evidence that the genitive argument overtly appears as a syntactic possessor, rather than as the grammatical subject. In Section 6.2.4, I established that the possessed DP in CSB is some non-subject constituent. Finally, in Section 6.2.5, I pursue an LF movement account of CSB in the spirit of Polinsky and Potsdam's (2001, 2002) analysis of backward control.

Before considering the syntactic structure of CSB, however, I first want to consider some more of its basic properties.

6.2.1 Basic Properties of Covert Subject Binding

Although Covert Subject Binding (CSB) is typologically highly unusual, it is rampant throughout the Zapotec languages. It was first noted in Butler 1976 for Yatzachi Zapotec, a Northern Zapotec language like MacZ. Subsequently, Black (2000) provides a detailed treatment of this construction in Quiegolani Zapotec, a Southern language. She

also provides a survey of this construction in other varieties, providing additional Yatzachi evidence and also examples from Atepec Zapotec, the variety most closely related to MacZ. In addition, this unusual construction has been observed in Yalálag Zapotec (Avelino 2004) and Zoogocho Zapotec (Sonnenschein 2004), two other Northern (Villa Alta) languages more closely related to Yatzachi. Finally, CSB has also been attested historically in Colonial Valley Zapotec (Avelino, et al. 2004).

6.2.1.1 Covert Subjects

In MacZ CSB clauses like 68a, there is no overt indication of the syntactic subject, as indicated by the underline (cf. 68b where the subject is overtly expressed). Instead, the subject argument must be recovered from the following genitive pronoun, *=nì*–the third person genitive clitic embedded inside the direct object DP *carru què'nià'* 'his car'.

68. a. **Reyuuni___ carru què'nià'.**
reyuuni carru què' =nì =à'
H/repair car of =3G =DIST
He$_i$ is repairing his$_i$ car.

b. **Reyuuin<u>nà</u> ttu carru.**
reyuuni =nà ttu carru
H/repair =3 one car
He is repairing a car.

In MacZ, there is not any subject-verb agreement (see Section 4.2). Furthermore, as observed in Black 2000, the Zapotec languages exhibiting CSB, including MacZ (see Section 4.2.2), are not *pro*-drop languages. Subjects cannot be freely omitted, but are overtly realized either with full DPs or by bound clitic pronouns, excepting certain specific syntactic configurations (such as in imperatives and the CSB currently under

discussion). So, omitting the subject in 68b where there is no coreference leads to ungrammaticality:

69. ***Reyuuni___ ttu carru.**

Conversely, an overt subject may be added in 68a, but in doing so, the obligatory coreference is lost. The sentence becomes ambiguous between the coreferential and disjoint readings:

70. **Reyuuin<u>nà</u> carru què'nìà'.**
reyuuni =nà carru què' =nì =à'
H/repair =3 car of =3G =DIST
He$_i$ is repairing his$_{i/j}$ car.

CSB is not restricted to third person covert subjects but also occurs with first and second person subjects as illustrated below in 71 and 72 (the (a) examples provide CSB clauses, while the (b) examples give corresponding non-CSB clauses with an overt subject):

71. a. **Gulitthati' ni'accwà' què'ní edíiga___ ca *llave* chà'ná.** {iv81e}
gulittha =ti' ni'a =ccwà' què'ní edíiga ca *llave* chà' =ná
C/lift =please foot =2FG comp R/pick.up pl key of/1SG =INVIS
Please lift your foot so I can retrieve my keys.

b. **Gulitthati' ni'accwà' què'ní edíiga<u>yà'</u> ca *llave* què' Pánfilanà'.** {iv81f}
gulittha =ti' ni'a =ccwà' què'ní edíiga =yà' ca *llave* què' Pánfila =nà'
C/lift =please foot =2FG comp R/pick.up =1s pl key of Pánfila =DIST
Please lift your foot so I can retrieve Pánfila's keys.

72. a. **¿Beyuuni___ carru cho'á?**
beyuunicarru cho' =á
C/repaircar of/2SG=INVIS
Did you fix your car?

b. **¿Beyuun<u>lù'</u> carru què'nìá?**
beyuuni =lù' carru què' =nì =á
C/repair <u>=2s</u> car of =3G =INVIS
Did you fix his car?

In 71a, the subject of *edíiga* 'pick up' is not overtly realized. Instead, the subject argument must be recovered from the possessor contained inside the direct object *ca llave chà'ná* 'my keys.' Likewise, in 72a, the subject is inferred from the possessor *cho'* 'your.' Thus, we can see that the CSB is not restricted to third person subjects, but applies to first and second person subjects as well.

As with the third person subjects in CSB environments, first and second person subjects may also be overtly realized, as illustrated in 73. Of course, this does not result in the ambiguity found with overt third person subjects like 70.

73. a. **Gulitthati' ni'accwà' què'ní edíigayà' ca *llave* chà'á.**
gulittha =ti' ni'a =ccwà' què'ní edíiga =yà' ca *llave* chà' =á
C/lift =please foot =2FG comp R/pick.up =1s pl key of/1SG =INVIS
Please lift your foot so I can retrieve my keys.

b. **¿Beyuunlù' carru cho'á?**
beyuuni =lù' carru cho' =á
C/repair =2s car of/2SG =INVIS
Did you fix your car?

The sentences in 73 do not seem to be degraded or marked with respect to their counterparts in 71a and 72a, and my consultants did not feel that they differed from the covert subject sentences in terms of semantic content or pragmatic use. The only difference to note was that 73b with an overt subject avoids the possible ambiguity of 72a, which is ambiguous with the imperative sentence *Beyuuni carru cho'á* 'Fix your car.'

When coreference between a subject and a following possessor is not intended, the subject cannot be covert. Thus, for example, a sentence with the intended meaning of 71b, '…I can retrieve Pánfila's keys,' cannot have a covert subject for *edíiga* 'pick up.' If

it did, as in 74, the covert subject could not be interpreted as a first person argument, but only as being coreferential with *Pánfila*.

74. **Gulitthati' ni'accwà' què'ní edíiga___ ca *llave* què' Pánfilanà'.**
gulittha =ti' ni'a =ccwà' què'ní edíiga ca *llave* què' Pánfila =nà'
C/lift =please foot =2FG comp R/pick.up pl key of Pánfila =DIST
Please lift your foot so Pánfila$_i$ can retrieve her$_i$ keys.
**Please lift your foot so I/you/Felipe/the boy/she$_j$ can retrieve Pánfila$_i$'s keys.*

6.2.1.2 Topicalization

As discussed in Section 4.1.5, definite arguments—both subjects and objects—in MacZ can be topicalized (appearing before the verb) but require a coindexed pronoun after the verb in the corresponding VSO position. Failure to include the pronoun results in ungrammaticality (75-76):

75. **Felipeà' beyuuin*(nà) carruà'.**
Felipe =à' beyuuni *(=nà) carru =à'
Felipe =DIST C/repair *(=3) car =DIST
Felipe fixed that car. (Felipe$_i$, he$_i$ fixed that car.)

76. **Carruà' beyuuni Felipeà'*(nà).**
carru =à' beyuuni Felipe =à' *(=nà)
car =DIST C/repair Felipe =DIST *(=3A)
That car, Felipe fixed it.

A CSB subject, however, may be topicalized without a corresponding resumptive pronoun:

77. **Felipeà' beyuuni___ carru què'nià'.**
Felipe =à' beyuuni carru què' =nì =à'
Felipe =DIST C/repair car of =3G =DIST
Felipe$_i$ fixed his$_i$ car.

78. **Felipeá arcalaasi' ___ cambiu què'nià.** {mm}
Felipe =á arcalaasi' cambiu què' =nì =á
Felipe =INVIS H/want chang of =3G =INVIS
Felipe$_i$ wants his$_i$ change.

Thus, CSB clauses can still be identified, even when there is topicalization. A topicalized DP requires a coindexed postverbal pronoun. A subject pronoun, however, may be covert if it is corefential with a genitive DP lower in the structure.

6.2.1.3 CSB with Inalienable Nouns

CSB can occur with both inalienable possession and alienable possession, which have distinct realizations in the grammar (see Section 3.3.2). Inalienable possession, typically done with body part and kinship terms, is marked by simple juxtaposition; the possessor immediately follows the possessed noun. Possessors of inalienable noun roots license CSB as seen below (throughout the null subject is indicated via an underscore in the expected subject position while the controlling possessor is underlined):

79. **Ricchu ___ ittsicchá<u>nì</u>.** {mm}
ricchu ittsa-icchá =nì
H/cut hair-head =3G
He$_i$ cuts his$_i$ hair.

80. **Rquiina'ni___ yhoo<u>yà'</u>.** {v188d}
rquiina' =ni yhoo =yà'
H/is.needed =PREP clothes =1SG
I need my clothes.

When the subject is made overt, the obligatory coreference between the semantic subject and possessor is lost:

81. **Ricchu Edgarná ittsicchánì.** {mm}
ricchu Edgar =ná ittsa-iccha =nì
H/cut Edgar =INVIS hair-head =3G
Edgar$_i$ cuts his$_{i/j}$ hair.

6.2.1.4 CSB with Alienable Nouns

Unlike inalienable possession in which the possessor directly follows the possessed NP, alienable possession includes an overt preposition *què'* 'of' introducing the possessor. These possessors, too, license covert subjects as seen in 82-84. Note also that example 82 shows that the possessor in CSB clauses is not restricted to being a pronoun, but can be a full DP, like *Felipeà'*.

82. **Reyuuni ___ carru què' Felipeà'.** {v206b}
reyuuni carru què' Felipe =à'
H/repair car of Felipe =DIST
Felipe$_i$ is repairing$_i$ his car.

83. **Edíiga ___ ca *llave* chà'á.**
edíiga ca *llave* chà' =á
P/pick.up PL key of/1SG =INVIS
I will pick up my keys.

84. **Naanquiyà' gucheeda____ bestiidu vieju què'yéá.** {v223e}
naan-qui =yà' gucheeda bestiidu vieju què' =yé =á
mother-of =1SG C/tear dress old of =3FG =INVIS
My mother$_i$ tore up her$_i$ old dress.

These examples provide one of the first differences we have seen between genitive subject verbs and CSB. Genitive subject verbs are restricted to incorporated inalienable noun roots; CSB, however, can occur with both alienable and inalienable possessed nouns.

As expected, when there is an overt subject, there is no forced coreference:

85. **Reyuuni Felipeà' carru què'nià'.** {mm}
reyuuni Felipe =à' carru què' =ni =à'
H/repair Felipe =DIST car of =3G =DIST
Felipe$_i$ is repairing his$_{i/j}$ car.

Now that we have reviewed some of the basic properties of CSB in MacZ, we can turn to the consideration of its syntactic structure. In Section 6.2.2 below, we will see that despite surface similarities, CSB does not have the same structure as genitive subject verbs. While genitive subject verbs involve incorporated or compounded noun roots, CSB does not involve incorporation. The possessed DP in CSB remains independent from the verb.

6.2.2 Against an Incorporation Account of CSB

An initially plausible account for CSB is to assume that it derives from incorporation of the possessed nominal with the genitive argument promoted to subject. This approach is particularly appealing in light of genitive subject verbs which have just this structure and parallel the arrangement of CSB clauses: they lack a nominative subject and a genitive argument signals the semantic subject.

Under the incorporation analysis, the possessive DP in the CSB clause would in fact be the grammatical subject of a detransitivized verb. In a CSB sentence like 86, the object DP, *ca laaya* 'teeth' would be incorporated into the verb and *Felipeà'* would appear as the postverbal syntactic subject.

86. **Rii ca laaya Felipeà'.**
rii ca laaya Felipe =à'
H/wash PL tooth Felipe =DIST
Felipe$_i$ is brushing his$_i$ teeth.

Such a structure would perhaps be more accurately written as *Riicalaaya Felipeà'* and literally translated as 'Felipe is teeth-brushing.' The coreference between the subject and

the possessor of the teeth follows naturally from pragmatic considerations and real-world knowledge.

As we saw with genitive subject verbs in Section 6.1, MacZ does have unequivocal cases of noun incorporation. A variety of evidence shows that words like *ruttsa'nàá'* 'gets married' and *arcalaasi'* 'wants' involve incorporated nouns (*ruttsa'nàá'* from *ruttsa'* 'joins' + *nàá'* 'hand' and *arcalaasi'* from *arca* 'is, occurs' + *laasi'* 'being').

Discussing Quiegolani Zapotec, Atepec Zapotec and Yatzachi Zapotec, Black (2000) argues against the incorporation analysis of CSB. As I argue below, this analysis also cannot account for CSB in MacZ.

6.2.2.1 CSB Semantic Evidence

One problem for the incorporation analysis is that it is difficult to understand why incorporation should be limited to cases where the possessor of the object and the subject are coreferential. Why would incorporation only be possible when the incorporated noun is understood as being possessed by the subject referent?

For inalienable nouns, this coreferentially restriction is a reasonable and even expected result. The possessor can easily be inferred from real-world knowledge. If Felipe is teeth-cleaning, the teeth must belong to someone, and since individuals typically clean their own teeth, and there aren't any other potential owners in context, Felipe must be cleaning his own teeth. The possessor could also be inferred from formal lexico-syntactic properties. Inalienable nouns lexically require a (semantic, if not syntactic) possessor, and since *Felipe* is the only available possessor, *Felipe* is identified as the possessor.

With alienable nouns, which are syntactically and semantically distinguished from inalienable nouns in MacZ, neither of these two strategies/requirements is available. Yet the object noun must still be possessed by the subject referent to allow "incorporation" to go through in a CSB sentence. Thus, even if the CSB sentence in 87 did derive via incorporation—*Felipe is car-repairing*, it surprisingly would not and could not have the expected interpretation 'Felipe repairs cars (in general, i.e. for a living).'

87. **Reyuuni carru què' Felipeà'.**
reyuuni carru què' Felipe =à'
H/repair car of Felipe =DIST
Felipe$_i$ is repairing his$_i$ car.

Instead, it can only have the meaning given in 87: 'Felipe is fixing his own car'. This is an unexpected restriction on incorporation and it is difficult to see how it would be motivated.

Furthermore, if 87 involves incorporation, we would expect *Felipe is car-fixing* to have a structure parallel to genitive subject verbs like *ruttsa'nàá'* 'gets married' as schematized below:

88. a. Ruttsa'nàá' Felipeà' ← ruttsa' -nàá' Felipeà'
V S H/join -hand Felipe(DIST)

b. Reyuuncarru Felipeà' ← reyuuni =carru Felipeà'
V S H/repair =car Felipe(DIST)

The sequence in 88b is not a grammatical sentence in MacZ. That word order, whether or not *reyuuncarru* forms a single word, is not possible in MacZ. This structure in 88b, which we would expect to find in a generally available incorporation strategy, is not permitted in MacZ.

Instead, the CSB version of this sentence includes *què'* 'of'. The presence of *què'* clearly marks this construction as involving possession. Alienable possession, in contrast to inalienable possession, requires the presence of this overt preposition. This helps explain why the CSB sentence can only have the specific interpretation 'Felipe$_i$ is fixing his$_i$ car' and not the generic interpretation 'Felipe fixes cars.' The presence of *què'* indicates the noun *carru* must be possessed.

While the obligatory presence of *què'* may help us understand why CSB sentences must involve a possessive interpretation, it makes the incorporation alternative seem less plausible. If a sentence like 87 involves incorporation, what exactly is being incorporated? If *Felipeà'* is the syntactic subject, then this suggests that *carru què'* is being incorporated:

89. Reyuuni=carru=què' Felipeà'
V=N=P Subject

This would be quite an exceptional string to incorporate into the verb since *carru què'* does not form a constituent to the exclusion of the possessor. Based on constituency evidence from tests like coordination and substitution (to be discussed below) the constituency of a possessed DP is as follows:

90. [carru [què' [Felipeà']]] *Felipe's car*

As can be seen from this structure, the sequence *carru què'* does not typically form a constituent to the exclusion of the possessor. If MacZ allows complex objects to be incorporated, we might at least expect it to incorporate whole constituents.

Of course this particular observation does not have to be a fatal flaw in the incorporation analysis. It is theoretically possible that in incorporating situations the

object noun and preposition are each independently incorporated into the verb and are not introduced as a unit. Thus the incorporated structure could be that given in 91a as opposed to 91b.

91. a. [reyuuni [carru] [què']]
    b. [reyuuni [carru [què']]]

And in fact, MacZ does have verbs with just the form given in 91a. For example, this is found in *gunaabatiisa'ni* (*gunaaba* 'asked.for' + *tiisa'* 'word' + =*ni* PREP) 'asked someone something' and *gutittsa'nàá'ni* (*gutittsa'* 'snapped' + *nàá'* 'hand' + =*ni* PREP) 'snapped one's fingers at'. Ultimately, however, neither incorporation structure in 91 proves viable. There is ample evidence showing that the CSB object DP does not form a constituent with the verb, but remains an independent constituent containing the possessive DP.

6.2.2.2 Morpho-phonological Evidence

The first piece of evidence against the incorporation analysis is provided by morpho-phonological interactions. There are certain morpho-phonological processes which apply at the word level during morpheme concatenation but which fail to apply in CSB situations. This suggests then that CSB does not involve formation of a phonological word, and therefore does not involve incorporation.

For instance, verbs ending in the sound sequence [ni] undergo final vowel deletion of the [i] when concatenated with a following, consonant-initial morpheme (see Section 2.6.2 for a more detailed description). This is briefly exemplified below in 92-93.

92. a. **¿Núúni reyuuni carruni?**
núúni reyuuni carru =ni
who H/repair car =PROX
Who is fixing this car?

b. **Reyuun<u>gwa</u> Felipeà' carru chà'á.**
reyuuni =gwa Felipe =à' carru chà' =á
H/repair =also Felipe =DIST car of/1SG =INVIS
Felipe is fixing my car, too.

c. **Reyuun<u>yà'</u> carru què' Felipeà'.**
reyuuni =yà' carru què' Felipe =à'
H/repair =1s car of Felipe =DIST
I am fixing Felipe's car.

93. **Atti beenruidu ca beerague'etó'saa chà'ná.** {Deer Story}
atti beeni -ruidu ca beerague'e =tó' =saa
then C/do -noise PL female.turkey =DIM =DIMPL
Then my little female turkeys made a noise.

So, when no suffixes or clitics are attached to the verb as in 92a, the full form of the verb appears and the final vowel is pronounced. When consonant-initial clitics, such as adverbial clitics 92b or pronominal argument clitics 92c, are attached to the verb, the final vowel is deleted. Likewise, when a noun is compounded to the verb as in 93, the final vowel of the verb root deletes. The deletion of the vowel indicates that the adverbial and person clitics in 92b-c and the noun *ruidu* in 93 form a single phonological word with the preceding verb.

In CSB sentences, the vowel is consistently retained, as indicated below in 94:

94. **Reyuun<u>i</u> carru què' Felipeà'.**
reyuuni carru què' Felipe =à'
H/repair car of Felipe =DIST
Felipe$_i$ is repairing his$_i$ car.

This is consistent with identifying the verb and object noun (in this case, *reyuuni* and *carru*) as being separate words in CSB sentences. This suggests then that CSB does not involve incorporation.

While this single piece of evidence alone is hardly convincing, it is part of a broader pattern. We shall see time and time again that there is simply no independent evidence for reducing the CSB to incorporation. In this case, there are no independent phonological properties which would necessitate an incorporation analysis of CSB.

6.2.2.3 Evidence from Verbal Clitics

In evaluating the incorporation alternative, it is necessary to consider if there is any evidence that the verb and noun introducing the CSB possessor form a constituent. In genitive subject verbs, the verb and incorporated noun can be seen to function as a unit. In particular, adverbial clitics which follow verb stems can also follow compound verb-noun stems. Similarly, the applicative clitic =*ni*, which occurs at the right edge of the verb stem, obligatorily follows the compound verb stem. This provides solid evidence of their constituency.

As we will see below, however, the CSB possessed nominal—the possessed noun in the CSB construction—does not exhibit this same pattern. It can never be followed by adverbial clitics nor the applicative prepositional clitic =*ni*. Thus they lack this independent evidence that they form a constituent with the verb and that they have undergone incorporation. The verbal clitic evidence does not support the conclusion that CSB is derived via incorporation.

6.2.2.3.1 Clitic Adverbs

As mentioned above in Section 6.1.1.1, when a noun is incorporated into a verb as happens, for example, with genitive subject verbs, the noun shows some evidence of being part of the verbal head. The incorporated noun may, for example, be followed by clitic adverbs which attach to the end of the verb stem. As can be seen in 22, repeated below, the adverb may either precede or follow the clitic noun. Crucially though, the adverb may follow the noun root (the adverb is underlined):

22. a. **Barcarulaa'lù'.**
ba= arca =ru =laa' =lù'
emp= H/happen =still =self =2SG
Do you still want (more)?

b. **Barcalaa'rulù'**

This provides evidence that verb-noun sequences such as *arcalaa*(*si'*) do in fact form word-level units.

This compelling evidence is consistently lacking for CSB clauses. In CSB clauses, the adverbial clitic can only attach to the verb root, and can never follow the possessed nominal. Thus, the adverb =*gwa* 'also' in 95a cannot follow *nàá'* 'hand' in the CSB construction for 'wash one's hands', but must attach directly to the verb root as in 95b:

95. a. ***Angwa làànà gutii (ca) nàá'gwani.** {v25g/h}
angwa làànà gutii (ca) nàá' =gwa =ni
also ind=3 C/wash (PL) hand =also =3G
**He$_i$ also washed his$_i$ hands.*

b. **Angwa làànà gutii<u>gwa</u> ca nàá'ni.** {v25f}
angwa làànà gutii =gwa ca nàá' =ni
also ind=3 C/clean <u>=also</u> pl hand =3G
He$_i$ also washed his$_i$ hands.

Similarly, *=xia* 'quickly' cannot attach to the CSB object in 96a below, but only to the verb root as in 96b:

96. a. ***Làànà gutii ca laaya<u>xia</u>ni.**
làànà gutii ca laaya =xia =ni
ind=3 C/clean pl tooth <u>=quickly</u> =3G
**He$_i$ quickly brushed his$_i$ teeth.*

b. **Làànà gutii<u>xia</u> ca laayani.**
làànà gutii =xia ca laaya =ni
ind=3 C/clean <u>=quickly</u> pl tooth =3G
He$_i$ quickly brushed his$_i$ teeth.

Again, this evidence alone is not conclusive. The clitic adverb may fail to appear post-nominally for a variety of other reasons. I suspect that the degree of lexicalization may play a significant role in which compounds allow this. Still, the effects on adverbial placement are part of a larger, systematic pattern. For a wide range of sentences exhibiting CSB like those in 95-96, apart from a covert subject, there is simply no independent evidence motivating an incorporation analysis. While adverb placement does not rule out an incorporation analysis, it does not provide any positive evidence in support of one either.

6.2.2.3.2 Prepositional Clitic

As discussed in Section 6.1.1.2, the prepositional/applicative clitic, *=ni*, also attaches to verbs and follows incorporated nouns. Unlike the adverbial clitics, it always

occurs at the end of the verb stem, including after incorporated nominals, as seen in 32b, repeated below:

32. b. **Lààcanà gutittsa'nàá'cainnà riu'.** {v233a}
làà=ca=nà gutittsa' -nàá' =ca =ni =nà riu'
IND=PL=3 C/snap -hand =PL =PREP =3 1INCLA
They snapped their fingers at us.

Like the adverbial clitics however, *=ni* cannot follow CSB possessed nominals. Thus in 97 and 98 below for example, we have *=ni* verbs in CSB contexts, yet *=ni* does not and cannot follow the CSB object, as indicated in the (b) examples. It does not matter if the underlying possessive clitic is realized in the nominative (*=nà*) or genitive (*=ni*) form.

97. a. **Lààcanà ribeesiya'ani____ luesi'canì.** {v265a}
làà=ca=nà ribeesiya'a =ni luesi' =ca =nì
IND=PL=3 H/yell =PREP ANAPH =PL =3G
They are yelling at each other.

b. ***Lààcanà ribeesiya'aluesi'cainnà/nì.**

98. a. **Béccú'nà' ruyhiia'ni____ lixíínanì.** {v168g}
béccú' =nà' ruyhiia' =ni lixíína =nì
dog =DIST H/bark =PREP shadow =3G
That dog is barking at his own shadow.

b. ***Béccú'nà' ruyhiia'lixíínainnà/nì**

The example in 98 is particularly telling since the object is *luesi'*, an obligatorily possessed anaphor somewhat like *self* in English, though it allows both reflexive and reciprocal readings. If any CSB object nominal would show signs of incorporation, we would *a priori* expect it to be this one since it is anaphoric, inalienably possessed, and most consistently and easily triggers CSB. That it does not is strong evidence that CSB is not derived via incorporation.

One might wonder if *=ni* is blocked from appearing after the CSB possessed nominals in 97-98 since these are the very arguments licensed by *=ni*. Which argument *=ni* licenses, however, does not appear to be a confounding factor. In 99 below for example, *=ni* licenses the indirect object *Margarità'* and not the CSB object nominal *ca yhooyà'* 'my clothes.' But *(ca) yhoo* still cannot precede *=ni* as expected under the incorporation analysis.

99. a. **Ìntè' gunaabani____ ca yhooyà' Margarità'.** {v189f}
ìntè' gunaaba =ni ca yhoo =yà' Margarita =à'
me C/ask.for =PREP PL clothes =1SG Margarita =DIST
I asked Margarita for my clothes.

b. ***Ìntè' gunaaba(ca)yhoonyà' Margarità'.**

Similarly for the verbs in 100-103, the argument licensed by *=ni* is the grammatical subject of the clause as discussed in Chapter 5. However, this class of *=ni* verbs behave as the others do. It is impossible for *=ni* to follow the CSB objects of these verbs as shown in the (b) examples. Instead, the dative subject licensed by *=ni* becomes covert under CSB (as indicated by the underline marking the empty postverbal subject position):

100. a. **Ìntè' rquiina'ni___ yhooyà'.** {v188d}
ìntè' rquiina' =ni yhoo =yà'
me H/is.needed =PREP clothes =1SG
I need my clothes.

b. ***Ìntè' rquiina'yhoonyà'.**

101. a. **Bilaani___ looyà' loo television.** {v148c}
bilaa =ni loo =yà' loo television
C/look =PREP face =1SG on television
I saw my face on TV.

b. ***Bilaaloonyà loo television.**

102. a. **Margarita ruyhiiti'ni___ la'riyeeni què'ni.** {v167d}
Margarita ruyhiiti' =ni la'riyeeni què' =ni
Margarita H/be.confused =PREP mind of =3G
Margarita confuses her mind (herself).

b. ***Margarita ruyhiiti'la'riyeeniinnà/ni/què'ni.**

103. a. **Lààcanà beseelani___ ca llave què' luesi'cani.** {v184a}
làà=ca=nà beseela =ni ca llave què' luesi' =ca =ni
IND=PL=3 C/be.found =PREP PL key of ANAPH =PL =3G
They found each other's keys.

b. ***Lààcanà beseela(ca)llave(què')luesi'cainnà/ni.**

Whether the CSB object is a single, unmodified inalienable noun root (as in 100-101), an unmodified alienable noun root (as in 102) or a complex NP (103), the position of *=ni* produces no evidence of incorporation. In all of these cases, the *=ni* attaches to the syntactic verbal head and precedes the CSB object. This suggests that the verb and object are distinct heads that have not been adjoined (incorporated) to produce the CSB effect.

In summary, the incorporation analysis of CSB would have predicted that the possessed nominal adjoins to the verbal head, creating a complex verbal head. As shown, the clitic preposition *=ni* always attaches to the end of a verbal head, whether simple or complex. This includes following the incorporated noun of compound verbs and genitive subject verbs. These observations predict that if CSB involves object-incorporation, then when CSB occurs with *=ni* verbs, *=ni* should attach to the end of the compound verb, following the incorporated nominal. However, this is not what occurs. The verb and noun appear to remain independent heads, and the incorporation analysis is not supported with respect to *=ni* cliticization.

This negative piece of evidence, of course does not immediately rule out the incorporation analysis or conclusively point to an alternative analysis. It does re-emphasize the point, however, that there is simply no independent evidence for deriving CSB via incorporation. CSB clauses simply do not show any properties which we might associate with incorporation or any properties which occur in independently attested verb-noun incorporation structures in MacZ. For example, CSB does not exhibit the same ordering patterns with adverbs and the prepositional clitic *=ni* as genitive subject verbs do. The adverbial clitic and *=ni* data do not support an incorporation analysis. They are consistent with the apparent surface facts: CSB involves a non-overt subject which is bound by (or at least whose interpretation is derived from) a structurally inferior, linearly posterior, non-c-commanding possessor. Ultimately, this suggests that the correct account of CSB will occur not by reanalyzing this typologically unusual phenomenon in terms of more typologically common structures, but by reworking our analytical and theoretical concepts of binding and anaphors.

6.2.2.4 Complexity of Object to Be "Incorporated"

An additional problem for the incorporation analysis of CSB is the potential complexity and semantics of the object noun to be "incorporated". Incorporation in MacZ involving genitive subjects is restricted to instances in which the incorporated nominal is an inalienable noun root without any additional modifiers.[11] In other words,

[11] There is at least one example of a verb-noun compound involving an alienable noun: *gunaabatiisa'(ni)* 'ask a question (of).' The verb, however, takes nominative subjects and even the argument associated with *tiisa'* does not appear as a possessive phrase. All of the genitive subject verbs, such as those involving *laasi'* 'being' involve unmodified inalienable noun roots. Unless otherwise explicitly stated, my discussion here is restricted to incorporation and genitive subject verbs. This is by far the more common type of verb-

all instances of incorporation, as identified by other independent criteria such as adverbial placement and subject properties, involve bare inherently possessed noun roots. There are not any instances of genitive subjects produced via incorporation of alienable noun roots or of incorporation of complex DPs (those containing modifiers, quantifiers or determiners). Indeed, attempts to modify incorporated nominals actually blocks incorporation.

No such restrictions are seen on the possessed nominal in CSB clauses. Alienable nouns frequently serve as the object of CSB sentences. Both alienable and inalienable CSB objects may be freely modified by adjectives, prepositional phrases, relative clauses and demonstratives, the latter explicitly marking the object as definite, which should be semantically incompatible with productive compounding. In addition, the CSB object may be pluralized and otherwise quantified and can even be conjoined with other nominals. Again, in genitive subjects verbs, which derive via incorporation, none of this is possible. The incorporated object nominal must be a bare inalienable noun root.

6.2.2.4.1 Alienable Nouns

We have already seen many instances of CSB involving alienable noun roots including the examples like those below involving *carru* 'car' *llave* 'key':

104. **Reyuuni ___ carru què'nià'.**

reyuuni	carru	què'	=nì	=à'
H/repair	car	of	=3G	=DIST

He$_i$ is repairing his$_i$ car.

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noun incorporation in MacZ and is the main type relevant to the present discussion since in CSB the would-be "subject" of an incorporation analysis is always genitive.

105. **Ediiga ___ ca *llave* chà'á.**
ediiga ca *llave* chà' =á
P/pick.up pl key of/1SG =INVIS
I will pick up my keys.

As noted though, genitive subject verbs are restricted to containing inalienable nouns. All genitive subject verbs contain an incorporated inalienable noun root, and the incorporation structure of such words can be independently verified by a number of independent criteria such as adverbial placement and subject properties. No genitive subject verb has been attested which licenses the genitive subject via an incorporated alienable noun.

Although 104 and 105 both contain genitive elements (as clearly indicated by the genitive possessive clitic *=nì* versus nom/acc *=nà* in 104), they are introduced by alienable nouns, which we have seen does not occur in the incorporation of genitive subject verbs. The lack of genitive subject verbs with alienable nouns is due to the fact that the possessor is introduced by the preposition *què'* 'of.' As discussed above, the presence of *què'* would seem to require a non-constituent (*N* + *què'*, such as *carru què'*) to be incorporated into the verb to produce a genitive subject verb. Even if this is possible (say by first raising the possessor out of the object DP), it would still require the incorporation of a phrasal level constituent, e.g. [$_{DP}$ carru què' t_i].[12] However, we do not see any independent instances of phrasal incorporation in MacZ, which is restricted to simple, lexical heads. A possessed alienable noun requires phrasal level complexity and

[12] One might wonder if MacZ does allow genitive subjects introduced by *què'* with certain verbs. For example, existential verbs become verbs of owning/having with the addition of a possessor phrase. So, *Tee belliu'* 'There's money' can become *Tee belliu' què'nì* 'He has money'. There is no evidence, however, that the possessors in such clauses are grammatical subjects. And even if they are, these constructions do not involve incorporation as attested by their freely alternating word order: *tee belliu' què'nì* can just as easily be rendered as *tee què'nì belliu'*. See Foreman (forthcoming) for more discussion.

is therefore blocked from incorporating. Alienable nouns can crucially only be incorporated when they are not possessed as in *gunaabatiisa'* 'asked (a question)' (from *gunaaba* 'C/ask.for' + *tiisa'* 'word') which has no genitive arguments. Since CSB requires a possessed nominal, these two processes—incorporation and CSB—are clearly incompatible with respect to alienable nouns.

6.2.2.4.2 Adjectival Modifiers

Whether alienable or inalienable, CSB objects are not restricted to bare noun roots. The noun root may be modified by a range of expressions, including adjectives, prepositional phrases, relative clauses and even definite demonstratives.

Below, sentences 106-107 provide cases in which the CSB object includes a modifying adjective, *yhoo cuubi* 'new clothes' in 106a and *bestiidu vieju* 'old dress' in 107a (the (b) examples show non-CSB counterparts to these sentences).

106.a. **Margarità' neccu'____ yhoo cuubini.** {v221h}
Margarita=à' neccu' yhoo cuubi =ni
Margarita=dist S/wear clothingnew =3G
Margarita$_i$ is wearing her$_i$ new clothes.

b. **Margarità' neccu'*(nà) ttu bestiidu.** {v221k}
Margarita=à' neccu' *(=nà) ttu bestiidu.
Margarita=dist S/wear *(=3) a dress
Margarita is wearing a dress.

107. **Naanquiyà' gucheeda____ bestiidu vieju què'yéá.** {v223e}
naan -qui =yà' gucheedabestiidu vieju què' =yé =á
mother -of =1SG C/tear dress old of =3FG =INVIS
My mother$_i$ tore up her$_i$ old dress.

b. **Naanquiyà' gucheeda*(yé) bestiidu viejuá.** {v223e'}
naan -qui =yà' gucheeda *(=yé) bestiidu vieju =á
mother -of =1SG C/tear *(=3F) dress old =INVIS
My mother tore up that old dress.

6.2.2.4.3 Prepositional Phrases and Relative Clauses

The possessed nominal in CSB sentences can even be modified by prepositional phrases and relative clauses, as shown below:

108. **Neccu'____ playera chà' què' UCLA.**[13] {v229g'}
neccu playera chà' què' UCLA
S/wear t-shirt of/1SG of UCLA
I'm wearing my t-shirt from UCLA.

109. **Neccu'____ camisa chà' nu' dàá de Lola'a.** {v229h}
neccu' camisa chà' nu' dàá de Lola'a
S/wear shirt of/1SG rel S/come from Oaxaca
I'm wearing my shirt that comes from Oaxaca.

110. **Làànà betilla____ carru què'ni nu' si' guyo'otenà.** {v227i}
làànà betilla carru què' =ni nu' si' guyo'o =te =nà
3IND C/fight car of =3G rel just C/buy =recently=3
He$_i$ wrecked his$_i$ car that he had just bought.

111. **Gutittsa'___ nàá'yà' laaba nu' guttsa' yiida guteeá.** {v228i}
gutittsa' nàá' =yà' laaba nu' guttsa' yiida gutee =á
C/break(tr) arm =1SG same REL C/break(itr) year past =INVIS
I broke my same arm that broke last year.

The sentences in 108-111 show that the object to be incorporated can be quite complex. Although it must be admitted that these particular examples do not provide as convincing evidence of complexity as those involving the adjectives. Adjectives can easily be shown to form constituents with the object N in CSB sentences through, for example, DP elision. Thus, if the incorporation analysis is correct, then modifying adjectives must clearly be incorporated along with the noun to see the observed constituencies. However, the modifying prepositional phrases and relative clauses do not seem to form as tight a constituent with possessed Ns. One could potentially argue then that they are displaced

[13] Compare 106b, which shows that *neccu'* typically requires a wearer as subject.

modifiers in the context of 108-111, and that the sentences contain bare Ns, available for incorporation.

6.2.2.4.4 Quantifiers

The presence of adjectives, prepositional phrases and relative clauses as part of the possessed nominal in CSB argues that these entities are phrasal, not lexical. This observation is further supported by the possessed nominal's ready acceptance of quantifiers. For example, we have repeatedly seen examples of the plural marker *ca* with the CSB possessed objects like the examples given in 112-113 below:

112. **Juannà' rittsa'____ ca yhuubenàá'ni.** {v195f}[14]
Juan =nà' rittsa' ca yhuube -nàá' =ni
John =DIST H/snap PL digit -hand =3G
John$_i$ pops his$_i$ fingers.

113. **Edgarnà' antu xaree' reccu'_____ ca pantalón què'niá.** {v231f}
Edgar =nà' antu xaree' reccu' ca pantaloon què' =ni =á
Edgar =DIST very low H/wear PL pants of =3G =INVIS
Edgar$_i$ wears his$_i$ pants very low.

Other quantifiers may also appear in the CSB possessed DP. For example, as expected with any full DP, the CSB object may be quantified by numerals and related quantifiers (114-115), the universal quantifier (116), and negative quantifiers (117) (the quantifiers are underlined).[15]

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[14] Compare with the non-CSB clause which requires an overt subject:
i. **Ìntè' gutittsa'<u>và'</u> ca yhubeenàá' Margarità'.** {v194d}
I popped Margarita's fingers.

[15] Actually, the universal and negative quantifiers proved fairly difficult to get in CSB sentences, though I did finally get them volunteered for these particular sentences. Possibly, I just need to recheck these or perhaps there is something significant going on here. Maybe these quantifiers require LF movement which can interfere with the null subject interpretation. This seems worthy of further investigation, particularly since overt movement of a quantified object blocks CSB (as discussed in Section 6.2.4.2.4).

114. **Felipeà' begaadia____ ca <u>chuppa</u> yhi'ninià'.**
Felipe =à' begaadia ca chuppa yhi'ni =ni =à'
Felipe =DIST C/bathe PL two child =3G =DIST
Felipe$_i$ bathed his$_i$ two kids.

115. **¿Gutìí____ <u>iruppa</u> ca naagalù'?** {v239a}
gutii iruppa ca naaga =lù'
C/wash both PL ear =2SG
Did you wash both of your ears?

116. **Làànà quii____ <u>iyaate'</u> yhooni.** {v240h}
làà=nà quii iyaate' yhoo =ni
IND=3 P/wash all clothing =3G
He$_i$ will wash all his$_i$ clothes.

117. **Làànà làbíí quii <u>niidittu</u> yhooni.** {v240i}
làà=nà làbíí quii niidittu yhoo =ni
IND=3 NEG P/wash none clothing =3G
He$_i$ won't wash any clothes of his$_i$.

Again, the quantifiers in 114-117 attest to the phrasal nature of the CSB possessed nominal, a phrasal nature which is generally incompatible with incorporation. Not only is this observed cross-linguistically, but in MacZ we can see specific instances in which quantification blocks incorporation. For example, consider the following incorporation examples in 118-119:

118. **Diiayà' gwiinàá'.** {v204a}
diia =yà' gwii -nàá'
S/go =1s N/wash -hand
I'm on my way to wash my hands.

119. **Daanà gwiilaaya'.** {v253h}
daa =nà gwii -laaya'
S/be(PROG) =3 N/wash -tooth
He is brushing his teeth.

In each sentence, an inalienable noun root, *nàá'* 'hand' and *laaya'* 'tooth,' is incorporated (or compounded) with the non-finite form of a verb, in this case *gwii* 'wash'.

The resulting verbs *gwiinàá'* and *gwiilaaya'* do not have any overt subjects within their clauses, since the verbal forms are non-finite and do not license an external subject argument (nominative, genitive, or otherwise). These are not CSB clauses since there are no overt possessors and even without coreferentiality, there could not be an overt subject due to the non-finite verb.

Evidence that these are incorporation structures come from the lack of any overt possessors.[16] As these are inalienable nouns, possessors are required when they occur as independent nominals, but here, incorporated into the verb, they do not (and cannot) have any. Thus, the lack of a possessor with the non-finite verb form provides evidence of incorporation.

When the nominals are quantified, however, the possessor again becomes obligatory. In these examples, the plural quanitifier *ca* makes the possessor obligatory. Leaving it off the nominal in such cases results in ungrammaticality, as seen below:

120. **Diiayà' gwii ca nàá'*(yà').** {v204b}
diia =yà' gwii ca nàá' *(=yà')
S/go =1s N/wash pl hand *(=1SG)
I'm on my way to wash my hands.

121. **Daanà gwii ca laaya'*(ni).** {v253j}
daa =nà gwii -laaya' *(=ni)
S/be(prog) =3 N/wash -tooth *(=3G)
He is brushing his teeth.

[16] These particular verbs may be somewhat marginal examples of incorporation. Apart from the absence of the subject/genitive argument with non-finite verbs, it is not clear what other properties of incorporated verbs these examples actually show. However, compounding/incorporation seems to be the best explanation for why these sequences do not require an overt possessor: the noun has incorporated into the verb and the genitive argument has become the grammatical subject which in turn must be omitted due to the non-finite form of the verb. This omission of the genitive argument is blocked, however, when the noun is quantified, suggesting that incorporation and subsequent promotion to subject of the genitive argument has been blocked. As the genitive argument no longer is a grammatical subject, it is compatible with a non-finite verb and in fact is obligatory in order to satisfy the requirements of the inalienable noun root.

Thus, it appears that a plural nominal cannot be incorporated into a verb in MacZ. If we did have incorporation in 120-121, then we would have expected no overt marking of the genitive (subject) as we had in 118-119. Instead, the presence of the plural marker *ca* requires an overt possessor, suggesting that it blocks incorporation. Certainly, the genitive DPs in 120-121 cannot represent grammatical subjects since overt subjects are incompatible with non-finite verbs.

Based on these observations, it seems then that CSB clauses do not involve incorporation, since, as seen in 112-113 and elsewhere, CSB object nominals occur freely in the plural.

6.2.2.4.5 Demonstratives

A most striking piece of evidence against incorporation comes from demonstrative clitics. Not only do they show the phrasal nature of the CSB object, they also indicate that the possessor is part of the object constituent and mark the DP as definite, all of which argues against a possible incorporation analysis.

Consider the examples given in 122-123 below:

122. **Reyuuni____ carru chà'ni.**
reyuuni carru chà' =ni
H/repair CAR of/1SG =PROX
I'm fixing this car of mine.

123. **Naanquiyà' gucheeda____ bestiidu vieju què'yéá.** {v223e}
naan -qui =yà' gucheeda bestiidu vieju què' =yé =á
mother -OF =1SG C/tear dress old of =3FG =INVIS
My mother$_i$ tore up her$_i$ old dress.

In 122, the proximate clitic *=ni* occurs at the end of the CSB object DP *carru chà'ni* 'this car of mine' indicating that the car is near the speaker at the time of utterance. Similarly, in 123, the demonstrative *=á* INVIS occurs at the end of the CSB object DP *bestiidu vieju què'yéá*, which should more accurately be translated as 'that old dress of hers.' The demonstrative indicates that the dress is not visible to the speaker at the time of utterance. This is quite independent of the location of the speaker's mother.

The choice of these demonstratives is determined by the location of the DP object with respect to the speaker at the time of utterance. The location of the pronominal possessor referent is irrelevant. As such, the demonstrative and DP object clearly form a semantic constituent and this is reflected in the syntactic constituency. The syntactic constituency can be confirmed, for example, by pronoun substitution, though this particular diagnostic is not available in CSB clauses since it removes an overt indication of the possessor. Coordination provides further evidence of syntactic constituency including with CSB as is discussed in the next section.

As discussed in Section 3.3.1, the demonstratives occur on the periphery of nominals, as D° heads. Their presence with CSB objects, then, clearly demonstrates that the CSB objects are not merely heads or bar-level constituents, but are full DPs. The demonstratives testify to the phrasal nature of CSB objects and make the incorporation analysis seem quite implausible since incorporation is generally restricted to adjoined heads (see Baker 1988).

Not only is the size of the CSB possessed object constituent a problem for an incorporation analysis, but so is what is contained inside it. As seen in 122-123, the

demonstrative clitic not only follows the object noun, but also its possessive clitic. This indicates that the possessors are part of the CSB object constituents. As discussed in detail in Section 6.2.3, this poses a problem not only for the incorporation analysis, but any analysis which treats the genitive DP as the grammatical subject. If the genitive DP is marked as the grammatical subject, the possessors in 122-123 should be external to the CSB possessed object. But the demonstrative clitics clearly establish that they are not. The possessors are in the middle of the object nominal between the head noun and the final demonstrative. The possessors are clearly internal to the object nominal and not in an external subject position as expected in the incorporation analysis.

Finally, the demonstratives not only clearly delineate a complex CSB object constituent incompatible with incorporation, but also indicate semantic incompatibility. The demonstratives clitics in MacZ always correspond with a definite interpretation of the DP and conversely, are always required (excepting a few phonological complications) with definite DPs. They are not open to specific indefinite interpretations as, for example, the demonstratives in English are. Thus, the object nominals in 122-123 are definite. But we expect definite DPs to generally not be compatible with incorporation. Thus, the definite DPs of 122-123 are unlikely to be incorporated into the verb, and once again, it seems that some mechanism other than incorporation is responsible for the CSB effects.

Overall then, the sentences in 106-123 show that the object in CSB sentences can minimally be modified by adjectives, quantifiers, demonstratives, and possibly by prepositional phrases and relative clauses. This means that the element to be

"incorporated" in CSB is not restricted to a bare noun root, but would have to be of the largest nominal structure, a DP. Such constituents are generally absent in incorporation, making such an account of CSB less plausible.

6.2.2.4.6 Coordination

Not only can the CSB object nominals be modified and quantified, but they can even be conjoined. CSB clauses can include coordinated object nominals, as seen in the following:

124. **Eyuuni ___ carru chà'nà'nna motocicleta chà'nà'nna.** {v243b}
eyuuni carru chà' =nà' =nna motocicleta chà' =nà' =nna
P/repair car of/1SG =DIST =and motorcycle of/1SG =DIST =and
I will fix my car and my motorcycle.

125. **Rii ___ ca laayaninna looninna.** {mm}
rii ca laaya =ni =nna loo =ni =nna
H/wash PL tooth =3G =and face =3G =and
He$_i$ is cleaning his$_i$ teeth and his$_i$ face.

126. **Gutíí ___ ca nàá'yà'nna looyà'nna.** {v146f}
gutíí ca nàá' =yà' =nna loo =yà' =nna
C/wash PL hand =1SG =and face =1SG =and
I washed my hands and my face.

Coordination of the possessed CSB nominals clearly indicates that they are full DPs. Their DP status is further confirmed by the fact that, as shown by the position of =*nna* 'and', each conjunct clearly contains additional material, such as the plural marker and demonstratives.

For an incorporation analysis to account for the sentences in 124-126 above, MacZ would have to allow incorporation of conjoined nominals and all associated

structures and morphemes such as *=nna* 'and'. Such complex DPs are unlikely candidates for incorporation.

Coordination also clearly shows that possessive DPs are subconstituents of the CSB object nominal (discussed further in Section 6.2.3.2.4). In each sentence 124-126, the possessive is contained inside each conjunct. This provides another blow to an incorporation analysis by showing that the would-be subjects of the incorporation analysis (*=chà'* 'my' and *=nì* 3G) cannot be subjects. They are, as their surface appearance suggests, possessors contained inside the object DP. Coordination thus shows that the object nominals are potentially very complex DPs, which are unlikely in incorporation structures, and that the genitive DP cannot be the grammatical subject.

There is another possible analysis of the coordination structure, but it still provides significant problems for an incorporation analysis. Instead of being the coordination of two DPs as suggested, sentences like 124-126 could be conceived of as involving coordination of TPs. This could explain the presence of two "subject" DPs, but would require the deletion of the verb in the second conjunct, yielding a gapping structure. Such a gapping structure would require the deletion of the verb root with which the object nominal is supposed to incorporate. For 125, this would produce something along the following lines: *teeth-cleaned he and face-~~cleaned~~ he and,* which could be loosely rendered in English as *He teeth-cleaned and he face-~~cleaned~~*. However, we would generally expect the internal structure of an incorporated head to be invisible to and unavailable for such later syntactic processes as V or VP deletion. Such processes should target the entire verbal element, including the incorporated nominal, and be unable

to target substructures. Of course, this is dependent upon the exact interaction and interdependence of word-forming processes and syntactic ones.[17] Thus, an incorporation analysis requiring gapping would furthermore require a more complex interaction between syntactic and word-formation systems. The null subject binding analysis would not. The object DP should just as easily be open to coordination in CSB sentences as in other types of sentences. So even under the alternative, gapping view of the coordination structure, the incorporation structure still looks less appealing.

It is not merely a theoretical problem, however. Empirically, deletion of a verb root inside a complex verb stem is not available. Sentences like 125 cannot involve both gapping and incorporation since incorporation does not allow deletion of the verb root.

First, MacZ does allow gapping of a repeated verb, as shown below:

127. **Béccú' chà'á retegoonà beriidanna cho'ánna ~~retegoo~~(*nà) carru.** {v142c}
béccú' chà' =á retegoo =nà beriida =nna cho' =á =nna carru
dog of/1SG =INVIS H/chase =3 squirrel =and of/2SG =INVIS =and car
My dog chases squirrels and yours, cars.

Not only is the verb stem *retegoo* 'chases' deleted, but so is the clitic subject pronoun which is attached to it. Attempting to make the clitic overt results in ungrammaticality. (Recall that in 124-126 the would-be "subject" clitics—the possessive clitics—were present.) This suggests that elements that form a phonological word with the verb must be deleted with it when gapping occurs.

As a result, when the verb includes an incorporated noun, we would expect that the noun must be deleted (phonetically null) when the verb is deleted and that gapping

[17] Clitic adverb placement of course can separate the verb from the noun root in a genitive subject verb as discussed in Section 6.1.1.1. I argued in Section 5.3.3 that adverbial placement may be the result of later phonological reordering.

cannot target the verb root to the exclusion of the incorporated nominal. This is exactly what we observe. For example, when the complex verb *gwettsa'nàá'* 'get married' is placed in a potential gapping context, the entire phonological verb string must be deleted. If gapping occurs, both the verb root *gwettsa'* 'join' and the incorporated noun *nàá'* 'hand' must be deleted. The verb root cannot be selectively omitted. Compare 128a, which shows the grammatical expected gapping pattern with the entire verb deleted, and the ungrammatical 128b, which attempts to gap only the verb root.

128. a. **Nachuá bettsa'nàá'ni làànì Grace, ìntè' ~~bettsa'nàá'yà'~~ làànì Margaritani.** {v243c}
Nachu =á bettsa'nàá' =ni làànì Grace ìntè' làànì Margarita =ni
Nacho =INVIS C/get.married =3G with Grace me with Margarita =PROX
Nacho got married with Grace and I did with Margarita.

b. **…ìntè' *(bettsa')nàá'yà' lààni Margaritani.** {v243e}
ìntè' *(bettsa') nàá' =yà' làànì Margarita =ni
me *(C/join) hand =1SG with Margarita =PROX
...and I did with Margarita.

The same pattern can also be observed with other verbs such as the verb *gwiiloo* 'wash ones's face.' It is not possible to gap the verb root *gwii* stranding the incorporated nominal *loo*:

129. **Ìntè' daayà' gwii ca nàá'yà'nna Felipeà'nna daanà *(gwii)loo.** {v255h'}
ìntè' daa =yà' gwii ca nàá' =yà' =nna
me s/prog =1s N/wash PL hand =1SG =and
Felipe =à' =nna daa =nà *(gwii) -loo
Felipe =DIST =and N/PROG =3 *(N/wash) -face
I'm washing my hands and Felipe is (washing his) face.

The verb root can only be deleted if the noun is a free form, not incorporated with the verb. In such a case, the free noun root, being an inalienable noun, must occur with a possessor (=*ni*):

130. **Ìntè' daayà' gwii ca nàá'yà'nna Felipeà'nna (daanà gwii) loonì.** {v255g}

ìntè'	daa	=yà'	gwii	ca	nàá'	=yà'	=nna
me	s/prog	=1s	N/wash	pl	hand	=1SG	=and
Felipe	=à'	=nna	(daa	=nà	gwii)	loo	=nì
Felipe	=DIST	=and	(N/PROG	=3	N/wash)	face	=3G

I'm washing my hands and Felipe (is washing) his face.

These examples, then, indicate that incorporation is incompatible with gapping of only the verb root. If a noun and a verb root form a complex verb then both must be deleted during verbal gapping. This means the complexity of the CSB object in coordination examples in 124-126 cannot be explained away under the incorporation analysis by an appeal to coordination of TPs and gapping. Thus, either the incorporation or gapping analysis (or both) will have to be given up in such cases. If we maintain the coordinate TP and gapping analysis then the CSB sentences in 124-126 cannot involve incorporation, and at least in certain instances, CSB is achieved by means other than incorporation. If the incorporation analysis is maintained then 124-126 must involve the incorporation of two conjoined DPs. Not only is this an extremely complex structure which is unlikely, if not impossible with incorporation, but as noted earlier, the conjuncts contain the possessor DP. Under the incorporation analysis, the genitive DP should be the subject of the clause and thus external to the object DP, not part of it. Whether the conjunction is of DPs or TPs then, the incorporation analysis of CSB cannot be maintained.

Finally, independent of whether the sentences in 124-126 involve gapping, it should be noted that gapping of the verb can occur in CSB clauses. In 131 below, gapping deletes the verb without affecting the CSB object DP.

131. **Gutíí ___ looyà'nna lù'nna ~~gutíí~~ ca nàá'lù'.** {v146e}
gutíí loo =yà' =nna lù' =nna ca nàá' =lù'
C/wash face =1SG =and 2S =AND PL hand =2SG
I washed my face, and you your hands.

As the verb root can alone be deleted, this provides further evidence against incorporation, since, as we have just seen, incorporation is incompatible with gapping of the verb root alone. This supports an independent DP object and suggests that some mechanism other than incorporation is involved in CSB.[18]

Conversely, it is also possible for the object nominal to undergo NP-deletion in CSB clauses. This is illustrated below in 132:

132. **Felipeà' eyuuinnà carru què'niá langwantè' eyuungwa ___ ~~carru~~ chà'á.** {v227g}
Felipe =à' eyuuni =nà carru què' =ni =á
Felipe =DIST P/repair =3 car of =3G =INVIS
langwa =ntè' eyuuni =gwa chà' =á
also =me P/repair =also of/1SG =INVIS
Felipe will fix his car, and I will also fix mine.

Once again, however, such elision is not possible with incorporated nouns, as illustrated below:

133. **Nachuá bettsa'nàá'ni làànì Grace, ìntè' bettsa'*(nàá')yà' làànì Margaritani.** {v243d}
Nachu =á bettsa' -nàá' =ni làànì Grace ìntè' bettsa' *(-nàá')
Nacho =INVIS C/join -hand =3G with Grace me C/join *(-hand)
=yà' làànì Margarita =ni
=1SG with Margarita =PROX
Nacho got married to Grace and I got married to Margarita.

Just as it is impossible to gap the verb root inside a verb-noun incorporation structure, it is also impossible for the noun root to undergo NP-deletion. Since NP-deletion is

[18] One could potentially argue in this case that what is actually being gapped is *gutiilù'* with an overt second person subject clitic. That is, it is not a CSB sentence which is being gapped.

available in CSB contexts as in 132, however, this suggests that CSB does not arise via incorporation, but that the verb and nominal remain separate syntactic entities. CSB, then, must arise by some other means.

In summary, the easy availability of modifiers and quantifiers reveal that the CSB possessed object is not restricted to a bare noun root, but instead allows an entire full DP. Incorporation of complex nominals, however, is typologically rare and not independently attested in MacZ. In fact, complex nominals in MacZ block the possibility of incorporation. In addition, further evidence against an incorporation account of CSB is provided by such syntactic processes as coordination, gapping and DP-deletion. Instead the verb and nominal remain distinct entities and CSB must come about through some other syntactic process.

6.2.2.5 Disruptions between the "Incorporated" Verb and Noun

Not only does the complexity of the object DP in CSB sentences argue against block the possibility of incorporation, but the verb and the object DP associated with the possessor often do not even form a contiguous string, much less a constituent. That is, the verb and the DP to be "incorporated" are frequently separated by other lexical material which either contains the object DP or belongs to other independent constituents.

Although we have mostly been considering simple cases of CSB in which the possessed DP occurs as the object of the verb, it is not necessary for the possessed DP to be a direct object immediately following the verb. The DP may itself serve as the possessor of another larger DP or can be embedded inside a prepositional phrase. And occasionally, for MacZ at least, other, structurally independent constituents may

intervene between the verb and the object DP. Thus, a second, independent object may intervene between the verb and the possessed DP. This argues that the object DP cannot in all cases be incorporated with the verb, unless one is willing to take the more radical approach that the additional intervening material should also be analyzed as being incorporated into verb, a position for which there is no evidence.

6.2.2.5.1 Possessors of Possessors

The CSB possessed nominal—the nominal which introduces the possessive phrase coreferential with the null subject—does not have to be the direct object of the verb, or even a direct argument of the verb. It can, for example, serve as the possessor of some still larger object DP, as seen below. The DP including the coreferential possessor is underlined in each case. As can be seen by the bracketing, this underlined DP in turn serves as the possessor of some larger object DP.

134. **Lààcanà beseelani ___ [ca yaabe [què' [luesicanì]]].** {v184a}
làà=ca=nà beseela =ni ca yaabe què' luesi =ca =ni
BAS=PL=3 C/be.found=PREP PL key of ANAPH =PL =3G
They found each other's keys.

135. **Rii ___ [ca nàá' [ca naanquè' [luesicanì]]].** {v33b}
rii ca nàá' ca naan -què' luesi =ca =nì
H/clean PL hand PL mother -of ANAPH =PL =3G
They are washing each other's mother's hands.

136. **Gucchu ___ [cwe'e [ca nàá'yà']].**[19] {v259e}
gucchu cwe'e ca nàá' =yà'
C/cut back PL hand =1SG
I cut the back of my hands.

137. **Ttutebá ruyexxa____ [ca llave [què' [carru chà'á]]].** {v257g}
ttutebá ruyexxa ca llave què' carru chà' =á
always H/drop PL key of car of/1SG =INVIS
I always drop the keys to my car.

In such examples, the CSB possessed nominal and the verb are not even adjacent, and direct incorporation of the possessed nominal is clearly not possible. If an incorporation analysis is to be maintained here, it would have to be extended to include not only the possessed nominal but any larger DPs which contain it. Thus, 137 would have to be something like the following: 'I always keys-to-the-car-of drop,' incorporating the prepositions introducing the coreferental possessor and *carru* 'car' as well as the head noun of the direct object, *llave* 'key', and its plural quantifier *ca*. This does not even form a natural constituent and such complexity is not expected with incorporation. An incorporation analysis does not look plausible in the light of such examples.

6.2.2.5.2 Object of Preposition

The host nominal can also be introduced as a prepositional object as seen in the following (the relevant prepositions are underlined).

[19] This is not the prepositional use of *cwe'e*. If it were, it would mean something like 'I cut behind my hands.' *Gucchu* 'cut' needs a direct object though, and this can only be satisfied by the noun *cwe'e* 'back'. Compare 136 with the non-CSB sentences below:

i. **¿Gucchuyà'lù'?** ***¿Gucchulù'** {v256j}
Did I cut you? **Were you cut?*

138. **Juanni ruudia ___ lle'e nàá'nì.** {ii80g/h}
Juan =ni ruudia lle'e nàá' =nì
John =PROX H/write in hand =3G
John$_i$ writes on his$_i$ hand.

139. **Felipeà' rnnee' ___ lààní luesi'nì.**
Felipe =à' rnnee' lààní luesi' =nì
Felipe =DIST H/talk with ANAPH =3G
Felipe is talking to himself.

140. **Làànà rnnee' ___ lààní ca nàá'nì.** {ii80c/d}
làànà rnnee' lààní ca nàá' =nì
3IND H/talk with PL hand =3G
He$_i$ talks with his$_i$ hands.

141. **Làànà roo ___ lààní ca nàá'nì.** {ii79f/g}
làànà roo lààní ca nàá' =nì
3IND H/eat with pl hand =3G
He$_i$ eats with his$_i$ hands.

As a result, the possessed nominal cannot be incorporated with the verb due to the intervening preposition. This again either rules out incorporation or forces the conclusion that the preposition is also incorporated into the verbal complex. However, the preposition *lààní* 'with' provides clear evidence against this latter possibility.

As discussed in Section 2.6.2.2, the preposition *lààní* is apparently composed of the independent phonological base *làà-* and the clitic preposition *=ni*. The phonological base *làà-* supports clitic elements, like the third person clitic pronouns, yielding phonologically independent words (see Section 3.2.2). As such, *làà-*'s presence in 139-150 indicates that the preposition is a phonologically independent word. If the preposition were incorporated into the verb, we would expect it to appear in its bound form *=ni*, as discussed in Chapter 5. Furthermore, it would presumably follow the incorporated nominal as it does with other incorporated nouns (see Section 6.1.1.2

above).[20] Since it does not, the preposition does not appear to be incorporated into the verb, and the possessed nominal would then be blocked from incorporating as well. In such sentences like 139-150 then, CSB clearly cannot involve incorporation.

6.2.2.5.3 Intervening Arguments

Occasionally in MacZ, other arguments and unrelated material can intervene between the verb and the possessed nominal containing the coreferential possessor. For example in 142 below, the direct object *ttu pluma* 'a pen' occurs between the verb *ruga'a* 'sticks' and the prepositional argument *lle'e naagani* 'in his ear', which contains the host nominal and coreferential possessor (*naagani* 'his ear').

142. **Làànà ruga'a ___ ttu pluma lle'e naaganì.**[21] {v201i}
làànà ruga'a ttu pluma lle'e naaga =nì
IND=3 H/stick one pen in ear =3G
He$_i$ is sticking a pen in his$_i$ ear.

The intervening constituent again indicates that the possessed nominal is not incorporated into the verb during CSB since the verb and possessed nominal are not even adjacent. Trying to extend incorporation to the intervening material is not well founded. When the host nominal is embedded inside another DP or PP, then this fact could be used to motivate incorporation of the larger phrase. We could in theory say that any DP or PP containing the coreferential (binding) possessor can incorporate into the verb. In 142,

[20] The clitic preposition *=ni* does differ semantically somewhat from the independent preposition *làànì*. However, the two are related and do freely alternate in certain contexts. But this alternation is never triggered by CSB. If CSB did involve incorporation, we would have expected this to be so.

[21] Compare to the non-CSB sentence:
i. **Làànà bega'a*(nà) ttu pluma lle'e naaga Edgarnà'.** {v202a}
She stuck a pen in Edgar's ear.

however, there is no principled way to motivate incorporating a completely independent constituent. It's only appeal is that it would allow one to maintain an incorporation analysis of CSB. Such examples then provide additional evidence that CSB is not derived via incorporation.

CSB examples like 142 are rare. Usually, no other independent arguments may intervene between the verb and possessed nominal. However, this example cannot be dismissed as a rare aberration to the general pattern of CSB since examples like 142 are robustly attested in other varieties of Zapotec exhibiting CSB, for example in Zoogocho Zapotec (Sonnenschein 2004). As such, we must consider these a well-attested part of CSB yielding the valid conclusion that CSB is not generally based on incorporation.

6.2.2.6 Summary of CSB and Incorporation

While an incorporation analysis initially seemed to be a very appealing way to deal with the unusual phenomenon of Covert Subject Binding, it cannot account for the full range of CSB data. In the simplest CSB clauses involving an unmodified inalienable noun object and possessor, incorporation looks very plausible, especially since MacZ even has genitive subject verbs which do involve incorporation of an inalienable noun root, such as *gwettsa'nàá'* 'get married' and various *laasi'* verbs like *arcalaasi'* 'want'.

Many independent properties, however, attest to the distinct syntactic constituency of the verb and possessed nominal. For example, adverbial clitics and the applicative clitic *=ni* do not show the same ordering in CSB that they show with genitive subject verbs and other verbs with incorporated noun roots. With genitive subject verbs, adverbial clitics may and *=ni* must follow the incorporated noun root. In CSB, these

clitics attach to the verb stem and can never follow the possessed noun. We have also seen that the verb and possessed nominal in CSB clauses can each be selectively targeted by gapping and NP-deletion. This is not possible with clear instances of noun incorporation.

Furthermore, the CSB nominal is not restricted to being a simple inalienable nominal head as the nominal in genitive subject verbs is. CSB occurs frequently with alienable nouns, and many pieces of evidence clearly show that the possessed nominal is a maximal phrasal projection, a DP. The possessed nominal can be modified by adjectives, prepositional phrases, and even relative clauses. It can also be pluralized and quantified and may be overtly marked as definite by demonstrative clitics. CSB object nominals can even be conjoined revealing among other things that the possessor—the would-be subject in an incorporation analysis—is a subconstituent of the larger possessed DP constituent. All of these facts attest to the phrasal nature and complexity of the host nominal, complexity which is not generally found in incorporation. In fact, we have seen evidence that phrasal complexity disrupts incorporation in MacZ.

In addition, CSB can even occur when the possessed nominal and verb are separated by some intervening material which would block incorporation. So for example, the possessed nominal may itself occur as the possessor of some larger DP or be the object of a preposition. Finally, some independent constituent may intervene between the verb and nominal. In such cases, the verb and host nominal do not even form a contiguous string and clearly are not incorporated. As CSB still occurs in such

environments, we are lead to the conclusion that it must arise by some means other than incorporation.

In conclusion, when we compare CSB to unequivocal cases of incorporation in MacZ, it becomes clear that CSB is not derived via incorporation. There is no independent evidence for incorporation in CSB and many individual pieces against it. Based on this evidence, we must conclude that CSB is not produced through incorporation, but is derived via some other mechanism.

While we have ruled out an incorporation account of CSB, we have not conclusively established that the coreferential genitive DP is not the grammatical subject, although we have seen hints that it is not. Since incorporation has been ruled out, another possible analysis of CSB might be that it represents an exceptional instance of VOS word order with a genitive subject. As we will see in the next section, however, the coreferential genitive DP does not show any positive evidence of being a grammatical subject. Furthermore, several independent pieces of evidence show that the genitive DP is a subconstituent of the possessed DP; it is not a direct argument of the verb.

6.2.3 CSB Genitive DP

A second alternative analysis to rule out for CSB is that it is actually an exceptional (for MacZ) instance of VOS word order. Under this proposal, the CSB word order is not V ∅ [O Possessor] as initially suggested but is really a V O S order (or V PP S in cases in which the possessed DP is part of a prepositional phrase). Under this alternative, the coreferential genitive DP should be analyzed as the grammatical subject

of the clause. So, a CSB sentence like 143 below with the apparent order *repair* [*car of Felipe*] 'Felipe$_i$ is repairing his$_i$ car' should in fact be seen as having a structure like [[*repair car*] *Felipe*], with *Felipe* representing a genitive subject.

143. **Reyuuni ___ carru què' Felipeà'.**
reyuuni carru què' Felipe =à'
H/repair car of Felipe =DIST
Felipe$_i$ is repairing his$_i$ car.

This analysis would have the advantage of having an expressed subject, which in turn could have a structurally superior position (in terms of c-command) with respect to the object, assuming a constituency of [[V O] S]. Under such can analysis there is no covert subject which must be controlled by an apparently structurally inferior possessor.

Like the incorporation analysis, the VOS analysis initially looks very promising with CSB sentences involving inalienably possessed objects, such as 144a below (compare it to the non-CSB counterparts in 144b-c which have nominative subjects occurring in an immediate post-verbal position).

144. a. **Rii ca laaya Felipeà'.** {mm}
rii ca laaya Felipe =à'
H/wash PL tooth Felipe =DIST
Felipe$_i$ is brushing his$_i$ teeth.

b. **Riiyà' ca laaya Felipeà'.** {mm}
rii =yà' ca laaya Felipe =à'
H/wash =1s PL tooth Felipe =DIST
I am brushing Felipe's teeth.

c. **Rii Felipeà' ca trasteà'.** {mm}
rii Felipe =à' ca traste =à'
H/wash Felipe =DIST PL dish =DIST
Felipe is washing the dishes.

In 144a, apart from the relative ordering of *Felipeà'* and the object (cf. 144b and 144c), there is no overt indication that *Felipeà'* is a possessor. *Felipeà'* is not marked with genitive case nor is it introduced by an overt preposition or any other possessive marker. Thus, it is not inconceivable that *Felipeà'* is a subject in 144a and that the sentence literally says something like 'Felipe is brushing teeth.' In such a case, it would be an omitted possessor, not a subject, which must be recovered. This could be accomplished either by considering pragmatic factors or via semantically interpreting a null possessor as being necessarily coreferential with the c-commanding subject assuming a structure of [[wash [teeth ∅]] Felipe] where ∅ represents a null possessor.[22]

This analysis is not borne out by a deeper exploration of the grammatical structure of the language. As will be discussed, the CSB genitive DP does not exhibit any independent syntactic properties associated with subjects. In addition, constituency evidence shows that this cannot be the correct analysis; there are clear indicators that the possessor forms a constituent with the possessed noun. The data do not support any alternative analysis, VOS or otherwise, which attempts to treat the CSB genitive DP as the grammatical subject.

[22] Another variation of the VOS ordering analysis could be that it is the subject which becomes null: [[wash [teeth Felipe_i]] $\varnothing_i$]. Although the possessor still would not c-command the null subject, the possessor would at least precede the subject, and such structures are even attested in other languages, such as Malagasy (Keenan 1976). The main difficulty with this approach is one common to any VOS account: VOS order is not allowed in MacZ. The implications of this restriction for CSB are discussed in Section 6.2.3.1.1. It is not the case that VOS order is generally available and that if a preceding possessor happens to be coreferential with the subject, the subject may be null. Instead, VOS order would have to be restricted to just those cases in which the possessor and null subject are coreferential. Whatever mechanism drives the VOS order (VP-preposing for example), would always have to fail to apply (or be undone) when there is an overt subject. Essentially, only vacuous VP-preposing could be allowed—that is, VP-preposing could only occur if there is no effect on the output string.

6.2.3.1 Subject Properties and CSB Genitives

As we saw above in Section 6.1, true genitive subjects exhibit a full range of syntactic subject properties. Apart from case-marking they behave identically to nominative subjects with respect to word order, imperatives, non-finite verb forms, Covert Subject Binding and movement. In contrast, the CSB genitives consistently fail to show any syntactic properties of grammatical subjects. CSB genitive DPs do not exhibit any of the properties uniquely associated with grammatical subjects.

Like nominative subjects, true genitive subjects must immediately follow the verb, are omitted in imperatives and with non-finite verbs, and optionally allow resumptive clitic pronouns under movement. The CSB genitives do not immediately follow the verb, but the possessed nominal. They cannot be omitted with imperatives and non-finite verbs and always require a resumptive pronoun with movement. These diagnostics support the existence of genitive subjects in MacZ but reveal that CSB genitives are not grammatical subjects.

6.2.3.1.1 Word Order

One problem for the VOS analysis is that VOS word order is not otherwise allowed in MacZ. As discussed in Section 4.2.3, while preposed DP arguments may appear in a variety of orders, MacZ is much stricter about post-verbal orders. Overt subject arguments, whether full DPs or pronouns, must appear before any object DPs, as illustrated below in 145-146.

145. a. **Beyuuni Felipeà' carruni.**
beyuuni Felipe =à' carru =ni
C/repair Felipe =DIST car =PROX
Felipe fixed this car.

b. **!Beyuuni carruni Felipeà'.**
***Felipe fixed this car.**
!This car fixed Felipe.

146. a. **Edíígayà' ca *llave*ni.**
edííga =yà' ca *llave* =ni
R/pick.up =1s pl key =PROX
I will pick up these keys.

b. ***Edííga ca llaveniyà'.**

So, to express a meaning like 'Felipe repaired the car' in 145 where no possessive relationship holds between the subject and object, the order can only be *repaired Felipe the car* and never *repaired the car Felipe*. The latter order, if it can be assigned a meaning, could only mean 'The car repaired Felipe'.

For the VOS alternative analysis of CSB, however, the object must be allowed to precede the subject. Actually, not only would objects have to be able to precede the subject, but so would prepositional phrases as in 147-148 and even both direct objects and PPs together as in 149.

147. **Juanni ruudia ___ lle'e nàá'nì.** {ii80g/h}
Juan =ni ruudia lle'e nàá' =nì
John =PROX H/write in hand =3G
John$_i$ writes on his$_i$ hand.

148. **Làànà rnnee' ___ lààní ca nàá'nì.** {ii80c/d}
làànà rnnee' lààní ca nàá' =nì
3IND H/talk with PL hand =3G
He$_i$ talks with his$_i$ hands.

149. **Làànà ruga'a ___ ttu pluma lle'e naaganì.** {v201i}
làànà ruga'a ttu pluma lle'e naaga =nì
IND=3 H/stick one pen in ear =3G
He$_i$ is sticking a pen in his$_i$ ear.

This could be achieved of course with VP-preposing/VP-remnant movement. However, in light of data like 145-146 above, fronting of the VP would have to have the odd restriction that it is only possible when there is coreference between the subject and some (immediately) preceding possessor that is embedded inside the VP. Or, to put it another way, VP-fronting could only occur when there is a null possessor. While such a restriction could be easily be stipulated, there does not seem to be anyway of deriving this effect from some deeper, more principled reasons.

In addition, if VP-fronting is generally available in MacZ, we would have to determine why this is not usually in evidence and why VOS is not the basic word order or, at the very least, an independently attested word order. At present, there does not seem to be any principled way of resolving these issues. Even if there might be, of course, the empirical evidence indicates that the genitive DP is not the grammatical subject but a possessor and subconstituent of the possessed DP as discussed below.

6.2.3.1.2 Imperatives

As we saw in Section 6.1.2.2, genitive subjects behave like nominative subjects in imperative clauses: both are omitted in positive imperatives when they encode second person singular informal subjects. If the possessors in CSB clauses are in fact genitive subjects, then it should be possible to omit them in imperative contexts as well.

This is not the case, however. CSB constructions are robustly attested with volitional predicates that readily appear in imperative contexts. Despite this, CSB genitives do not pass the test. They are not, and in fact cannot, be omitted in imperative contexts, as seen in the examples below:

150. a. **Begwiia' loo*(lù').** {mm}
begwiia' loo *(=lù')
C/look.at face *(=2SG)
Look at your face.

b. **Gutii (ca) nàá'*(lù').** {v25d/e}
gutii (ca) nàá' *(=lù')
C/wash (PL) hand *(=2SG)
Wash your hands.

c. **Gutii ca laaya*(lù').** {v198h/i}
gutii ca laaya *(=lù')
C/wash PL tooth *(=2SG)
Brush your teeth.

If we omit the CSB possessor with an inalienable noun as in 150, the resulting sentence is either ungrammatical or loses its coreferential meaning. Thus, 150c without the possessor *=lù'* could only receive an interpretation like 'brush the teeth', and there is no longer obligatory coreference between the (understood) subject and possessor. If genitive *=lù'* were the subject, it should be permissible to omit it in imperative contexts. As we cannot, this suggests that *=lù'* is not a subject in CSB clauses like those in 150.

Similarly with alienable nouns, the possessive pronoun (*chò'* a fusion of *què'* 'of' and *=lù'* '=2SG') cannot be omitted. Doing so without also omitting the preposition *què'*—required with alienable possession—results in ungrammaticality as seen in 151b. Omitting both *què'* and the possessor produces a grammatical sentence, but without the coreferential interpretation required in CSB. This is illustrated in 151c.

151. a. **Beyuuni carru chò'nà'.** {v26d}
beyuuni carru chò' =nà'
C/fix car of/2SG =DIST
Fix your car.

b. ***Beyuuni carru què'nà'.** {mm'}
beyuuni carru què' =nà'
C/repair car of =DIST
Fix your car.

c. **Beyuuni carrunà'. < Beyuuni ___ carrunà'.** {v26d}
beyuuni carru =nà'
C/repair car =DIST
*Fix that car. *Fix your car.*

That the possessor pronoun cannot be omitted without also omitting *què'* is not just due to the fact that we have a suppletive form *chò'* instead of the expected **què'lù'* with second singular informal possessives. The same pattern holds with plural imperatives even though there is no suppletion, as shown below in 152a (cf. the non-CSB counterpart in 152b):

152. a. **Lii beyuuni___ carru què'*(li)nà'.** {mm'}
lii beyuuni carru què' *(=li) =nà'
2p C/repair car of *(=2PG) =DIST
Fix y'all's car.

b. **Lii gutoo___ ca ettanà'.** {v209m}
lii gutoo ca etta =nà'
2p C/eat PL tortilla =DIST
Y'all eat those tortillas.

As indicated by the preposed pronoun *lii*, these are plural imperatives, yet the clitic *=li* in 152a cannot be omitted while leaving *què'* overt. This argues that the pronoun must remain overt not because of confounding factors such as lexical suppletion but because it is the argument of the preposition *què'* and a possessor.

Semantically, there is no obvious reason why the CSB genitive could not be omitted in imperatives if it were the syntactic subject. Crosslinguistically, we can find many instances in which understood subjects in imperatives can still bind anaphoric expressions. In English, for example, reflexives and reciprocals can be licensed in imperative contexts, having their Principle A requirement that they be locally bound satisfied by the understood subject:

153. a. Don't beat yourself up.
b. Give each other a hug and make up.

That the CSB possessors in MacZ cannot be omitted in imperatives argues they are not subjects. Instead, the subjects of the CSB imperatives in 150-152 have been omitted just as in other imperative sentences, but like those sentences the null subject is in its normal VSO surface position. As imperatives allow null subjects and not null possessors, this argues that in fact the overt, required genitive pronouns are possessors. Attempting to remove them results in either the loss of the coreferential possessive reading because there is now no possessor or results in ungrammaticality since inalienable nouns and *què'* generally must have overt genitive nominals associated with them.

In contrast, true genitive subjects are grammatical subjects and can therefore be omitted in the imperatives of volitional predicates. Similar results obtain with the non-finite verb forms as discussed below.

6.2.3.1.3 Non-Finite Verbs

Non-finite verbs provide an even stronger test of CSB genitive subjecthood than do imperatives. Like imperatives, non-finite verbs have null subjects. However with non-finite verbs, the subject is required to be null; this verb form is incompatible with an overt subject. If CSB genitives are syntactic subjects, they should not be present with non-finite verb forms. And this is what we saw with true genitive subjects in Section 4.2.5. They are impossible with non-finite verbs. The CSB genitive, in contrast, can always be expressed with non-finite verbs and frequently must be to produce a grammatical utterance. This argues that the CSB possessors are not syntactic subjects and is consistent with the identification of the CSB genitive as a syntactic possessor in a clause which apparently lacks an overt subject.

The non-finite form of a verb in MacZ cannot license an overt external argument and therefore does not have an overt subject. If CSB clauses do involve genitive subjects, then we would expect them to require the genitive subject to be omitted when the verb is non-finite.

This, however, does not occur. Sentence 154 provides an example CSB clause which has the expected anaphoric interpretation and backward binding genitive argument (underlined).

154. **Edgarnà' ricchu ittsicchan<u>ì</u>.** {v230h}
Edgar =nà' ricchu ittsa iccha <u>=nì</u>
Edgar =DIST H/cut hair head <u>=3G</u>
Edgar cuts his own hair.

When placed into a non-finite context, the possessor in 154, *=nì*, must remain overt as shown in 155. If it were the subject in 154 and 155, it should be omitted in 155.

155. **Edgarnà' gudusiinà gwecchu ittsiccha*(nì).**[23] {v231b}
Edgar =nà' gudusii =nà gwecchuittsa iccha *(=nì)
Edgar =DIST C/stop =3 N/cut hair head *(=3G)
Edgar stopped cutting his hair.

That the possessor can still appear in *gw-* CSB clauses is not so surprising. After all, it could be that such sentences are derived from non-CSB clauses. That is, 155 could have just as easily come from 156, which has a nominative subject (underlined) without obligatory coreference:

156. **Edgarnà' ricchunà ittsicchanì.** {mm'}
Edgar cuts his hair.

Placing either 154 or 156 into a non-finite context results in the same surface string *gwecchu ittsicchani* exemplified in 155. Thus it is not surprising that the possessor could appear in 155.

However if the genitive DP in 154 is the syntactic subject, it is unexpected that it **must** remain overt in the *gw-* clause in 155. If 155 can be derived from either a non-CSB clause (156) or a CSB clause (154) with a genitive syntactic subject, then we would expect two variants of 155, one with the possessor and one without. If the genitive DP is the grammatical subject in CSB, then it should be omitted when in a non-finite clause, and 155 should be grammatical without the possessor, *=nì*. As we see in 155, however, the genitive DP must be overtly expressed.

[23] As a side note, it is also impossible to omit the subject marking from *gudusii* 'stopped'. CSB seems to be strictly bound to the local clause and cannot be extended to higher verbs, even when the subject of those verbs is coreferential.

This is particularly surprising since the non-finite clause in 155 is ambiguous. We have no way of telling if 155 is related to the CSB structure in 154 or the non-CSB structure in 156. The sentence in 155 does not have the obligatory coreference between the subject and possessor. It allows both the disjoint and coreferential readings between *Edgarnà'* and *=nì* 'his/her'. If the genitive "subject" could be omitted, however, it would mark the non-finite complement as unambiguously coreferential. Although both the underlying possessor and subject would be omitted, it would still be clear that CSB would be involved in the interpretation of the clause due to the presence of an inalienable noun or the preposition *què'* to signal the necessary possession. The identity of the coreferential subject/possessor would then be provided by the controlling subject in the higher clause.

If this strategy for disambiguation were syntactically available—because the genitive DP is the syntactic subject—then we would expect speakers to take advantage of this opportunity to extend CSB into non-finite clauses. They, however, cannot. Omitting the backward binding genitive of a non-finite CSB clause results in ungrammaticality or loss of the obligatory coreferential reading, as shown below in the following additional examples:

157. a. **Diia'yà' gwii ca nàá'*(yà').** {v25b}
diia' =yà' gwii ca nàá' *(=yà')
S/go =1s N/wash PL hand *(=1SG)
I'm on my way to wash my hands.

b. **Làànà daanà gwii ca laaya*(nì).** {v198b/c}
làànà daa =nà gwii ca laaya *(=nì)
IND=3 S/be(PROG) =3 N/wash PL tooth *(=3G)
He is brushing his teeth.

158. a. **Diia'nà gweyuuni carru què'*(nì)á.** {v26c'}
diia' =nà gweyuuni carru què' *(=nì) =á
S/go =3 N/repair car of *(=3G) =INVIS
He is on his way to fix his car.

b. **Diia'nà gweyuuni carru què'*(nìá).** {mm'}
He is on his way to fix his car.

c. **Diia'nà gweyuuni carru ~~què'nì~~á.** {mm'}
He is on his way to fix that car.
**He is on his way to fix his car.*

d. **Diia'nà gweyuuni carru ~~què'nìá~~.** {mm'}
He is on his way to fix cars.
**He is on his way to fix his car.*

The controlling possessor cannot be omitted in a non-finite clause whether the possessed nominal is an inalienable noun (157) or an alienable one (158).

Thus, the data in 157-158 do not support the identification of the CSB genitive as a syntactic subject since the hypothetical "subject" cannot be omitted in non-finite contexts, a context in which overt subjects are impossible whether they are nominative or genitive. Of course, that the CSB genitive remains overt is exactly what we would expect if it remains a possessor at surface structure; the finiteness of the verb has no impact on whether an object can have a possessor or not.

6.2.3.1.4 Movement

A final subject diagnostic which we can apply to CSB genitive DPs is their interaction with movement. Nominative Subjects can undergo movement to a preverbal position leaving behind an (optional) resumptive clitic. As we saw in Section 6.1.2.5, genitive subjects behave in a completely parallel fashion to nominative subjects. If CSB genitives are syntactic subjects, then they should exhibit the same behavior with respect

to movement as more prototypical subjects do. In particular, it should be possible to move them to a preverbal position, via *wh*-movement for example, without always requiring a resumptive pronoun. But this is not possible with CSB genitives. To retain the possessive reading in CSB, the possessor DP must remain overtly realized following the possessed nominal; it can neither be fronted nor omitted. As detailed below, this is consistent with a structure in which the CSB genitive remains a possessor at surface structure and in which there is no overt argument occupying the surface subject position.

6.2.3.1.4.1 *Wh*-Movement

As discussed in Section 4.2.7, MacZ has *wh*-movement whereby *wh*-words are moved to a preverbal position. When a subject nominal is involved in *wh*-movement, a resumptive pronoun optionally occurs immediately following the verb. As we saw in Section 6.1.2.5.1, genitive subjects behave in exactly the same fashion with respect to movement.

The CSB genitives, in contrast, do not behave like the genitive subjects in Section 6.1. The genitive clitics are never optional in CSB clauses, whether or not movement has applied. As shown below in 159-163, omitting the CSB genitive clitic under *wh*-movement results in ungrammaticality (the (a) sentences provide examples with *wh*-movement while the (b) examples give the corresponding indicative CSB clause).

159.a. **¿Núúní gucchu ittsicchá*(nì)?** {mm}
Núú =ní gucchu ittsa-icchá *(=nì)
who =COMP C/cut hair-head *(=3G)
Who cut his hair?

b. **Gucchu ___ ittsicchánì.** {mm'}
He$_i$ cut his$_i$ hair.

160. a. **¿Núúní rii ca laaya*(nì)?** {v198f/g}
núú =ní rii ca laaya *(=nì)
who =COMP H/wash pl tooth *(=3G)
Who is brushing his teeth?

b. **Rii ___ ca laayanì.**
He$_i$ is brushing his$_i$ teeth.

161. a. **¿Núú taa' gutittsa nàá'*(nì)?** {vi7b/c}
núú taa' gutittsa nàá' *(=nì)
who foc C/break hand *(=3G)
Who broke his arm?

b. **Gutittsa ___ nàá'*nì.** {vi7'}
He$_i$ broke his$_i$ arm.

162. a. **¿Núúní beyuuni carru què'*(ni)á?** {mm}
núú =ní beyuuni carru què' *(=ni) =á
who =COMP C/repair car of *(=3G) =INVIS
Who fixed his car?

b. **Beyuuni ___ carru què'nìá?** {mm}
He$_i$ fixed his$_i$ car.

163. a. **¿Núúní beca'na tarea què'*(nì)á lle'e yú'ù'.** {mm'}
núú =ní beca'na tarea què' *(=nì) =á lle'e yú'ù
who =COMP C/leave.behind homework of *(=3G) =INVIS in house
Who left his homework at home?

b. **Beca'na ___ tarea què'nìá lle'e yú'ù.** {vi5d'}
He$_i$ left his$_i$ homework at home.

If the genitive pronoun *=nì* is the syntactic subject, then it should not require a resumptive pronoun under movement. As we saw in Section 6.1.2.5.1, nothing about genitive case or incorporation should require an overt subject resumptive pronoun to occur with *wh*-movement. Unless there is some unknown confounding factor to explain the required genitive pronouns in 159-163, the *wh*-movement subject diagnostic does not identify the genitive DPs in CSB as grammatical subjects.

We did note two instances in which subject resumptive pronouns are required: when the subject trace is followed by another clitic pronoun and when a DP object satisfies the subject selectional restrictions of the verb and would otherwise be parsed as the subject (see Section 4.2.7 for discussion). These restrictions are clearly not factors in 159-161. In those sentences, the CSB genitive is not followed by another clitic pronoun, a potentially ambiguous DP, or anything at all for that matter. In fact, since no overt material follows the clitic genitive pronouns in these sentences, we might even expect the resumptive pronouns to be dispreferred in these sentences. After all, nominative resumptive subject pronouns are usually blocked in intransitive sentences when no other arguments follow the position of the subject trace (see Section 4.2.7 for discussion). We might wonder, however, if the clitic demonstratives in 162-163 explain the required presence of the overt possessive pronouns.

In 162-163, the CSB genitives are followed by the demonstrative clitic *=á* =INVIS associated with the possessed DP nominal. Such clitics are generally required with definite alienable DPs where they appear in the final position of the DP and follow not only the noun but also adjectives and possessors. We might suspect that a demonstrative clitic would require the genitive trace to be spelled out, since pronominal clitics following a subject trace require an overt subject pronoun. Perhaps in 162-163, the third person genitive clitic *=nì* must be overt because the demonstrative clitic *=á* follows it. We might even conjecture that the resumptive is also required in 159-161 because of the presence of a null demonstrative. That is, although inalienable nouns like those in 159-161 do not require an (overt) demonstrative clitic, it would not be inconceivable that they would take

a null demonstrative which in turn might account for the observed pattern. If these conjectures turn out to be correct, then we could explain why the "subject" clitics in 159-163 cannot be omitted under *wh*-movement.

Additional evidence, however, reveals that the demonstrative clitic (overt or covert) theory does not satisfactorily account for the required presence of the CSB genitive pronoun. It is questionable whether demonstrative clitics have the same effect as pronominal clitics in causing a trace to be overtly realized. As will be seen in the next section on relativization, we can find many examples in relative clauses in which a subject trace remains null although it is followed by a demonstrative clitic. Thus, pronominal clitics and demonstrative clitics have different effects on the realization of a trace.

In addition, removing the demonstrative clitic does not result in the CSB possessor pronoun becoming optional. For example, if we try to leave out the demonstrative along with the genitive pronoun it phonologically cliticizes to, the result is still ungrammatical, as seen in 164a. Similarly, if we delete *què'* 'of' which the possessive cliticizes to along with the CSB genitive (164b) or the entire phonological word associated with the controlling possessor (164c), we do not get ungrammaticality, but we lose the possessive reading (and any chance of CSB).

164. a. **¿Núúní beyuuni carru què'*(niá)?** {mm'}
núú =ní beyuuni carru què' *(=ni =á)
who =COMP C/repair car of *(=3G =INVIS)
Who fixed his car?

b. **¿Núúní beyuuni carru ~~què'niá~~?** {mm'}
núú =ní beyuuni carru ~~què'~~ ~~=ni~~ =á
who =COMP C/repair car ~~of~~ ~~=3G~~ =INVIS
**Who fixed his car?*
Who fixed that car?

c. **¿Núúní beyuuni carru ~~què'niá~~?** {mm'}
núú =ní beyuuni carru ~~què'~~ ~~=ni~~ ~~=á~~
who =COMP C/repair car ~~of~~ ~~=3G~~ ~~=INVIS~~
**Who fixed his car?*
Who fixed cars?

Thus, we are still unable to grammatically omit the apparent resumptive genitive clitic even if we also delete elements that are phonologically dependent upon the possessor clitic or that it itself is dependent upon.

Moreover, certain alienably possessed nominals cannot take a demonstrative, yet it is still not possible to delete the CSB genitive pronoun under *wh*-movement. For example, certain entities cannot be physically located in space and therefore do not occur with clitic demonstratives. This can occur, for instance, with predicates of creation that has yet to be realized, as in 165:

165. **¿Núúní àbíí beeni tarea què'*(nì)?** {vi12c/d}
núú =ní àbíí beeni tarea què' *(=nì)
who =COMP neg C/do homework of *(=3G)
Who hasn't done their homework?

As the homework has not yet been done, it does not exist, cannot be located physically in space, and naturally occurs without a clitic demonstrative. As a result in 165, no clitic demonstrative follows the potential CSB genitive clitic *=nì*.[24] Despite this, however, the

[24] That this predicate (do one's homework) licenses CSB is evidenced by the following:
i. **Felipeà' làbíí beeni ___ tarea què'nì.** {vi12f}
Felipe =à' làbíí beeni tarea què' =nì
Felipe =DIST NEG C/do homework of =3G
Felipe$_i$ didn't do his$_i$ homework.

genitive clitic can still not be omitted under *wh*-movement, even though we have removed the potential complication of a (overt) clitic demonstrative.

Finally, even if covert demonstratives are present with inalienable nominals or alienable ones like that in 165, it is doubtful that they could force a preceding subject resumptive pronoun to be overt. Phonetically null elements do not force the subject pronoun to remain overt the way phonetically overt clitics can. While a phonetically overt object pronoun can cause a moved DP to occur with a resumptive pronoun, a covert object trace cannot:

166. a. **¿Núúla lagoo$_k$ ànúúdi$_i$ rulaasi' t$_i$ t$_k$?** {v297e}
núúla lagoo ànúúdi rulaasi'
which food nobody H/like
Which food does nobody like?

b. **¿Núú taa' bènnè' nu'$_i$ àbíídi$_k$ rulaasi' t$_i$ t$_k$?** {v297g}
núú taa' bènnè' nu' àbíídi rulaasi'
who foc person rel nothing H/like
Who is the person who doesn't like anything?

As seen in 166, a silent object trace does not require an overt subject resumptive pronoun, although a phonetically overt object clitic pronoun would. Only phonetically overt clitics can force a subject trace to be spelled out. Therefore, even if the inalienable nouns in 159-161 do occur with covert demonstratives, it is doubtful they would force the genitive pronouns to remain overt.

Thus, it cannot be the case that the demonstrative clitics are responsible for requiring the CSB genitive clitic to remain overt. If it is the syntactic subject, it is unclear why a resumptive pronoun should be required with movement while it remains optional with genitive subjects of verbs containing incorporated nouns. If the CSB

genitive does occupy the syntactic subject position, then there is no syntactic explanation for why a CSB possessor "subject" would behave differently from other subjects with respect to *wh*-movement. In fact, the presence of the demonstrative clitic only serves to highlight the fact that the CSB genitive is not a subject but a constituent of the possessed DP as seen by the fact that the possessor occurs in the middle of the host nominal between the head noun and the demonstrative associated with it.

The required presence of the genitive clitics also is not due to any semantic anomaly. There is nothing that is *a priori* aberrant about the semantics of questions such as those in 159-163. We can readily outline the semantic representations needed for a question in which the questioned element is a subject that is coreferential with another argument or possessor. The semantic representations for the sentences in 159-163 are sketched below:

167. a. Who is the person x, s.t. x cut x's hair
b. Who is the person x, s.t. x brushes x's teeth
c. Who is the person x, s.t. x broke x's arm
d. Who is the person x, s.t. x repaired x's car
e. Who is the person x, s.t. x left x's homework at home

And, of course, such constructions are robustly observed in natural languages, as illustrated in the following English examples:

168. a. Who is angry at himself?
b. Who cuts their own hair?

On semantic grounds, there is no reason to expect CSB and *wh*-movement to be incompatible. Semantically, CSB should be able to feed *wh*-movement. If CSB involves having a genitive DP realized as a surface subject, *wh*-movement should result in fronting that subject with an optional resumptive pronoun.

Indeed, there is a pragmatic reason which should favor omitting the resumptive pronoun, if it is syntactically permitted. The sentences above in 159-163a, repeated below, are all ambiguous and lack the forced coreferential reading between the subject *núú* 'who' and the possessor:

159.a. **¿Núúní gucchu ittsicchá*(nì)?** {mm}
núú =ní gucchu ittsa-icchá *(=nì)
who =COMP C/cut hair-head *(=3G)
Who cut his hair?

160. a. **¿Núúní rii ca laaya*(nì)?** {v198f/g}
núú =ní rii ca laaya *(=nì)
who =COMP H/wash pl tooth *(=3G)
Who is brushing his teeth?

161. a. **¿Núú taa' gutittsa nàá'*(nì)?** {vi7b/c}
núú taa' gutittsa nàá' *(=nì)
who foc C/break hand *(=3G)
Who broke his arm?

162. a. **¿Núúní beyuuni carru què'*(ni)á?** {mm}
núú =ní beyuuni carru què' *(=ni) =á
who =COMP C/repair car of *(=3G) =INVIS
Who fixed his car?

163. a. **¿Núúní beca'na tarea què'*(nì)á lle'e yú'ù'.** {mm'}
núú =ní beca'na tarea què' *(=nì) =á lle'e yú'ù
who =COMP C/leave.behind homework of *(=3G) =INVIS in house
Who left his homework at home?

Pragmatically of course, these may each have a preferred interpretation: in 160 for example, one typically brushes one's own teeth. But these are just interpretations based on real world knowledge. They do not inherently follow from the syntax and can easily be altered in context. The agent and possessor can be coreferential, but need not be so.

This is due to the fact that such sentences could have as their source non-CSB sentences with the *wh*-word originating as the grammatical subject. For 159, this is

schematized below in 169 (with (a) representing an underlying form for the surface string in (b)):

169. a. **Gucchu núú$_i$ ìttsicchánì$_{i/j}$?**
gucchu núú ìttsa-ìcchá =nì
C/cut who hair-head =3G

b. **¿Núúní$_i$ gucchu(nà$_{i/j}$/t$_i$) ìttsicchánì$_{i/j}$?**

Here, since we have an overt subject, we do not have the obligatory coreference between the subject and possessor, though coreference is possible. When the *wh*-subject undergoes movement, a resumptive pronoun is not required, even without coreference. Therefore, there is no way to distinguish between the coreferential reading and the disjoint one based on whether the subject clitic is absent or present. *Wh*-movement already allows for an empty post-verbal subject. As a result, the sentences in 159-163 are ambiguous. This ambiguity could be resolved, however, if the CSB genitive is a syntactic subject which could occur without a resumptive pronoun.

The CSB source of 159, if possible, would have an underlying form something more like 170 below:

170. a. **Gucchu ___$_i$ ìttsicchá núú$_i$?**
gucchu ìttsa-ìcchá núú
C/cut hair-head who

b. **¿Núúní$_i$ gucchu ìttsicchá(nì$_i$)?**

Movement of the *wh*-word then without a resumptive genitive pronoun would clearly indicate that 170 is the underlying structure and would signal the coreferential interpretation, distinguishing it from the ambiguous 169b, where the genitive pronoun *=nì* would remain overt. That speakers cannot do this argues that this is not allowed by the

syntax. Since nominative subjects do have this option, we are left with the conclusion that *=nì* in 159-163 is not a subject.

In sum, there are no apparent phonological, syntactic or semantic reasons to expect *wh*-movement to require an overt subject resumptive pronoun in CSB clauses if the CSB genitive is a syntactic subject. And there are even pragmatic reasons to expect the CSB genitive resumptive "subject" to be omitted if at all syntactically possible. Since there is no other explanation as to why CSB "genitive subjects" should require a resumptive, we must conclude then that in the sentences in 159-163, *=nì* is not a subject resumptive pronoun but instead represents a grammatical possessor. Since the possessor is not undergoing *wh*-movement, there is no reason to expect the possessor clitic to be optional.[25] If the genitive clitic is a grammatical possessor, we expect the results obtained here: omitting the possessor results in either loss of the possessive reading or ungrammaticality because inalienable nouns are left without a possessor and *què* is left without an object.

This argues then that we do not have underlying forms like that in 170, but instead like the one in 169. This is supported by the resulting ambiguity in the surface string (coreferentiality is not required) and by the fact that the subject resumptive can appear in its normal post-verbal position, as shown below:

171.a. **¿Núúní gucchu(nà) ittsicchánì?** {mm'}
Núú =ní gucchu (=nà) ittsa-icchá =nì
who =COMP C/cut (=3) hair-head =3G
Who cut his hair?

[25] We can see that the possessor is not undergoing movement since it usually requires pied-piping of the object with it, and if the possessed DP undergoes pied-piping, we lose the coreferential interpretation. See Section 6.2.4.2.4 below.

b. **¿Núúni rii(nà) ca laayanì?** {mm'}
núúni rii (=nà) ca laaya =nì
who H/wash (=3) pl tooth =3G
Who brushes his teeth?

c. **¿Núúní beyuuni(nà) carru què'niá?** {mm'}
núú =ní beyuuni (=nà) carru què' =ni =á
who =COMP C/repair (=3) car of =3G =INVIS
Who fixed his car?

CSB does not seem to involve a genitive syntactic subject since we saw that genitive arguments of incorporated verbs behave like other syntactic subjects with respect to *wh*-movement. In CSB, what we find is consistent with the following structure for CSB: a null subject occupying the syntactic subject position which is surprisingly licensed by a following, structurally inferior coreferential possessor.

6.2.3.1.4.2 Relativization

Subjects behave much the same under relativization as they do under *wh*-movement. A relative pronoun corresponding to the subject appears at the beginning of the relative clause, and either a corresponding resumptive pronoun or gap may appear in the postverbal subject position. As discussed above in Section 6.1.2.5.2, genitive subjects behave just like the nominative subjects with respect to relativization. The resumptive pronoun is not required to fill the subject gap of the relative clause. CSB genitives, however, do not behave like subjects.

If CSB controlling possessors are syntactic subjects, then they should behave like the nominative subjects and genitive subjects with respect to relativization. It should be

possible to have a gap indicating the source of a relativized CSB genitive subject, as schematized below in 172:

172. …Head Noun nu'$_i$…V … [possessed nominal (què') t_i…] …

Crucially, if CSB possessors surface as syntactic subjects, a resumptive pronoun might sometimes be able to fill the post-nominal "subject" position (indicated above by t_i), but it should be possible to omit the resumptive in at least some instances.

The genitive DPs of CSB clauses, however, do not act like relativized nominative and genitive subjects. The CSB controlling possessor pronoun can never be omitted in relative clauses (or elsewhere for that matter). Doing so results in ungrammaticality, or at the very least, loss of the possessive interpretation and therefore, any possible CSB interpretation:

173. a. **Nabia'tè' uncwiiti' nu'$_i$ ricchu ___ ittsicchá*(nì$_{i/j}$).** {mm}
nabia'=ni =tè' uncwiiti' nu' ricchu ittsa-iccha *(=nì)
S/know=PREP =1SA guy REL H/cut hair-head *(=3G)
I know the guy who cuts his hair.

b. **Nabia'tè' beyùú' nu'$_i$ rii ___ ca nàá'*(nì$_{i/j}$)à'.** {v31a}
nabiia'=ni =ntè' beyùú' nu' rii ca nàá' *(=nì) =à'
S/know=PREP =1SA man rel H/wash pl hand *(=3G) =DIST
I know the man who is washing his hands.

c. **Nabia'tè' uncwiiti' nu'$_i$ beyuuni ___ carru què'*(nì$_{i/j}$)á.** {mm}
nabia'=ni =tè' uncwiiti' nu' beyuuni carru què' *(=nì) =á
S/know=PREP =1SA guy REL C/repair car of *(=3G) =INVIS
I know the guy who fixed his car.

d. **Ca bènnè'$_i$ beseelani ___ luesi'*(cayé$_{i/j}$)á redaccalaasi'canyé.** {v274a}
ca bènnè' beseela=ni luesi' *(=ca =yé) =á redaccalaasi'=ni[26]
PL person C/be.found=PREP ANAPH *(=PL =3F) =INVIS H/be.happy=PREP
=ca =yé
=PL =3F
The people who found each other are happy.

As can be seen, omitting relativized possessors in potential CSB contexts results in ungrammaticality, and thus, the CSB genitives do not behave like subjects with respect to relativization.

As discussed in detail with the *wh*-subject diagnostic, there is no exceptional factor which can account for the required presence of the genitive resumptive pronoun, if it is the syntactic subject. There are no obvious phonological, semantic or syntactic reasons why genitive resumptive "subject" pronouns should be required in 173 but not with true genitive subjects like those in Section 6.1.2.5.2. If the CSB genitives are subjects, they should be able to undergo gapping with relativization.

In particular, the two restrictions on movement that we have noted (following ambiguous DPs and following clitic pronouns) are not confounding factors for the sentences in 173. In each clause, the potential controlling possessor occurs as (part of) the last word of the relative clause, so clearly there are no potentially ambiguous DPs following them. Nor are there any clitic argument pronouns following the genitive clitic pronouns.

In 173a, nothing at all follows the genitive argument, and in the others, 173b-d, only clitic demonstratives do. Clitic demonstratives, however, do not require a preceding argument trace to be overtly filled by a resumptive pronoun, as pronominal clitics do. So,

[26] This instance of this verb unexpectedly contains both the incorporated noun *laasi'* 'being' and *=ni* =PREP.

while a structure like 174a requires the subject trace to be overtly filled, a structure like 174b does not:

174. a. $[_{DP}$ Head Noun $[_{RC}$ nu'$_i$ … V t_i =obj. clitic]] → underlying
$[_{DP}$ Head Noun $[_{RC}$ nu'$_i$ … V=nà$_i$=obj. clitic]] surface

b. $[_{DP}$ Head Noun $[_{RC}$ nu'$_i$ … V t_i] =DEM] underlying/surface

Phonetically null subject traces can coexist with following demonstrative clitics as shown by the non-CSB examples in 175 below:

175. a. **Beyùú' nu' àbíídi gunnee___á naanà Yhiida'.** {vi4a}
beyùú' nu' àbíídi gunnee =á naa =nà Yhiida'
man REL nothing C/talk =INVIS S/be =3 Chinantec
That man who didn't say anything is Chinantec.

b. **Beyùú' nu' ruyhiisi'(*yé)nà' naayé xuudiyà'.** {v90e}
beyùú' nu' ruyhiisi' (*=yé) =nà' naa =yé xuudi =yà'
man REL H/laugh (*=3F) =DIST S/be =3F father =1SG
That man who is laughing is my father.

Despite the demonstrative clitics following the subject traces, *=á* INVIS in 175a and *=nà'* DIST in 175b, no resumptive pronoun is required. In fact in 175e, the resumptive pronoun is actually blocked completely, presumably because the verb is intransitive. We can conclude then that it is not the clitic demonstratives associated with the relativized DP that are forcing the genitive possessors in 173 to remain overt.

As a result, this subject diagnostic does not support identifying the CSB genitive as the grammatical subject. In general, there does not seem to be anyway to reconcile the CSB genitive with being a subject that is unable to be relativized without a resumptive pronoun. Instead, the relativization data is consistent with the CSB controlling genitive being syntactically a possessor. Thus, when unequivocal possessors are relativized, they require resumptive pronouns as well (unless the possessed NP is pied-piped):

176. a. **Ìntè' begwiia'yà' niula nu' gucchulù' ittsicchá*(ni)á.** {d84a}
ìntè' begwiia' =yà' niula nu' gucchu =lù' ittsa-iccha =ni =á
me C/look.at =1s woman REL C/cut =2s hair-head =3G =INVIS
I saw the woman whose hair you cut.
lit. *I saw the woman who$_i$ you cut her$_i$ hair.*

b. **Ìntè' nabiiatè' bennè' beyuunlù' carru què'*(yé)á.** {d83f}
ìntè' nabiia'=ni =ntè' bennè' beyuuni =lù' carru què' =yé =á
me S/know =1SA person C/repair =2s car of =3F =INVIS
I know the person whose car you fixed.
lit. *I know the person who$_i$ you fixed their$_i$ car.*

The behavior of the CSB genitive under relativization is consistent with it being a possessor instead of the grammatical subject.

The relative clauses in 173 could also derive from another source. Instead of being a relativization of the CSB genitive, they could represent instances of relativization of the normal postverbal subject. This is evidenced by the fact that the postverbal subject gaps in 173 can optionally be filled with a resumptive pronoun:

177. a. **Nabia'tè' uncwiiti' nu' ricchu(nà) ittsicchániː.** {mm'}
I know the guy who cuts his hair.

b. **Nabia'tè' beyùú' nu' rii(nà) ca nàá'nià'.** {mm'}
I know the man who is washing his hands.

c. **Nabia'tè' uncwiiti' nu' beyuuni(nà) carru què'nià.** {mm'}
I know the guy who fixed his car.

d. **Ca bènnè' beseelani(cayé) luesi'cayéá redaccalaasi'canyé.** {mm'}
The people who found each other are happy.

This alternate source is further supported by the fact that the sentences in 173 are ambiguous, like the similar *wh*-questions in the previous section. The relative clauses in 173 lack a coreferential reading between the relativized subject and possessor. This is predicted only if the postverbal subject is available for relativization and not a post-

nominal genitive "subject", which should require the coreferential reading. As discussed in detail with *wh*-movement, this ambiguity is due to the fact that both movement and CSB can result in a null postverbal subject, and the two cannot be distinguished from one another. But if the CSB genitive were a subject, the obligatory coreferential reading and non-obligatory one could be disambiguated by the presence or absence of the controlling genitive in relativization contexts. That this cannot occur argues that CSB does not involve a genitive grammatical subject.

Instead, the relativization behavior is consistent with the CSB structure involving a null subject position licensed by a structurally inferior controlling possessor. The CSB controlling possessors simply do not behave like subjects with respect to movement, neither *wh*-movement nor relativization, nor as we will see below with respect to quantificational movement.

6.2.3.1.4.3 Quantificational Movement

The CSB controlling possessors also do not behave like subjects with respect to the movement of indefinite quantified DPs. Such DPs can undergo overt Quantifier Raising to a preverbal position. As with *wh*-movement and relativization, a resumptive clitic pronoun may mark the underlying postverbal argument position of the quantified DP, but this resumptive pronoun is not generally required. Of course, a subject resumptive pronoun can be required if the postverbal trace is followed by a clitic pronoun or by a DP which could be misinterpreted as the subject.

If CSB genitives are grammatical subjects, then they should behave like nominative and genitive subjects under overt QR. It should be possible for the quantified

"subject" to be fronted to a preverbal position without requiring a resumptive pronoun after the possessed nominal, just as we observed with genitive subject verbs in Section 6.1.2.5.3. However, this is not possible with CSB clauses. The controlling possessor must remain overt in its post-nominal position; it cannot be omitted with overt quantifier raising. Doing so results in ungrammaticality or minimally the loss of the possessive reading and any possibility of CSB as shown below:

178. a. **Ànúúdi gutii ca nàá'*(nì).** {v30h/i}
ànúúdi gutii ca nàá' *(=nì)
nobody C/wash pl hand *(=3G)
Nobody washed their/his hands.

b. **Ànúúdi gutii ca laaya*(nì) naase'á.** {v198l}
ànúúdi gutii ca laaya *(=nì) naase' =á
nobody C/wash PL tooth *(=3G) last.night =INVIS
Nobody brushed their/his teeth last night.

c. **Ànúúdi beeni tarea què'*(nì).** {vi12a/b}
ànúúdi beeni tarea què' *(=nì)
nobody C/do homework of *(=3G)
Nobody did their/his homework.

d. **Ànúúdi chi beseelani ca llave què'*(nì)á.** {vi11i/j}
ànúúdi chi beseela=ni ca llave què' *(=nì) =á
nobody already C/be.found=PREP PL key of *(=3G) =INVIS
Nobody has found their/his keys yet.

With respect to overt QR, the CSB controlling possessors do not behave like syntactic subjects. Otherwise, it should be possible to omit the genitive pronouns in 178 with the CSB coreferential reading. That we cannot argues that CSB is not derived by the promotion of the CSB genitive to grammatical subject.

Although the genitive DPs in 178 do not appear to be occupying the subject position, it also does not appear that we are fronting the possessor since we do not get

pied-piping. Normally, when a quantified possessor undergoes raising, it undergoes pied-piping with inversion (Smith-Stark 1988). The entire possessed DP raises to a preverbal position and then the quantified possessor raises to the beginning of the fronted possessed DP. This is illustrated below in 61:[27]

179. a. **[Ànúúdi$_i$ ittsicchá què' t$_i$]$_k$ gucchuyà' t$_k$.** {d83h}
ànúúdi ittsa-iccha què' gucchu =yà'
nobody hair-head of C/cut =1s
I didn't cut anybody's hair.

b. **[Ànúúdi$_i$ xnáá t$_i$]$_k$ gwayuulaasi'cayé guttsa'nàá'lù' lààní yhi'nicayé t$_k$.** {vi11}
ànúúdi x-náá gwayuulaasi' =ca =yé guttsa'nàá' =lù'
nobody POSS-mother I/like =PL =3FG P/get.married =2SG
lààní yhi'ni =ca =yé
with child =PL =3F
Nobody's mother would like for you to marry their daughter.

Since the sentences in 178 do not show pied-piping and since the genitive DP is not the grammatical subject, it suggests that what is being fronted in the sentences in 178 is the regular postverbal subject. This is supported by the possibility of post-verbal subject resumptive pronouns:

180. a. **Ànúúdi gutii(nà) ca nàá'nì.** {mm'}
Nobody washed their/his hands.

b. **Ànúúdi gutii(nà) ca laayanì naase'á.** {mm'}
Nobody brushed their/his teeth last night.

c. **Ànúúdi beeni(nà) tarea què'nì.** {mm'}
Nobody did their/his homework.

d. **Ànúúdi beseelani(nà) ca llave què'nì.** {mm'}
Nobody found their/his keys.

[27] In both examples, an inalienably possessed noun has been pied-piped with the quantified possessor. Interestingly, in 61a, the possessor appears to have been introduced by an overt preposition *què'* 'of'. This is surprising since inalienable nouns are usually directly followed by the possessor, not requiring *què'* to introduce the possessor, as we see in 61b. Presumably *què'* becomes possible due to the inversion of the possessor, although further investigation is needed to determine why it occurs in 61a but not 61b.

It is further confirmed by the fact that the sentences in 178 are ambiguous between the coreferential reading and the disjoint interpretation. Again, this is expected if the fronted negative indefinite pronouns in 178 are associated with a postverbal gap in the subject position.

This ambiguity provides further evidence against the subjecthood of the CSB genitive. If the CSB genitive were the grammatical subject, the obligatory coreferential reading and non-obligatory one could be disambiguated by the presence or absence of the controlling genitive in relativization contexts. If the CSB controlling possessor is a subject as represented in 181, then fronting the negative indefinite without a resumptive would indicate its CSB source and force coreference. This would distinguish it from the normal postverbal subject in 182, which would then subsequently lack the obligatory coreferential reading:

181. gutii ca nàá' ànúúdi →
ànúúdi$_i$ gutii ca nàá' t$_i$
Nobody$_i$ washed their$_i$ hands.

182. gutii ànúúdi$_i$ ca nàá'nì$_{i/j}$ →
ànúúdi$_i$ gutii(nà$_i$/t$_i$) ca nàá'nì$_{i/j}$
Nobody$_i$ washed their$_i$/his$_j$ hands.

However, this is not found, and only the structure in 182 with the ambiguous reading is attested. This argues that CSB genitive is not a grammatical subject.

Instead, the structure in 182 and the behavior of the CSB controlling possessor is consistent with a CSB structure involving a null subject position licensed by a structurally inferior controlling possessor.

6.2.3.1.5 Summary of CSB Subject Properties

Genitive DPs of verbs with incorporated nouns are grammatical subjects, exhibiting a full range of behavioral subject properties. In contrast, there is no evidence supporting the conclusion that the coreferential genitive DPs occurring in CSB are grammatical subjects. They lack any syntactic or morphological properties uniquely associated with subjects in MacZ. The difference between genitive subjects and CSB genitives is summarized below in Table 6-2:

	Nominative Subjects	**Genitive Subjects**	**CSB Genitives**
word order	VS	VS	V…N…Genitive
non-finite subject	*subject	*subject	*(possessor)
imperative subject	optional	optional	required
resumptive pronouns			
wh-*movement*	optional	optional	required
relativization	optional	optional	required
overt quantifier raising	optional	optional	required

Table 6-2 Subject Properties of Genitives Subjects and CSB Controlling Genitives

As indicated, nominative and genitive subjects, when postverbal, must appear immediately after the verb stem. CSB genitives not only follow an independent noun root, but also any modifiers of the noun plus prepositions and other nouns which may license it. In addition, other, independent arguments may precede the possessed noun and thus the CSB genitive. In addition, nominative and genitive subjects cannot appear with non-finite verb forms, can be omitted in imperatives, and do not require resumptive pronouns when undergoing movement. CSB controlling genitives, in contrast, must remain overt in all of these contexts. They cannot be omitted with non-finite verb forms,

imperatives or under movement. Doing so results in ungrammaticality or the loss of the possessive reading, and therefore any possibility of CSB.

The comparison between genitive subject verbs and CSB suggests that CSB lacks a genitive syntactic subject. In the next section, I will provide positive evidence that the CSB genitive is a grammatically a possessor in the overt syntax. This supports the initial structure put forth for CSB. It cannot be reduced to other more familiar structures such as incorporation or VOS ordering. Instead, CSB involves a typologically very unusual structure in which a surface subject may be null when it can receive its interpretation from a coreferential genitive argument, an argument which follows the subject position and is c-commanded by it.

6.2.3.2 Constituency Evidence

We have seen that there is no positive evidence for the CSB genitive being the syntactic subject of the CSB clause. In this section, we will consider constituency evidence that shows that CSB genitive DP is grammatically a possessor embedded within the possessed DP. This conclusively shows that the VOS alternative analysis of CSB cannot be correct nor can any other analysis which attempts to cast the CSB genitive as the grammatical subject. There are at least four independent pieces of evidence demonstrating that the CSB possessor is a subconstituent of the possessed nominal and not an independent syntactic subject: phonological interactions between *què'* 'of' and the genitive DPs, NP-deletion, demonstrative position, and coordination.

6.2.3.2.1 Morphophonological Evidence

Consider a CSB sentence like 183 which involves an alienable noun, *carru* 'car', as object.

183. **Reyuuni ___ carru què' Felipeà'.** {v206b}
reyuuni carru què' Felipe =à'
H/repair car of Felipe =DIST
Felipe$_i$ is fixing his$_i$ car.

Here, the possessor, *Felipeà'*, is introduced by the preposition *què'* 'of'. It appears then that *Felipeà'* is not the grammatical subject of the sentence but is instead the object of the preposition, which itself is contained inside the object DP. And it is this constituency for possessives diagrammed in 184 that is supported by the evidence.

184. [carru [què' [Felipeà']]]

This constituency is supported, for example, by the fact that the first and second informal singular possessive clitics and the preposition *què'* combine together in fused/suppletive forms. Instead of the expected **què'yà'* 'my' and **què'lù'* 'your,' we get *chà'* and *chò'* respectively.[28] This suggests that the preposition and possessive clitics form a constituent. As illustrated in 185-186 below, these fused/suppletive forms appear in CSB sentences, supporting the constituency in 184 and the correct identification of the genitive DP as a possessor and not as a grammatical subject.

185. **Gulitthati' ni'accwà' què'ní edíiga ___ ca *llave* chà'ná.** {iv81e}
gulittha =ti' ni'a =ccwà' què'ní edíiga ca *llave* chà' =ná
C/lift =please foot =2FG comp R/pick.up pl key of/1SG =INVIS
Please lift your foot so I can retrieve my keys.

[28] The first person form represents a regular sound change. The second person form has apparently changed via analogy with the first person *chà'*. See Section 3.3.2 for further discussion.

186. **¿Beyuuni ___ carru cho'á?**
beyuunicarru cho' =á
C/repaircar of/2SG=INVIS
Did you fix your car?

6.2.3.2.2 NP-Deletion

The bracketing provided in 184 is further supported by evidence from NP-deletion. Under the VOS analysis, the possessed noun and preposition *què'* presumably form a constituent to the exclusion of the genitive "subject". As such, we might expect that the possessed noun and *què'* could be deleted under NP-deletion. As seen below in 187, however, this is not the case in a CSB clause.

187. **Felipeà' eyuuinnà carru què'niá langwacanà eyuungwa ___ ~~carru~~** {v227g} ***(què')caniá.**

Felipe	=à'	eyuuni	=nà	carru	què'	=ni	=á	
Felipe	=DIST	P/repair	=3	car	of	=3G	=INVIS	
langwa	=ca	=nà	eyuuni	=gwa	què'	=ca	=ni	=á
also	=PL	=3	P/repair	=also	of	=PL	=3G	=INVIS

Felipe will fix his car, and they$_i$ will also fix theirs$_i$.

Deleting *què'* in addition to the noun results in ungrammaticality. This is consistent with *què'* and the possessor forming a constituent to the exclusion of the possessed nominal and suggests that the possessor is not the surface subject but the object of *què'*.[29]

6.2.3.2.3 Demonstrative Evidence

CSB clauses involving alienable nouns like those in 185-187 provide additional support for the constituency in 184 in the form of demonstrative clitics. While

[29] Of course, this evidence is not completely conclusive since it is also consistent with the noun, preposition and possessor all being independent of one another. In which case, the preposition would not be deleted under NP-deletion as it is not part of the NP containing the possessed nominal. Still, this deletion pattern is what we would expect with the constituency in 184 and is part of a larger picture establishing that constituency within CSB clauses.

inalienable nouns occur less frequently with (overt) demonstrative clitics, definite alienable nouns typically require demonstrative enclitics. As discussed in Section 3.3.1, these clitics attach to the last word of definite DPs attaching to not only head nouns, but to following adjectives, relative clauses and, most importantly for our purposes, possessors. As a result, they provide an excellent indication of where a DP constituent ends.[30]

The position of the demonstrative clitics in CSB sentences clearly indicate that the genitive DP is in fact a possessor and part of the object DP constituent. Thus, in 185 repeated below, the demonstrative clitic *=ná* for the DP *ca llave chà'* 'my keys' follows the last word of the DP, *chà'* 'my', showing that the possessor must be part of the object DP.

185. **Gulitthati' ni'accwà' què'ní edíiga ___ ca *llave* chà'<u>ná</u>.** {iv81e}
gulittha =ti' ni'a =ccwà' què'ní edíiga ca *llave* chà' <u>=ná</u>
C/lift =please foot =2FG comp R/pick.up PL key of/1SG <u>=INVIS</u>
Please lift your foot so I can retrieve my keys.

The object DP must have the constituency laid out in 188:

188. [[ca [llave [chà']]] =ná]

The demonstrative can only modify the entire DP headed by *llave* and cannot be construed as modifying the possessor, so alternative constituencies such as those in 189 are impossible.

189. a. *[ca [llave [chà'ná]]]
b. *[ca [llave]] [chà'ná]

[30] It is impossible to have two demonstratives clitics in a row such as **ca llave què' Felipeà'ni* 'these keys of Felipe there,' so this test cannot be applied to full DP possessors, but only to pronominal clitic possessors which can never license their own demonstrative clitics.

The impossibility of the constituencies in 189, and the subsequent impossibility of the apparent possessor occupying some grammatical subject position, is confirmed by several different pieces of evidence. The form of the demonstrative depends on the location of the referent of the entire DP and is insensitive to the location of the pronominal possessors. Additionally, bound clitic pronouns are incompatible with the demonstrative clitics. And finally, even if clitic pronouns and demonstratives could cooccur, real world knowledge, if not the grammar itself, would still mean that cases like 185 involve modification of the entire object DP and not the possessor as it would be unclear what it would mean for the speaker to be invisible to themselves in a context like 185.

The selection of the demonstrative is based on the location of the possessed noun's referent with respect to the speaker, and does not change based on the location of the possessor. So, for example, 190a indicates that the referent key is near the speaker at the time of utterance, 190b that it is some distance from the speaker though still visible, and 190c that it is out of the speaker's sight.

190. a. llavequè' =yé =ni
key of =3FG =PROX
this key of his

b. llave què' =yé =à'
key of =3FG =DIST
that key of his

c. llave què' =yé =á
key of =3FG =INVIS
that key of his (invisible)

The selection of the demonstratives in 190 at no time depends on the location of the referent of the third person formal possessive clitic. For each of these, the possessor referent may be near the speaker or far, present or not. Semantically, then, the demonstrative in 185 is interpreted with, and forms a constituent with, the larger DP

which contains the possessive pronoun. No selectional or interpretive restrictions hold between the demonstrative and possessive clitics.

In fact, clitic pronouns never license the demonstrative clitics. Attempts to use a demonstrative clitic to modify a clitic pronoun result in ungrammaticality. Compare the sentences in 191, for example.

191. a. **Naabianlù' bènnè'ni?** {IV:56}
naabia'ni =lù' bènnè' =ni
S/know =2A person =PROX
Do you know this person?

b. **Naabianlù'nà(*nì)?** {IV:56}
naabia'ni =lù' =nà (*=ni)
S/know =2A =3A (=PROX)
*Do you know him (*here)?*

In 191a, the proximate demonstrative clitic, *=ni*, can be used to modify the object noun *bènnè'* 'person.' However, as shown in 191b, if we attempt to replace the full object DP in 191a with a clitic pronoun, the demonstrative clitic cannot modify the pronoun. The result is ungrammatical. This again argues for the structure in 188 and against those in 189.

Even if we could argue that demonstrative clitics could modify pronominal clitics in CSB environments, we could not maintain it for all cases. In some examples, the clitic pronouns and demonstrative clitics in the CSB sentences are semantically incompatible, as we noted for the sentence in 185 repeated below.

185. **Gulitthati' ni'accwà' què'ní edíiga ___ ca *llave* chà'<u>ná</u>.** {iv81e}
gulittha =ti' ni'a =ccwà' què'ní edíiga ca *llave* chà' =ná
C/lift =please foot =2FG comp R/pick.up pl key of/1SG <u>=INVIS</u>
Please lift your foot so I can retrieve my keys.

The object DP, *ca llave chà'* 'my keys', is modified by the demonstrative clitic *=ná*. The clitic could only be understood as modifying the entire DP and not just the first person possessor pronoun, as its semantics is incompatible with first person. It is unclear how the speaker could be invisible (or distal) to themselves, except perhaps in cases involving a representation, like a picture, of the speaker. This representation could then be distant or invisible to the speaker at the time of utterance. In this sentence, however, it is the speaker himself who possesses the keys, not some representation of the speaker. The *=ná* indicates that the keys are not visible to the speaker at utterance time since the addressee is stepping on them. The demonstrative clitic locates the keys in space with respect to the speaker and does not locate the speaker with respect to himself. In such cases, we would still need to concede that the demonstrative is modifying the object DP. Thus, assuming compositionality, the demonstrative forms a constituent with the object DP.

The evidence suggests then that the demonstrative clitics attach to the whole object DP which contains the pronominal possessor. As the pronominal possessor is embedded inside another DP, it cannot be in the surface subject position in the CSB sentences. Instead, as already suggested, the embedded possessor seems to be controlling a structurally higher subject position.

6.2.3.2.4 Coordination

Coordination provides a final piece of evidence arguing that in CSB clauses the controlling possessor forms a constituent with the possessed nominal. Entire possessed

DP objects, including the possessor, can be coordinated in CSB sentences, as demonstrated below in 192.

192. **Eyuuni ___ carru chà'nà'nna motocicleta chà'nà'nna.** {v243b}
eyuuni carru chà' =nà' =nna motocicleta chà' =nà' =nna
P/repair car of/1SG =DIST =and motorcycle of/1SG =DIST =and
I will fix my car and my motorcycle.

Both conjuncts are followed by *=nna* 'and' (X=and Y=and) providing evidence for the constituency of each conjunct. Since the possessors are included in each conjunct, it indicates that they are subconstituents of the possessed DP conjuncts.

This piece of constituency evidence is not limited to alienably possessed DPs but can also be used with inalienable nouns as well. This shows that in these cases too, we are dealing with a possessor and not a grammatical subject.

193. a. **Rii ___ ca laayaninna looninna.** {mm}
rii ca laaya =ni =nna loo =ni =nna
H/wash pl tooth =3G =and face =3G =and
He$_i$ is cleaning his$_i$ teeth and his$_i$ face.

b. **Gutíí___ ca nàá'yà'nna looyà'nna.** {v146f}
gutíí ca nàá' =yà' =nna loo =yà' =nna
C/wash pl hand =1SG =and face =1SG =and
I washed my hands and my face.

As *=nna* 'and' can follow both conjoined nominals and conjoined clauses, it might be suggested that the coordination examples in 192-193 are actually the result of gapping. That is, we have not coordinated the object DPs, but instead TPs and the verb has undergone gapping in the second conjunct. If this is correct, then this coordination would not necessarily be evidence that the genitive argument is a possessor. For example, 193a could instead have the following structure: *wash teeth he=and ~~wash~~ face he=and*.

These coordination examples, however, do not have the intonation pattern characteristic of gapping in MacZ, but the intonation of nominal coordination. Thus, it seems that we are coordinating DPs in these examples. As the possessors are contained inside these conjoined DPs (as evidenced by the following =*nna* 'and'), this confirms that the apparent possessor and the possessed noun form a constituent. Thus, the possessor cannot be occupying an independent subject position.

In summary, a variety of constituency tests show that the apparent possessor DP is in fact a subconstituent of the possessed DP. This constituency is confirmed by phonological interactions between the preposition *què'* 'of' and possessor, by NP-Deletion evidence, by demonstrative position and by coordination. The possessor is not external to the object and therefore it cannot be the syntactic subject.

6.2.4 CSB Possessed Nominal

We have now established that the CSB possessed nominal is not incorporated into the verb and that the genitive DP is not a syntactic subject but surfaces as a possessor embedded inside the possessed nominal. These conclusions support the structure we have put forth for CSB: it involves a null subject whose interpretation is controlled by a following, structurally inferior possessor.

There is one final alternative analysis of CSB to consider, however. We must consider the possibility that it is the possessed nominal itself which serves as the grammatical subject of a perhaps detransitivized verb. This is particularly important to show since other Zapotec languages do have constructions/idioms in which the possessor of an intransitive subject is interpreted as if it were a transitive subject. For example, San

Lucas Quiaviní Zapotec (SLQZ) lacks CSB but has a "possessor subject idiom" (Munro and Lopez et al. 1999:20). In SLQZ, certain morphologically intransitive verbs can idiomatically receive a transitive interpretation in which the possessor of the intransitive subject is interpreted as the notional subject of a transitive clause:

194. **Paraar gweh tye'nn ygàa' abyo'onng x:tèe'nùu'.** SLQZ
Paraar gw-eh tye'nn y-gàa' abyo'onng x:-tèe'n =ùu'
fast perf-go so.that irr-get.caught airplane poss-gen =2sinf
Go fast so that you'll catch your plane (...so that your plane will get caught).

195. **Blàa x:mu'ullya'.** SLQZ
b-làa x:-mu'ully =a'
perf-be.lucky.with poss-money =1s
I was lucky with my money (My money avoided misfortune).

196. **Zùub x:ca'ch gùu'ann.** SLQZ
zùub x:-ca'ch gùu'ann
neut/sit poss-horn bull
The bull has horns (The bull's horns stand).

Many Zapotec languages including MacZ express predicative possession in a manner similar to that of the SLQZ in 196. When an existential verb has (what seems to be) a possessed DP argument, the verb is interpreted as 'have' with the possessor interpreted as the subject. This is illustrated for MacZ in 197-198 below (the genitive "subjects" are underlined):

197. **Duua ttu bettsi'saccwe'<u>yà'</u>.**
duua ttu bettsi' -saccwe' <u>=ya'</u>
S/live a brother.of.a.man -half <u>=1SG</u>
I have a half brother. (My half brother lives.)

198. **Se'e chúppá béccú' què' <u>ca taaquì'yà'</u>.**
se'e chúppá béccú' què' <u>ca</u> <u>taa-quì'</u> <u>=ya'</u>
S/be.at(plural) two dog of <u>PL</u> <u>father-of</u> <u>=1SG</u>
My parents have two dogs. (My parents' two dogs exist.)

In MacZ, however, the grammatical status of the genitive "subjects" is not entirely clear, especially with alienable possessums as in 198. Certain behaviors of the genitive DP, like its ability to precede the possessed nominal, suggest that it may be an independent argument of the verb rather than a possessor. See Foreman (in preparation) for a more detailed discussion.

Regardless of the status of the genitive DPs in 197-198, we must consider the possibility that the possessed nominal in CSB clauses represents the grammatical subject. Under such an analysis, the genitive DP could perhaps be interpreted as the notional subject via the same mechanism that applies to the SLQZ examples in 194-196 and possibly to the MacZ examples in 197-198, although the exact interpretive process involved would have to be determined. As usual, when the possessed nominal contains an inalienable noun, the semantic subject could presumably be determined by pragmatics. Thus for 86 below, if Felipe's teeth are being brushed, it will usually be Felipe who is doing the brushing.

199. **Rii ___ ca laaya Felipeà'.**
rii ca laaya Felipe =à'
H/wash PL tooth Felipe =DIST
Felipe$_i$ is brushing his$_i$ teeth.

But pragmatic considerations alone are insufficient to account for the strict coreferentiality between the understood subject and CSB genitive DP. In 86, Felipe has to be the causal agent bringing about the brushing of his teeth. It cannot be used in reference to a situation in which some other, understood agent is causing Felipe's teeth to be brushed. Thus, *Felipeà'* in 86 could not be the name of an infant or pet dog, for example. Nothing about pragmatic, real-world knowledge, however, explains this

restriction. Instead, the coreferentiality between the understood subject and genitive must be encoded in the syntax or semantics of CSB.

Furthermore, CSB clauses with alienable nouns cannot even rely on real-world knowledge to hint at the understood subject. So in 200 below, nothing about the keys belonging to the speakers necessarily implies that the speaker should be the one to pick them up. Why can this sentence not be used as a question requesting the listener to pick them up or as a statement about what a third party will do?

200. **Edíiga ___ ca *llave* chà'á.**
edíiga ca *llave* chà' =á
P/pick.up PL key of/1SG =INVIS
I will pick up my keys.

Another possibility, if the possessed nominal is the subject, might be that CSB represents something like a covert passive. In that case, the coreferential interpretation could be due to a covert *by*-phrase, which follows the possessor and is dependent on it for its interpretation. Under this alternative, a CSB sentence like 200 would more accurately be rendered in English as 201 below, where parentheses indicate the hypothesized bound, null *by*-phrase. (Recall that the genitive phrase cannot itself be the *by*-phrase, since, as we established in the previous section, the genitive DP is a possessor and subconstituent of the possessed nominal).

201. *My keys will be picked up (by me).*

Interestingly, it is the genitive, and not the possessed nominal, which controls the interpretation of the proposed *by*-phrase. This could be explained by the semantics of the "covert passive" and restrictions on the CSB possessed nominal. A *by*-phrase will generally encode an animate agent or experiencer or perhaps an inanimate cause. The

only animate entity in 201 capable of causing the keys to be picked up is the first person possessor of the keys and is, therefore, the only candidate for assigning an interpretation to the hypothesized *by*-phrase.[31] And since the possessed nominals in CSB are generally restricted to being inanimate, they will not, as a rule, be appropriate for binding an anaphor contained inside a *by*-phrase.

While certain aspects of this proposal are appealing, the central hypothesis that the possessed nominal is the grammatical subject is not supported by the evidence. The CSB verbs never change their morphological form. Those that are overtly marked as transitive retain that marking; there is no morphological evidence of a detransitivizing operation applying in CSB. Regardless of the verbal morphology, the possessed nominal does not exhibit any subject properties. And as we have already seen, the possessed nominal may be embedded inside a still larger DP or in a prepositional phrase, again indicating that it is not the grammatical subject.

6.2.4.1 Transitive Morphology

MacZ, unlike a language like English, is quite good at overtly marking the arity of a verb. Each verb root can license a certain lexically specified number of arguments, and overt morphological changes to the verb stem are required for any change in arity. In CSB, however, we see no such morphology to indicate a decrease in arity. CSB generally contains transitive verb roots or transitively marked verb stems indicating that the possessed nominal is not the grammatical subject of a detransitivized verb.

[31] This would, however, have to occur without the possessor c-commanding the *by*-phrase, although it does at least precede it.

As discussed in Section 3.1, a decrease in arity can be signaled either by choice of aspectual prefix or by the middle prefix *t-*. Neither of these options is utilized in CSB; the verbs remain formally transitive.

For example, the verb root *-nitti'* combines with the *bi-/ri-/i-* aspectual prefixes to form an intransitive verb meaning 'be lost, be missing', and it forms the transitive verb 'lose' when combined with the *be-/ru-/gu-* aspectual prefixes (see Section 3.1.1.7 for a discussion of aspectual prefixes and argument licensing). These intransitive and transitive forms are illustrated below:

202. **Ttuteba rinitti' ca llaveá.** {mm}
ttuteba rinitti' ca llave =á
always H/be.lost PL key =INVIS
Those keys are always missing.

203. **Ttuteba runitti'yà' ca llaveá.**
ttuteba runitti' =yà' ca llave =á
always H/lose =1s PL key =INVIS
I always lose those keys.

It is the transitive form of the verb, however, that appears in CSB sentences, as illustrated below in 204.

204. **Ttuteba runitti' ___ ca llave chà'.** {mm}
ttuteba runitti' ca llave chà'
always H/lose PL key of/1SG
I always lose my keys.

Only in CSB constructions can the verb have a null subject argument. The verb cannot be used intransitively, as seen in 205:

205. ***Ttuteba runitti' ca llaveá.** {mm}
ttuteba runitti' ca llave =á
always H/lose PL key =INVIS
**Those keys are always lost.*

And the intransitive form of the verb cannot be used to derive a CSB interpretation as shown below:

206. **Ttuteba rinitti' ca llave chà'.** {v180i}
ttuteba rinitti' ca llave chà'
always H/be.lost PL key of/1G
*My keys are always missing. *I always lose my keys.*

Similarly, there is no evidence of the (relatively rare) *t-* middle prefix in the CSB clause in 204. In fact, the choice of aspectual prefix in 204 is incompatible with the *t-* prefix since the *be-/ru-/gu-* prefix requires a vP licensed subject while *t-* promotes a VP-licensed argument to subject.

As a result, there is no morphological evidence supporting the idea that CSB involves a change in valency and that the possessed nominal has been promoted to subject. Instead, the presence of overt transitive morphology such as the *ru-* aspectual prefix in 204 suggests that the argument licensing projection—in this case vP—of the null subject is still being projected and that some argument satisfies this thematic projection.

Of course, even if we assume that the morphology does not necessarily reflect the promotion of an argument to subject, we are still left with an odd restriction on when this promotion can take place. It apparently can only occur when the argument is possessed and never with non-possessed DPs or pronouns, as in 205 above and 207-208 below:

207. ***Ricchu ittsià'.** {mm}
ricchu ittsi =à'
H/cut paper =DIST
**That paper is getting cut.*

208. ***Reyuuni carruà'.** {mm}
reyuuni carru =à'
H/repair car =DIST
**That car is getting fixed.*

Morphological considerations alone provide strong evidence against analyzing the CSB possessed nominal as the grammatical subject. The morphology instead indicates that the thematic position of the null subject is still projected and satisfied. This supports our initial hypothesis that we are dealing with a null subject argument whose interpretation is determined by a following, structurally inferior possessor. In addition to the morphological evidence, however, the possessed nominal does not exhibit any subject properties as discussed below in the next section.

6.2.4.2 No Subject Properties

There is no independent evidence to support the identification of the CSB possessed nominal as the grammatical subject. They do not, for example, exhibit any of the properties uniquely associated with subjects. They can be separated from the verb, they remain overt with non-finite verbs, and they cannot be topicalized or undergo movement as unequivocal subjects can. Each of these points is discussed in turn below.

6.2.4.2.1 Word Order

As discussed in Section 4.2.3 and in many subsequent applications of subject diagnostics, postverbal subjects in MacZ must immediately follow the verb. No phonologically independent words or phrases may intervene between the verb and subject.

As we have already seen however, other syntactically and phonologically independent elements may occasionally appear between the verb and the possessed nominal in MacZ CSB. This can be seen below in 142 where the direct object DP *ttu pluma* 'a pen' occurs between the verb *ruga'a* 'sticks' and the PP *lle'e naaganì* 'in his ear' which contains the possessed nominal.

209. **Làànà ruga'a ___ ttu pluma lle'e naaganì.** {v201i}
làànà ruga'a ttu pluma lle'e naaga =nì
IND=3 H/stick one pen in ear =3G
He$_i$ is sticking a pen in his$_i$ ear.

This is unexpected if *naaganì* 'his ear' is the grammatical subject, but is expected if it represents the object of a non-subject PP argument of the verb. And although such examples are relatively rare, they do occur quite frequently in other Zapotec languages with CSB, such as Zoogocho Zapotec (Sonnenschein 2004).

6.2.4.2.2 Non-Finite Verb

As discussed in Section 4.2.5, non-finite verbs in MacZ cannot license an overt subject, but have PRO subjects. If the CSB possessed nominal is a grammatical subject, it should be possible for it to control a PRO subject of a non-finite verb.

So, it should be possible to take CSB clauses like those in 154-143 above, put the verb into its non-finite form (thus *ricchu* in 154 becomes *gwecchu*), and embed the clause under a verb that takes non-finite complements (such as *gudusii* 'stopped').

210. **Ricchu ___ ittsicchanì.** {v230h}
ricchu ittsa iccha =nì
H/cut hair head =3G
He cuts his own hair.

211. **Rii ___ ca laayanì.** {mm}
rii ca laaya =nì
H/wash PL tooth =3G
He$_i$ is brushing his$_i$ teeth.

212. **Reyuuni ___ carru què'nì.**
reyuuni carru què' Felipe =à'
H/repair car of Felipe =DIST
He$_i$ is repairing his$_i$ car.

If the CSB possessed nominal is the grammatical subject, it should then be able to appear as the subject of the matrix verb and control the interpretation of the PRO subject of the non-finite verb. As we can see in 213-158 above however, this is not possible.

213. ***Ittsicchanì gudusiinà gwecchu PRO.** {mm}
ittsa iccha =nì gudusii =nà gwecchu
hair head =3G C/stop =3 N/cut
**His hair stopped being cut (by him).*

214. ***Ca laayanì daanà gwii PRO.** {mm}
ca laaya =nì daa =nà gwii
PL tooth =3G S/be(PROG) =3 N/wash
**His teeth are being brushed (by him).*

215. ***Carru què'nìá diia'nà gweyuuni PRO.** {mm}
carru què' =nì =á diia' =nà gweyuuni
car of =3G =INVIS S/go =3 N/repair
**His car is on its way to be repaired (by him).*

Possibly this is blocked because non-finite verb forms only occur with verbs that project a vP. If the non-finite form requires a vP projection, then the PRO argument would typically receive an agentive theta-role. However, this would be incompatible with the inanimate interpretation determined by the controlling matrix subjects in 213-158.

This explanation, however, requires the vP licensing requirements of the non-finite verb to be maintained while those of the finite tense/aspect prefixes (such as *be-/ru-*

/gu-) are made optional as discussed in Section 6.2.4.1. This then is a rather unsatisfactory, *ad hoc* explanation. As a result, the non-finite diagnostic seems to suggest that the CSB possessed nominal is not the grammatical subject of the CSB clause. At the very least, it offers no independent evidence for this conclusion.

6.2.4.2.3 Topicalization

As discussed in Section 4.1.5, definite arguments of the verb can be topicalized, appearing in a preverbal position with a coindexed pronoun showing up in the postverbal argument position. Subjects, unsurprisingly, frequently appear as preverbal topics, co-occurring with an immediate postverbal clitic pronoun.

Even though they can be definite, the possessed DP cannot be topicalized in the CSB clause. Thus, in the CSB clause in 216a below, attempting to topicalize the possessed nominal *loo Felipeà'* 'Felipe's face' results in ungrammaticality, as seen in 216b.

216. a. **Rii ___ loo Felipeà'.** {AIS111599.14}
rii loo Felipe =à'
H/wash face Felipe =DIST
Felipe$_i$ is washing his$_i$ face.

b. ***Loo Felipeà' rii___nà.**[32] {AIS111599.20b}

If *loo Felipeà'* were the subject of the intransitive verb *rii* 'washes' then we would expect that we could topicalize it. However, *loo Felipeà'* can only be topicalized when the washer subject is overt. In 217 below, *loo Felipeà'* can appear as a topic because the subject, the first *=nà* clitic pronoun, is overtly realized.

[32] Note that clitic objects can attach directly to the verb in imperative and participial forms so this is not likely to be the reason for the unacceptability of the sentence.

217. **Loo Felipeà' riinànà.** {AIS 111599.20}
loo Felipe =à' rii =nà =nà
face Felipe =DIST H/wash =3 =3A
He/she is washing Felipe's face.

Again, the CSB possessed nominal fails to show any independent evidence of being the grammatical subject.

6.2.4.2.4 Movement

As discussed in Section 4.2.7, subjects may also occur preverbally via movement such as w*h*-movement, relative pronoun movement and quantificational movement. Typically, this leaves a gap in the postverbal subject position, but in certain circumstances a resumptive pronoun may be required.

With CSB however, the possessed DP cannot undergo movement. As with topicalization, in the previous section, it can only be moved when the transitive subject remains overt. CSB cannot be licensed when the possessed nominal is moved.

So in the following example, the subject may be omitted or not as expected with CSB. The subject is coreferential with the possessor of the object and therefore may be made covert.

218. **Quií(yà') ca yhooyà' guxéé.**
quií (=ya') ca yhoo =yà' guxéé
P/wash (=1s) PL clothes =1SG tomorrow
I will wash my clothes tomorrow.

Quantifying the possessed nominal does not affect the availability of CSB. The subject may still optionally be covert since it is coreferential with a following possessor regardless of whether or not the possessum is quantified as seen below in 219

219. **Quií(yà') iyaate ca yhooyà' guxéé.**
quií (=ya') iyaate ca yhoo =yà' guxéé
P/wash (=1S) all PL clothes =1SG tomorrow
I will wash all my clothes tomorrow.

Since the object is quantified, it may undergo overt Quantifier Raising to the beginning of the clause as discussed in Section 4.2.7:

220. **Iyaate ca yhooyà' quíiyà' guxéé.**
iyaate ca yhoo =yà' quii =ya' guxéé
all PL clothes =1SG P/wash =1S tomorrow
I will wash all my clothes tomorrow.

No resumptive pronoun is required in 220, since it is an object that is undergoing movement.

With the possessed nominal fronted however, CSB can no longer be licensed. The transitive subject cannot be null when the possessed object has been moved, but must always be overtly expressed, as shown below in 221:

221. **Iyaate ca yhooyà' quií*(yà') guxéé.**

This is unexpected if *iyaate ca yhooyà'* 'all my clothes' is the grammatical subject. All other subject DPs can undergo movement without such restrictions.

As we have now seen, the CSB possessed nominal does not exhibit any subject properties. It does not behave like nominative (and non-nominative) subjects with respect to word order, non-finite verbs, topicalization or movement. There is no independent evidence indicating that the CSB possessed nominal is the grammatical subject. Instead, its behavior is consistent with it remaining an object (or other non-subject argument) while the grammatical subject is covert.

Furthermore, in addition to lacking subject behavioral properties, syntactic evidence also indicates that the CSB possessed nominal is not the grammatical subject of the CSB clause. This is discussed in the next section.

6.2.4.3 Syntactic Evidence

Finally, syntactic evidence indicates that the possessed nominal is not a grammatical subject. As we have already seen, it may be embedded inside still larger constituents so that it is not a direct argument of the verb and can therefore not be the grammatical subject. In addition, the most common possessed nominal is *luesi'*, an anaphoric noun that cannot appear as a subject. These points provide additional evidence arguing against the possessed nominal being the grammatical subject of the CSB clause.

6.2.4.3.1 Possessor of Possessor

As already discussed in Section 6.2.2.5.1, the CSB possessed nominal—the nominal containing the genitive DP that is coreferential with the subject—may itself serve as the possessor of some larger DP. This is illustrated below in 222-224 (the possessed nominal appears in the innermost brackets provided for each sentence):

222. **Ttutebá ruyexxa ___ [ca llave [què' [carru chà'á]]].** {v257g}
ttutebá ruyexxa ca llave què' carru chà' =á
always H/drop PL key of car of/1SG =INVIS
I always drop the keys to my car.

223. **Rulaasi' ___ [ca béccú' [què' [luesicanì]]].** {v184e}
rulaasi' ca béccú' què' luesi =ca =nì
H/like PL dog of ANAPH =PL =3G
They like each other's dogs.

224. **Gucchu ___ [cwe'e [ca nàá'yà']].** {v259e}
gucchu cwe'e ca nàá' =yà'
C/cut back PL hand =1SG
I cut the back of my hands.

The CSB possessed nominals in 222-224 are grammatically possessors of still larger DPs. They are, therefore, not arguments of the verbs and thus cannot be the subjects of these CSB sentences (incorporation of the containing DP is ruled out on the same grounds as incorporation of the CSB possessed nominal as discussed in Section 6.2.2).

Possibly, we might conclude that the larger containing DPs are in fact the syntactic subjects. Thus in 222, it is not *carru chà'á* 'my car' that would be the grammatical subject, but *ca llave què' carru chà'á* 'the keys to my car'. Of course, there is no more evidence for this than there is for CSB possessed nominals being subjects.

In addition, this would complicate identifying the logical subject since it would no longer consistently be the possessor of the "intransitive subject" that would be interpreted as the logical subject: sentence 222 does not mean 'My car always drops its keys' although *carru chà'á* is the possessor of the would-be subject. Instead, it is the possessor of the possessor, *chà'* 'my', which provides the logical subject interpretation. Similarly, 224 is not interpreted as 'The back of my hands were cut by my hands'. As discussed earlier, interpreting these sentences with a first-person agent could perhaps be driven by pragmatic/real-world considerations, but as noted, we run the risk of not capturing the obligatory coreference that is required in CSB.

6.2.4.3.2 Object of a Free Preposition

Further evidence against the subjecthood of the CSB possessed DP is provided by the fact that the possessed DP may be introduced by a preposition as discussed in Section 6.2.2.5.2 and illustrated below in 225-227 (the prepositions are underlined):

225. **Juanni rudi'a ___ <u>lle'e</u> nàá'nì.** {ii80g/h}
Juan =ni rudi'a <u>lle'e</u> nàá' =nì
John =PROX H/write <u>in</u> hand =3G
John$_i$ writes on his$_i$ hand.

226. **Làànà roo ___ <u>làànì</u> ca nàá'nì.** {ii79f/g}
làànà roo <u>làànì</u> ca nàá' =nì
3IND H/eat <u>with</u> PL hand =3G
He$_i$ eats with his$_i$ hands.

227. **Rnnee' ___ <u>làànì</u> luesi'nì.**
rnnee' <u>làànì</u> luesi' =nì
H/talk <u>with</u> self =3G
He is talking to himself.

Here, the CSB possessed nominal occurs as the object of a preposition and again, is not a direct argument of the verb. And recall that there is no evidence that these prepositions have incorporated into the verb. This is particularly telling with the examples involving *làànì* 'with' since it has an incorporated form, *=ni*, which does not occur in these sentences. Instead, the *làà-* prefix marks it as an independent word.

Potentially, the sentences in 138-139 could represent (covert) pseudo-passives. Under this hypothesis, 138 would be more literally translated as 'John's hand is written on by him' and 150 as 'His hands are eaten with by him'.[33] Even if this might be a possibility, sentences like 139 still would prove problematic. This sentence contains the

[33] I have not reflected the topicalization structure of the MacZ sentences in the hypothesized English translations.

CSB possessed nominal *luesi'*, a *self*-type anaphor which cannot occur as a subject. It would be as ungrammatical for the MacZ sentence 139 to have the structure 'Himself is being talked to by him' as it is for the English equivalent. As discussed in the next section, sentences like 139 and other CSB sentences containing *luesi'* provide strong evidence that the CSB possessed nominal is not a grammatical subject.

6.2.4.3.3 Anaphora Evidence

The most common possessed nominal found in CSB is *luesi'*, an anaphoric expression that can be used to form both reflexives and reciprocals. Examples are given below:

228. **Béccú' chà'á ruyhiia'ni ___ luesinì.** {v168c}
béccú' chà' =á ruyhiia' =ni luesi' =nì
dog of/1SG =INVIS H/bark =PREP self =3G
My dog barks at himself.

229. **Ruyhiiti' ___ luesi'riu'.** {v166g}
ruyhiiti' luesi =riu'
H/confuse self =1INCLG
We confuse each other./We confuse ourselves.

Like anaphors in English, *luesi'* cannot occur as a subject. This is true whether it is the subject of a matrix clause like 230 or an embedded subject that could in theory be bound by a higher DP as in 231a (cf. 231b which has a *luesi'* object and 231c which has a non-anaphoric subject).

230. **Riyhiiti' (*luesi')yà'.** {v166a'}
riyhiiti' (*luesi') =ya'
H/be.confused (*self) =1s
*I/*myself am confused.*

231. a. ***Arcalaasi'(canì) go'o luesi'canì lagoo.** {vi151c/h}
arcalaasi' (=ca =nì) go'o luesi' =ca =nì lagoo
H/want (=PL =3G) P/buy self =PL =3G food
They want each other to buy food.

b. **Arcalaasi' ___ luesi'canì.** {vi151a}
arcalaasi' luesi' =ca =nì
H/want self =PL =3G
They want each other.

c. **Arcalaa(si)'canì go'ocanà lagoo.** {vi151b}
arcalaa(si)' =ca =nì go'o =ca =nà lagoo
H/want =PL =3G P/buy =PL =3N food
They want to buy food.

The distribution of *luesi'* seems to essentially be constrained by Principle A of the Binding Theory (Chomsky 1981, 1986). The only, albeit rather unusual, difference is that its antencedent is a null subject. This provides strong evidence that CSB does not involve promotion of the possessed nominal to subject since *luesi'* anaphors are incompatible with being grammatical subjects.

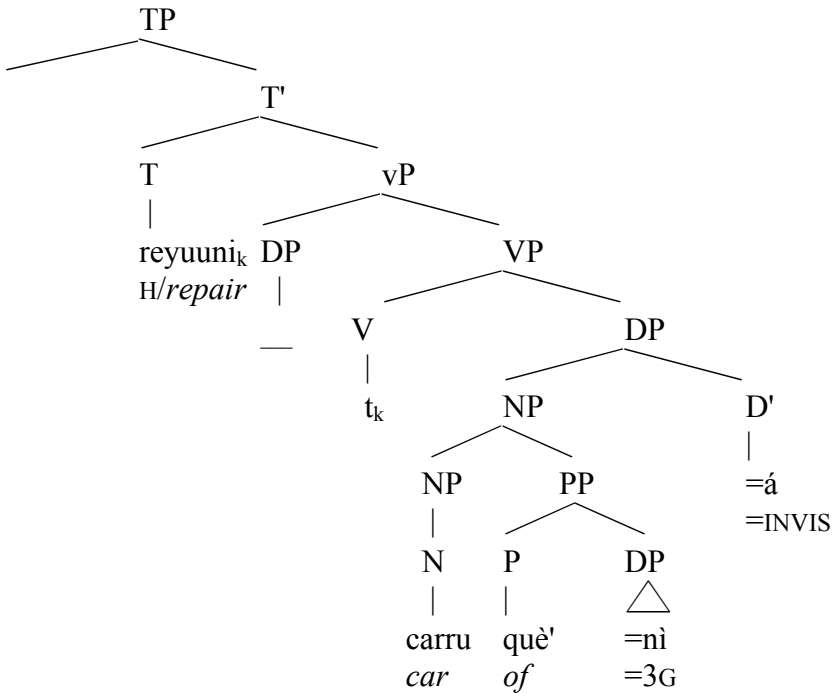
We have now seen that the possessed nominal lacks any subject properties which might suggest that it represents the grammatical subject. In addition, evidence from morphology and syntax argues against its subjecthood. Instead, all evidence indicates that CSB is achieved with a null subject whose interpretation is dependent on a following, structurally inferior possessor. In the next section, I consider how this construction is derived. I argue that it involves covert movement from the possessor to the thematic licensing position of the subject argument and subsequent raising to [Spec,TP].

6.2.5 Covert Movement Analysis

We have now seen compelling evidence based on morphology, constituency tests and subject diagnostics that CSB clauses in MacZ have null subjects whose interpretations are dependent on a following DP that is a possessor embedded inside some larger DP. Thus, a CSB sentence like 232 has the syntactic structure given in 233

232. **Reyuuni ___ carru què'nìá.**
reyuuni carru què' =nì =á
H/repair car of =3G =INVIS
He$_i$ is fixing his$_i$ car.

233.



Reyuuni ___ carru què'nìá.
He$_i$ is repairing his$_i$ car.

In this section, I consider the nature of the null subject (represented by the underscored DP in [Spec,vP] above) and how it comes to be coreferential with the possessor, *=nì* in this case. If this is generally the correct structure in 233, then the

question remains of how binding takes place between the null subject and the possessor. Certainly, the possessor is not in a position to bind the null subject. It does not c-command the subject, nor even precede it for that matter. As noted by Black (2000), this is true even if we were to assume a flat VSO structure. The possessor is embedded inside the possessed DP (which may in turn be further embedded as a possessor or object of a preposition) and thus, cannot c-command the null subject.

Instead, I will pursue a covert movement account of CSB following proposals by Polinksy and Potsdam (2001, 2002) concerning backward control. Although they discuss a control structure across clause boundaries, instead of an apparent binding construction, the constructions seem to share many relevant properties. In particular, a structurally superior null subject is referentially dependent on some lower DP. In backward binding, it is dependent on a possessor; in backward control it is dependent on an embedded subject.

Polinsky and Potsdam argue that the null subject in backward control structures is not a familiar null subject category like PRO or *pro*. Neither of these null subject types can be the CSB null subject in MacZ either. The null subject in 233 is not PRO. It is not c-commanded by a controlling DP, yet it does not receive an arbitrary interpretation. Since a controlling DP does not c-command PRO, it is unclear how PRO and the CSB possessor come to be coindexed which is required in a CSB clause. And if they can be coindexed, then PRO should create in a Principle C violation when the possessor is a full DP as in 234 below:

234. **Reyuuni ___$_i$ carru què' Felipe$_i$à'.** {v206b}
reyuuni carru què' Felipe =à'
H/repair car of Felipe =DIST
Felipe$_i$ is repairing$_i$ his car.

However, as can be seen by the grammaticality of 234, the null subject of CSB does not cause a Principle C violation in MacZ. MacZ behaves like English with respect to Principle C, and even those Zapotec languages that allow coindexing between full DPs such as Quiegolani Zapotec (Black 2000) and San Lucas Quiaviní Zapotec (Munro and Lopez et al. 1999) do not allow a full DP to be bound by a pronoun. Based on this evidence, we can conclude that the CSB null subject is not PRO.

It also cannot be *pro*. As discussed in Section 4.2.2, MacZ and the other Zapotec languages with CSB are not *pro*-drop languages. Without coreference between the subject and a following possessor, the subject cannot be null. Thus, omitting the subject in 235 below results in ungrammaticality:

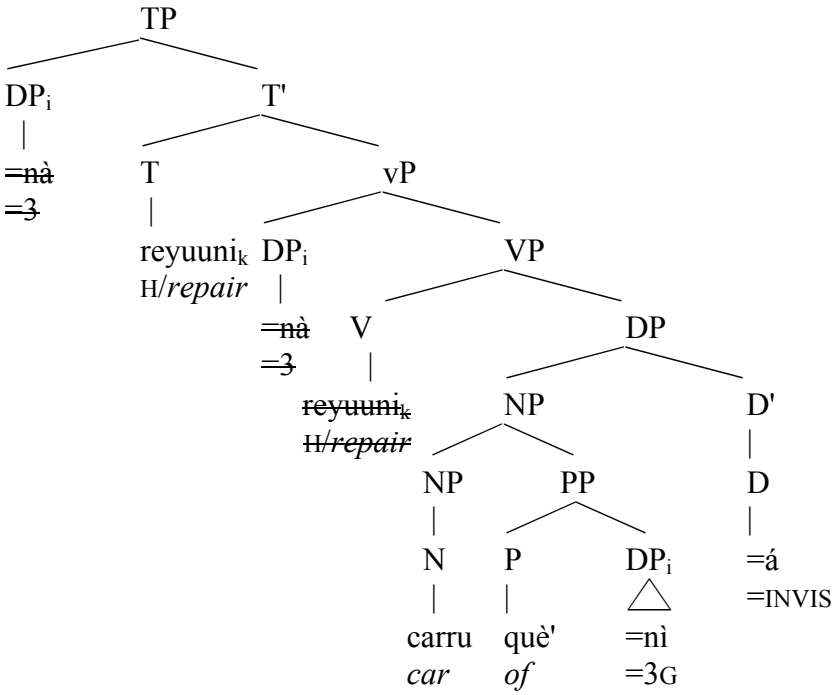
235. **Reyuuin*(nà) ttu carru.**
reyuuni =nà ttu carru
H/repair =3N one car
He is repairing a car.

Even if we could argue that CSB is exceptionally a *pro*-drop construction, we still have the same problems as we did for PRO. It is unclear how the required coreference can be derived, and *pro*, too, should lead to Principle C violations in sentences like 234. Therefore, we can also conclude that the null subject in CSB is not *pro* either.

Instead, I will argue that under the covert movement analysis, the null subject represents an LF copy of the possessor. This is represented for 232 above in 236 below.

Here, I have assumed a copy theory of movement (which was adopted in Section 5.3.4) whereby PF determines which copy to pronounce.

236.



Reyuuni ___ carru què'nìá.
He$_i$ is repairing his$_i$ car.

In this structure, the possessor undergoes movement (via copy and deletion) to [Spec,vP], satisfying the thematic requirements of the subject and then to [Spec,TP] where the EPP features and nominative case features of T° are satisfied. This accounts for the obligatory coreference between the understood subject and the possessor.

At PF, the movement chain is evaluated. As proposed in Section 5.3.4.4, the higher copies are not pronounced as they were generated to satisfy only weak features (the theta-role of the vP-argument, the EPP, and nominative case features). As a result, the pronoun in the possessor PP is the only link in the chain that is pronounced, its case

form being decided in favor of the inherent genitive case marking as discussed in Section 5.3.4.3.

6.2.5.1 A Previous Analysis of CSB

Black (1996, 2000) analyzes CSB in Quiegolani Zapotec (QZ), a southern Zapotec language. Black, too, accounts for CSB in terms of chains, proposing that Binding Theory be reworked in terms of A-chains. This, she suggests, will allow parameterization of whether the head or tail of the chain is pronounced yielding forward binding or backward binding (like CSB) respectively. She offers the revised Binding Principles that are given below in 237 (from Black 2000:281). The {head/tail} option represents the possible parameterization.

237. **Principles of Binding Theory**
A. Anaphors must be the {head/tail} of a local A-chain.
B. Pronouns must not be the {head/tail} of a local A-chain.
C. Nominal phrases must not be the {head/tail} of an A-chain.

Setting all of the parameters to 'tail' derives the standard Binding Principles. Setting Black's Principle A to 'head' produces CSB. The null subject can serve as the anaphor at the head of the chain with its interpretation being dependent on the foot of the chain.

Although this approach may be on the right track, it does not account for why languages typically set the parameters in 237 to 'tail'. If direction of binding were based solely on these parameters, we might expect backward binding like CSB to be just as common as regular, "forward" binding. That the former is relatively rare suggests that other factors may be involved in determining these parameters or in generating CSB.

In the analysis I develop below, CSB will depend on many different, independent features. Crucially, CSB will rely on at least the following properties: Multiple Case Checking, weak EPP features, weak nominative case features, and weak theta-features (if theta-roles are to be understood as involving feature checking). Only when all of these independent features behave in unison may CSB be obtained, thus accounting for its relative rarity.

6.2.5.2 Backward Control

Backward binding in CSB clauses seems comparable in nature to backward control phenomena as described in Polinsky and Potsdam 2001, 2002 and is amenable to a similar analysis. Polinsky and Potsdam (P&P) describe a backward control construction in Malagasy and Tsez and identify it in other languages. In these languages, they argue, the matrix subject is phonetically null and is referentially dependent on an embedded subject. Examples from Malagasy and Tsez are given below in 238-239 (from Polinsky and Potsdam 2001 and 2002 respectively):

Malagasy (an Austronesian language spoken in Madagascar):

238. **Manomboka [mitondra ny fiara Rabe$_i$] Δ_i** VOS
m-an-omboka [m-i-tondra ny fiara Rabe$_i$] **Δ_i** (2001)
PRES-ACT-begin [PRES-ACT-drive the car Rabe
Rabe is beginning to drive the car.

Tsez (a Nakh-Daghestanian language of the northeast Caucasus):

239. **$\Delta_{i/*k}$ [kidbā$_i$ ziya bišra] yoqsi** SOV
$\Delta_{i/*k}$ [kidbā$_i$ ziya bišra] yoqsi (2002:246)
girl.ERG cow.ABS feed.INF began
The girl began to feed the cow.

Δ represents the null, backward controlled matrix subject. In 238, the embedded subject *Rabe* controls the null matrix subject, which is structurally superior but follows

the embedded subject on account of the VOS order of Malagasy. Besides *manomboka* 'begins', backward control in Malagasy occurs with the verbs *mahavita* 'accomplish' and *mitsahatra* 'stop'.

In Tsez, backward control is found with *–oqa* 'began', seen above in 239 in inflected form, and *–ič̄a* 'continue'. In the example from Tsez, *kidbā* 'girl' follows the matrix subject as well being in a structurally inferior position.

P&P argue that the null matrix subject represents a covert copy of the embedded subject, an analysis which I adopt for CSB. Thus, the structure of 238 and 239 above is argued to be that given below in 240 and 241 respectively, where the covert copies of the matrix subjects are indicated:

240. **Manomboka [mitondra ny fiara Rabe$_i$] ~~Rabe$_i$~~**
m-an-omboka [m-i-tondra ny fiara Rabe$_i$] **~~Rabe$_i$~~**
PRES-ACT-begin [PRES-ACT-drive the car Rabe ~~Rabe~~
Rabe is beginning to drive the car.

241. **~~kidbā$_i$~~ [kidbā$_i$ ziya bišra] yoqsi**
~~kidbā$_i$~~ [kidbā$_i$ ziya bišra] yoqsi
~~girl~~ girl.ERG cow.ABS feed.INF began
The girl began to feed the cow.

P&P's analysis of backward control requires the chain headed by the null matrix subject to bear multiple theta-roles. Thus in 240 the *Rabe* chain bears both the beginner and the driver theta-roles while in 241, *kidbā* 'girl' is both the beginner and feeder. To allow a chain to bear multiple theta-roles, P&P adopt Hornstein's (1999) movement theory of control. Hornstein argues that theta-roles should be treated as features which can therefore trigger movement. Furthermore, he dispenses with the θ-Criterion

(Chomsky 1981) which requires a DP chain to bear exactly one theta-role. If a DP can satisfy multiple theta-features, it can then move from one argument position to another.

With these assumptions, Hornstein recasts control predicates in terms of movement. Thus, a sentence like *John hopes to leave* would be derived as in 242:

242. [$_{IP}$ John [$_{VP}$ ~~John~~ [hopes [$_{IP}$ ~~John~~ [$_{I°}$ to [$_{VP}$ ~~John~~ leave]]]]]] (Hornstein p. 79:19)

John first merges with *leave* and receives the verb's theta-role. It then raises to [Spec,IP] to check the D-feature (EPP) of the infinitive IP. The controlled subject is then forced to move because it cannot receive case in a non-finite [Spec,IP]. Thus, *John* must raise to the matrix [Spec,IP] to receive nominative case. First, however, it moves through the matrix [Spec,VP] to check the external θ-role of the matrix verb.

P&P adopt a similar approach, arguing that in backward control the movement to the matrix clause occurs at LF. At spell-out, the following structure obtains (English words replace the Tsez words) (adapted from Polinsky and Potsdam 2002):

243. [$_{TP}$ Δ [$_{VP}$ [$_{TP}$ girl [$_{T°}$ [$_{VP}$ ~~girl~~ [$_{V'}$ cow feed]]]] begin]] (cf. 268:62)

Girl checks the external theta-role of *feed* and then moves to [Spec,TP] of the embedded clause to check the D-feature of the embedded clause and to check case (ergative in this clause).

P&P argue that the theta-role, case and agreement features associated with *–oqa* are weak and movement to the matrix clause does not take place until LF. At LF, the embedded subject covertly raises into the matrix clause:

244. [$_{TP}$ girl [$_{VP}$ ~~girl~~ [$_{TP}$ ~~girl~~ [$_{T°}$ [$_{VP}$ ~~girl~~ [$_{V'}$ cow feed]]]] begin]] (cf. 269:64)

At that time, *girl* is able to check the external theta-role of *begin* as well as its agreement features. The D-feature and ϕ-features of tense are also checked. P&P initially suggest that *girl* also then checks the absolutive case feature of the matrix verb.[34]

CSB can be accounted for by a similar approach. Under these assumptions, the possessor can move to the thematic licensing position of the understood subject, checking its theta-feature. Subsequently, it moves to [Spec,TP] to satisfy the EPP and nominative case features. If all three of these represent weak features, then the copies generated to satisfy them will not be pronounced. As a result, only the foot of the chain—the copy in the possessor position—will be pronounced.

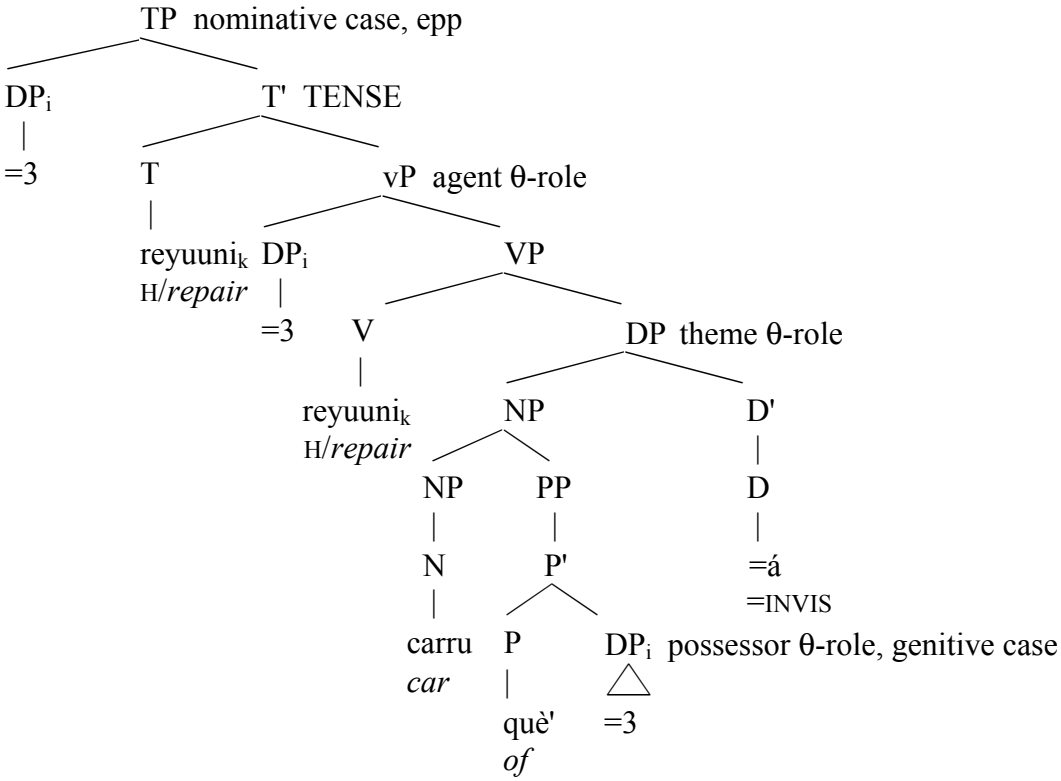
6.2.5.3 LF Movement and CSB

If we follow Hornstein (1999) and allow movement to an argument position, our CSB sentence in 66 would have the spell-out structure given in 245.

66. **Reyuuni ___ carru què'nìá.**
reyuuni carru què' =nì =á
H/repair car of =3G =INVIS
He$_i$ is fixing his$_i$ car.

[34] Later, they suggest that backward control verbs in Tsez do not assign case.

245.



Reyuuni ___ carru què'nìá.
He$_i$ is repairing his$_i$ car.

I list the relevant features that have been checked by each merge or move (remerge). Strong features are given in capital letters while weak features are in lower case. Following the discussion in Section 5.3, I assume here that all movement operations (in the form of copy generation) take place prior to spell-out. All features, both weak and strong, must be satisfied at spell-out. The PF component then determines which copies to pronounce and for pronouns, which case form to pronounce.

The derivation of 245 proceeds as follows. The preposition *què'* merges with a third person clitic pronoun, here represented as =3 as its case realization will be determined at PF. The pronoun receives genitive case from *què'*. As discussed in Section 5.3.4, this could involve checking a formal case feature, or case could be

determined solely at PF based on the structural positions of the DP(-chain). The PP *què'=3* adjoins to the NP *carru* and the pronoun is marked as possessor. Again if theta-roles are features, then it checks the possessor theta-feature. The resulting NP *carru què'=3* then combines with the determiner *=á*.[35] The verb merges with the DP *carru què'=3=á* assigning it the theme theta-role (or the DP checks the theme theta-feature of the verb). A v° head merges with the VP and the verb *reyuuni* adjoins to it (this is not represented in 245 in an attempt to keep the structure relatively simple). The pronoun =3 is now remerged into the structure. A copy of the pronoun is generated in [Spec,vP] to satisfy the theta-features of v°. The pronoun chain now also bears the agent theta-role of *reyuuni* 'repairs'. The verb is remerged at T° to satisfy its strong tense features. Finally, another copy of the pronoun =3 merges in [Spec,TP] to satisfy the weak EPP features of TP and to check nominative case (if case assignment involves feature checking).

The structure in 245 is then sent off to LF for interpretation and to PF for pronunciation. Since a movement chain holds between the subject and possessor, the obligatory coreference of CSB is captured. The two DPs will be interpreted as coreferential regardless of how they are treated in the PF component. The PF component will determine which elements in 245 will be overtly realized and which case form the

[35] The internal structure of the DP is somewhat simplified here to make the mechanisms involved in producing CSB clearer. Presumably the determiner selects an NP as its complement. But in MacZ, heads precede complements, so either a D must exceptionally choose a preceding complement or some other factor must permute the word order. One possibility is that the NP undergoes movement into the specifier (or some higher position above the determiner head) to produce the observed NP=D word order. It is unclear what the exact syntactic motivation for this might be, however. Another possibility is that a PF constraint/mechanism shifts the order of the D and NP. The determiners are enclitics, so PF may alter the linear order of the D and NP to satisfy the phonological requirements of the determiner. I leave this point for future research since both analyses seem compatible with CSB. In the CSB structures in 245 and elsewhere, I will, for simplicity, give a structure which reflects the surface word order.

pronouns will exhibit. To generate a CSB sentence, PF must clearly favor the lower instance of the pronoun in the possessive PP over the higher copies.

As discussed in Section 5.3.4.4, several factors may be involved in determining which link(s) in a chain to overtly realize. It has been generally argued or assumed that PF privileges the highest copy (in, for example, Chomsky 1993, 1995, Bobaljik 1995, Pesetsky 1998, and Franks 1998 among others). Other factors, however, may lead to the pronunciation of a lower copy. Franks (1998) and Bobaljik (2002), for example, argue for other phonological considerations favoring a lower instance. Bobaljik (2002) also argues for economy considerations such that the instance favored by LF for interpretation should also be favored by PF. Additionally, I proposed in Section 5.3.4.4 that PF could also consider weak and strong copies as defined below in 246. Chains and copies are then evaluated according to the constraints listed in 247.

246. **Strong/Weak Copy Definitions**
A strong copy results from movement (remerging) which checks at least one strong feature.
A weak copy results from movement (remerging) which checks only weak features.

247. **Copy Realization Conditions**
1. Pronounce exactly one link in a chain **(1Link)**.
2. Pronounce the highest strong copy **(HighStrong)**.
3. Do not pronounce weak copies (**NoWeak).**

Consideration of the definitions and principles given in 246 and 247 respectively proves sufficient to account for the null subject in CSB clauses. The only strong feature (clearly) present in 245 is the [tense] feature of T° which must be overtly checked by the verb. By the definitions in 246, this results in a strong copy of the verb in T°. By the Copy Realization Conditions (CRCs) in 247, it will then be this copy of the verb that is

overtly realized at PF. Doing so clearly satisfies all of the conditions. Only one link is pronounced, it is the highest strong copy, and no weak copies are pronounced.[36]

Of course, the crucial PF evaluation in 245 is of the pronoun chain. The pronoun initially merges into the possessive PP and then two copies are generated, one in [Spec,vP] to check the agent theta-feature and one in [Spec,TP] to check the EPP and nominative case features (assuming case assignment involves checking of formal features). Both of these copies, I argue below, are weak according to the definition in 246; they are generated only to satisfy weak features.

The EPP requires that clauses have subjects (Chomsky 1981). Within the Minimalist framework, this is achieved by means of a [D]-feature associated with the tense head (Chomsky 1995:232). I suggest in MacZ that this [D]-feature is weak, a position that has been put forth by McCloskey (1996) for Irish. A weak EPP feature helps account for the basic VSO word order found in MacZ. As argued in Chapter 4, the verb raises no higher than T° in MacZ. If the [D]-feature is a tense property, which seems reasonable for MacZ, then satisfying it by overt movement of the subject to [Spec,TP] should result in the subject overtly preceding the verb.[37] In addition, a weak [D]-feature accounts for the lack of expletives in MacZ. If MacZ had a strong EPP

[36] As discussed previously, the copy of the verb in v° (not shown in 245) could also potentially be a strong copy. Pronouncing both strong copies, however, would violate the 1Link Condition. Likewise, pronouncing the v° copy but not the T° one would violate the HighStrong Condition since the highest strong copy would not be pronounced. Pronouncing only the T° copy satisfies all of the CRCs regardless of the strength of the v° copy.

[37] Although if PF determines which copy to pronounce, it is possible that some confounding factor such as a phonological or semantic requirement would favor the pronunciation of the lower instance of the subject, thus overriding the preference for higher (strong) copies. However for full DP subjects, it is unclear what this requirement would be.

feature, then all clauses should have (overt) subjects, but certain clauses, such as existential clauses, may be subjectless (see Foreman (in preparation) for discussion). Thus, satisfaction of the [D]-feature in MacZ should not result in a strong copy.

If nominative case is assigned via feature checking, then presumably these features are also associated with T°. Nominative case only occurs with finite verbs, suggesting that the two are linked in MacZ.[38] If so, then the nominative features must be weak by the same reasoning discussed with the EPP above. Otherwise, VSO order would not obtain. Furthermore, weak nominative features may help explain why MacZ allows dative and genitive subjects and why nominative case never shows up on non-subjects. If the nominative feature had to be overtly checked, we might expect it to be more consistently overtly realized. If nominative case features are weak, then they too will only require a weak copy to be satisfied.

In contrast to the EPP and nominative case features, there is not any independent evidence indicating that theta-features should be weak. Only the behavior of CSB sentences suggests that this should be so. Otherwise, based on the CRCs and the general preference for higher copies, we would expect the thematic copy to be overtly realized instead of (or in addition to) the possessor instance. That it is not suggests that the theta-features should be considered weak. Another possibility might be that the theta-features are strong but that other factors, such as phonological or semantic constraints, favor the foot of the chain. For example, the requirements of inalienable nouns to have a possessor

[38] Of course, the link may not involve case features. As discussed in Section 5.3.4.1, case is perhaps assigned at PF based on structural configurations. Under this analysis, a DP will be marked with nominative case when some link in its A-chain occupies [Spec,TP], such as when it appears there to satisfy the weak [D]-feature. Case itself, however, would not drive movement (copying) in this scenario.

and for *què'* to have an overtly realized complement might override the tendency to pronounce a strong copy in v°. For simplicity, however, I will assume that theta-features are also weak in MacZ. Thus, they will not require strong copies but only weak ones.

We are now ready to evaluate the pronoun chain in 245, repeated below in bracketed form in 248 (strong copies are in bold; the verb chain has already been evaluated as described above):

248. $[_{TP}$ =3$_i$ **reyuuni$_k$** $[_{vP}$ =3$_i$ ~~reyuuni$_k$~~ $[_{VP}$ ~~reyuuni$_k$~~ $[_{DP}$ carru què' =3$_i$ =á]]]
$[_{TP}$ =3$_i$ **repairs$_k$** $[_{vP}$ =3$_i$ ~~repairs$_k$~~ $[_{VP}$ ~~repairs$_k$~~ $[_{DP}$ car of =3$_i$ =that]]]

The pronoun chain occupies the complement of *què'*, [Spec,vP] and [Spec,TP]. The copies in [Spec,TP] and [Spec,vP] are both weak. The initial merger of the pronoun does not count as a copy, weak or strong, under the definitions given in 246 above since it is not generated under movement (remerge). It does serve as the foot of the chain, however.

PF will evaluate the pronoun chain against the Copy Realization Conditions in 247, repeated below:

247. **Copy Realization Conditions**
1. Pronounce exactly one link in a chain **(1Link)**.
2. Pronounce the highest strong copy **(HighStrong)**.
3. Do not pronounce weak copies (**NoWeak).**

Since the chain does not contain any strong copies, the HighStrong Condition will not apply. Realizing either copy in [Spec,TP] or [Spec,vP], however, would violate the NoWeak Condition that weak copies should not be pronounced. If no other factors override these violations, then these copies will not be pronounced. Only the complement of *què'* can be overtly realized. As the foot of the chain, it does not count as a copy, so Condition 3 (NoWeak) is not violated. Pronouncing the pronoun in

[Comp,*què'*P] does, however, satisfy the 1Link Condition as it provides the one link per chain that is required to be overt. Essentially, these constraints have the effect that lexical items should be pronounced in their base position—their point of initial merger—unless some strong feature requires them to be pronounced in a different position.

Thus, evaluating the structure in 248 against the CRCs in 247 results in the CSB structure given below in 249:

249. $[_{TP}$ ~~=3$_i$~~ **reyuuni$_k$** $[_{vP}$ ~~=3$_i$~~ ~~reyuuni$_k$~~ $[_{VP}$ ~~reyuuni$_k$~~ $[_{DP}$ carru què' =3$_i$ =á]]]
$[_{TP}$ ~~=3$_i$~~ **repairs$_k$** $[_{vP}$ ~~=3$_i$~~ ~~repairs$_k$~~ $[_{VP}$ ~~repairs$_k$~~ $[_{DP}$ car of =3$_i$ =that]]]

The highest pronoun copies are not overtly realized since they satisfy only weak features. As a result, the pronoun is pronounced at the point of initial merger as the complement of *què'* 'of'.

Not only must PF determine which position in a chain to realize, it must also determine case marking of DPs. In MacZ, this is only relevant for clitic pronouns. For 249, PF must determine which case form to assign to the foot of the pronoun chain. The chain for =3 bears two cases, either as a result of feature checking or because two links occupy two different case positions. The chain is marked with genitive case assigned by *què'* and nominative case assigned to [Spec,TP]. A CSB possessive pronoun, of course, is always overtly realized with genitive case marking. There must therefore be some mechanism in PF which favors realizing the CSB possessor with genitive case.

As discussed in Section 5.3.4, there are several factors which could be involved in resolving the case clash in 249 in favor of genitive case. One natural possibility is for PF to preferentially realize inherent cases, like dative and genitive, over structural cases like nominative (see McCreight 1988, Bejar and Massam 1999 and references therein).

Another possibility is that PF will favor the case associated with the position which is overtly realized. This is given as a constraint in 250 below:

250. **Minimize Case Mismatch**
If a DP is pronounced in a case-marked position, then pronounce the DP with the case that is licensed in that position.

Both possibilities result in the overt pronoun in 249 being realized with genitive case as represented in 251:

251. [$_{TP}$ ~~=3$_i$~~ **reyuuni$_k$** [$_{vP}$ ~~=3$_i$~~ ~~reyuuni$_k$~~ [$_{VP}$ ~~reyuuni$_k$~~ [$_{DP}$ carru què' =nì$_i$ =á]]]]
[$_{TP}$ ~~=3$_i$~~ **repairs$_k$** [$_{vP}$ ~~=3$_i$~~ ~~repairs$_k$~~ [$_{VP}$ ~~repairs$_k$~~ [$_{DP}$ car of =his$_i$ =that]]]]

The Minimize Case Mismatch constraint, however, has the advantage that it will also account for the correct case realization when CSB occurs with a non-nominative subject. Thus, 252a below provides a CSB example with a *=ni* subject, which typically receives dative case (when it is overt as in 252b). The CSB possessor still appears with genitive case marking, *=ya'* =1SG, although the pronoun forms a chain with the covert dative subject. Dative case marking for the possessor is not allowed as shown in 252c.

252. a. **Rquiina'ni ___ yhooyà'.** {v188d}
rquiina' =ni yhoo =ya'
H/is.needed =PREP clothing =1SG
I need my clothing.

b. **Rquiina'tè' yhoolù'.** {mm}
rquiina' =ni =tè' yhoo =lù'
H/is.needed =PREP =1SD clothing =2SG
I need your clothes.

c. ***Rquiina'ni ___ yhootè'.** {mm}

As both dative and genitive case are inherent cases, the preference for realizing inherent cases over structural ones does not account for the case pattern in 252. The constraint in 250, however, naturally extends to such CSB clauses. The pronoun is pronounced in a case marked position—the complement of ~~*què'*~~, which introduces inalienable possessors. By 250 then, the pronoun must be realized with the genitive case assigned in this position.

We can assume, too, that the Minimize Case Mismatch constraint is also responsible for the case resolution in 251, thus completing the derivation of our sample CSB sentence:

253. **Reyuuni ___ carru què'nìá.**
He$_i$ is fixing his$_i$ car.

As discussed previously, CSB is not obligatory when coreference obtains between the grammatical subject and a following possessor. The subject may remain overt, as in 254 below:

254. **Reyuuin<u>nà</u> carru què'nìá.**
reyuuni =nà carru què' =nì =á
H/repair =3N car of =3G =INVIS
He/she$_i$ is fixing his/her$_{i/n}$ car.

As can be seen, however, obligatory coreference does not hold between the overt third-person subject and possessor.

The sentence in 254 is derived the same way any non-CSB sentence would be: a distinct DP argument merges into the structure to satisfy the agent theta-role of *reyuuni* and covertly moves into [Spec,TP] to be marked as the grammatical subject. This is schematized below in 255:

255. $[_{TP}$ ~~=3$_n$~~ **reyuuni$_k$** $[_{vP}$ =3$_n$ ~~reyuuni$_k$~~ $[_{VP}$ ~~reyuuni$_k$~~ $[_{DP}$ carru què' =3$_i$ =á]]]]
$[_{TP}$ ~~=3$_n$~~ **repairs$_k$** $[_{vP}$ =3$_n$ ~~repairs$_k$~~ $[_{VP}$ ~~repairs$_k$~~ $[_{DP}$ car of =his$_i$ =that]]]]

Pronouns in MacZ are well-behaved with respect to Principle B (Chomsky 1981). Since both pronouns are free in their local domains (=*nà* in TP and =*nì* in DP), they may be coreferential, although this is not required.

Following the framework of Chomsky (1995, 1998), we can say that the CSB sentence in 253 and its non-CSB counterpart in 254 are derived from different lexical arrays (different sets of lexical items used in the derivations). As shown in 256 below, the lexical array for the CSB clause contains only one DP capable of satisfying the requirements of the possessor and grammatical subject (abstract functional heads are omitted in the lexical array). There is no other DP available in the lexical array to merge into [Spec,vP], and the pronoun must be used to satisfy both possessor and subject requirements.

256. [reyuuni carru què' =3 =á]
[H/repair car of =3 =INVIS]

In contrast, the lexical array for the non-CSB sentence in 254 contains a second DP, an unspecified third person pronoun, as shown below in 257. This DP can merge into [Spec,vP], and it must, if the preference for merge over movement (Merge-over-Move) holds (Chomsky 1995).

257. [reyuuni carru què' =3 =3 =á]
[H/repair car of =3 =3 =INVIS]

Several issues with CSB remain, some of them minor, some major. Some minor issues to consider are the lack of backward control in MacZ and the behavior of non-referential DPs in CSB contexts. A much more serious issue stems from potential reflexive constructions: if CSB obtains as described above, then what blocks (covert) movement of an object to subject to produce a reflexive sentence? Why should CSB be blocked in a context like 258a? This meaning instead requires *Felipeà'* to appear not as an object, but as the possessor of the anaphor *luesi'* as in 258b:

258. a. ***Arcasi'ini ___$_i$ Felipe$_i$à'.** {mm}
arcasi'i=ni Felipe =à'
H/love=PREP Felipe =DIST
(Felipe loves himself.)

b. **Arcasi'ini ___$_i$ luesi' Felipe$_i$à'.** {mm}

These various issues are taken up in Section 6.2.5.5 below. Before addressing them, however, I first want to consider some evidence that suggests we are generally on the right track and that CSB does involve (covert) movement. This is discussed in the following section.

6.2.5.4 Evidence for a Movement Analysis

There are certain restrictions associated with movement in MacZ which are also exhibited by CSB. This supports the analysis that CSB is achieved via movement. In addition, the movement account may explain certain environments in which CSB is blocked. For example, topicalizing or moving the possessed nominal blocks CSB. In addition, the movement account naturally explains the clause-bounded nature of CSB.

These facts provide additional evidence that CSB does involve movement as proposed in the analysis described above.

As noted in Section 4.2.7, movement of a subject frequently occurs with an optional resumptive pronoun in the postverbal subject argument position. And in certain instances, the resumptive may be required. Of particular interest for CSB, the resumptive pronoun is required when an object argument satisfies the selectional restrictions of the verb for subject. A subject resumptive pronoun is needed to block a potentially ambiguous object from being mistakenly parsed as the subject. This fact was captured by the Subject Parsing Constraint repeated below in 259:

259. **Subject Parsing Constraint (SPC)**
If an overt DP immediately follows the verb and satisfies the verb's selectional restrictions for subject, parse it as the grammatical subject.

As a result of the SPC, a sentence like 174 with a potentially ambiguous verb can only parse *Felipeá* as the subject of the relative clause. To understand the moved relative pronoun as the subject and block *Felipeá* from being subject, the subject resumptive pronoun *=nà* is required as in 175:

260. **Beyùú' nu' begwiia' Felipeá nààyá' naanà béttsi'yà'.**
beyùú' nu' begwiia' Felipe =á nààyá' naa =nà bettsi' =ya'
man REL C/see Felipe =invis yesterday S/be =3 man's.brother =1SG
The man who Felipe saw yesterday is my brother.
**The man who saw Felipe yesterday is my brother.*

261. **Beyùú' nu' begwiia'nà Felipeá nààyá' naanà béttsi'yà'.**
beyùú' nu' begwiia' =nà F. =á nààyá' naa =nà bettsi' =ya'
man REL C/see =3 F. =INVIS yesterday S/be =3 man's.brother =1SG
The man who saw Felipe yesterday is my brother.
lit. *The man who he saw Felipe yesterday is my brother.*
**The man who Felipe saw yesterday is my brother.*

Interestingly, only phenomena involving movement are sensitive to this condition. If a subject has undergone any kind of movement (such as relativization, *wh*-movement, overt QR, focus, etc.), the spell-out of its trace is dependent upon the SPC. The subject trace may only be phonetically null when doing so cannot lead to another DP being parsed as the subject according to the SPC.

Constructions that have phonetically null subjects but do not involve movement are not sensitive to SPC considerations. The subject remains null regardless of whether or not a following DP satisfies the subject selectional restrictions of the verb. This is true, for example, of both imperative and non-finite null subjects. As discussed in Sections 4.2.4 and 4.2.5, both imperatives and non-finite verbs have non-overt subjects which are not obviously the result of movement. In neither case are their subjects forced to become overt to satisfy the SPC. The SPC only interacts with subject traces, forcing them to be overtly realized in certain instances.[39]

CSB null subjects behave like traces with respect to the SPC. The CSB subject cannot be null and form a CSB clause when a following object can satisfy the selectional restrictions of the verb for subject. This is illustrated below in 262-264 where the (a) examples show that CSB is blocked with an ambiguous object while the (b) examples illustrate that CSB is available with these verbs when an object cannot be misparsed as the subject.

[39] Interestingly, the SPC evidence indicates that non-finite verbs do not have null subjects as the result of movement. This is in contrast to Hornstein (1999), who argues for reducing control to movement. So, while we have adopted his approach to theta-assignment, it is not clear that treating control as movement is supported by the evidence in MacZ.

262. a. **Ìntè' ruyhiiti'n*(yà') niula chà'á.** {v167e/f}
ìntè' ruyhiiti'=ni *(=yà') niula chà' =á
me H/confuse=PREP *(=1S) woman of/1SG =INVIS
I confuse my wife.

b. **Margaritàʼ ruyhiiti'ni___ la'riyeeni què'nì.** {v167c}
Margarita =à' ruyhiiti'=ni la'riyeeni què' =nì
Margarita =DIST H/confuse=PREP mind of =3G
Margarita confuses herself (her mind).

263. a. **Làànà beeria*(nà) táá què'nìá.** {v148a/b}
làà=nà beeria *(=nà) táá què' =nì =á
IND=3 C/resemble *(=3) father of =3G =INVIS
He looks like his father.

b. **Lààcanà beeria____ luesi'canì.** {v148e}
làà=ca=nà beeria luesi' =ca =nì
IND=PL=3 C/resemble ANAPH =PL =3G
They look like each other.

264. a. **Binna*(yà') niula chà'á llè'è radiu.**
binna *(=ya') niula chà' =á llè'è radiu
C/hear *(=1SG) woman of/1SG =INVIS in radio
I heard my wife on the radio.

b. **Binna ___ ttsi'iyà' llè'è radiu.**
binna ttsi'i =ya' llè'è radiu
C/hear voice =1SG in radio
I heard my voice on the radio.

So in 264a, for example, *niula chà'á* 'my wife' satisfies the verb's requirement for an experiencer subject. Therefore, by the SPC, *niula chà'á* must be parsed as the subject if it is the first overt DP following the verb. This, of course, would lead to the ungrammatical parse 'My wife heard on the radio' with a missing object. To avoid this and derive the correct interpretation, the subject must be made overt. In contrast, in 264b the coreferential subject may be null since the object noun *ttsi'i* 'voice' does not refer to

an entity capable of experiencing sound. It cannot be interpreted as the subject, thus allowing CSB to obtain.[40]

The pattern of CSB availability in 262-264 supports the analysis that the null subject represents a trace (copy) since only traces interact with the SPC in this way. Unlike the instances of *wh*-movement, relativization, etc., the null postverbal subject in CSB clauses is the trace of covert movement rather than overt movement.

This covert movement account of CSB may also explain other restrictions on CSB clauses. As noted above in Section 6.2.4.2, the CSB possessed nominal cannot be topicalized nor can it undergo movement. Both of these constructions block the subject from being null, requiring it to become overt. These facts can be understood in light of the covert movement account.

As can be seen below in 265, a CSB null subject cannot remain covert if the possessed nominal is topicalized. It must be overtly expressed and the obligatory coreference of CSB is lost as can be seen in the translation.

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[40] One exceptional object noun is *yhi'ni* 'child'. It occurs freely as the object in CSB constructions as can be seen in the examples below:

i. **Làànà nuani(nà) yhi'ninì lààní cwe'enì.** {v203c/d}
làà=nà nua=ni (=nà) yhi'ni =nì lààní cwe'e =nì
IND=3 S/carry=PREP (=3) child =3G with back =3G
She's carrying her child on her back.

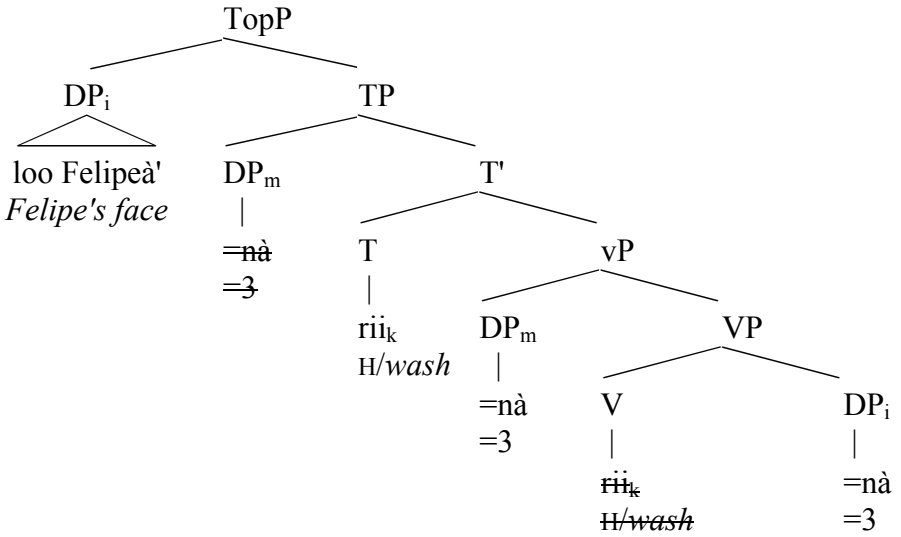
ii. **Felipeà' begaadia ___ ca chuppa yhi'ninià'.**
Felipe =à' begaadia ca chuppa yhi'ni =nì =à'
Felipe =DIST C/bathe PL two child =3G =DIST
Felipe$_i$ bathed his$_i$ two kids.

Possibly, this is because children are conceived of as generally non-volitional entities that are acted upon rather performers of actions. Certainly, however, this can only be a conception of the prototypical *yhi'ni* as the word is not restricted to small children but is appropriate for adult children as well. Still, perhaps this prototypical conception is sufficient to block *yhi'ni* from being forced to be parsed as a subject in CSB clauses according to the SPC. Further research is needed to see if *yhi'ni* behaves the same with respect to the SPC in other movement contexts as well.

265. **[Loo Felipeà']$_i$ rii*(nà)nà$_i$.** {AIS111599.20}
loo Felipe =à' rii =nà =nà
face Felipe =DIST H/wash =3N =3A
He/she is washing Felipe's face.

Under the covert movement analysis, this is entirely expected. As argued in Section 4.1.5, topics in MacZ are base-generated in [Spec,TopP] and must be coindexed with a following clitic pronoun in argument position. Thus, the sentence in 265 has the structure given below in 266:

266.



Under the covert movement account of CSB, a CSB clause can only be generated when the possessor moves to the thematic position of the subject and subsequently on to [Spec,TP]. But the possessed DP is base-generated very high in the structure in [Spec,TopP] in 266. To generate a CSB sentence, the possessor would have to move downward to [Spec,vP], either passing through [Spec,TP] or subsequently moving back up to it. Such downward movement into a non-c-commanding position is not found in language and is generally considered illicit. The topicalization data in MacZ appears to be no exception. In fact, it shows that while CSB binding appears to be "backward" it is

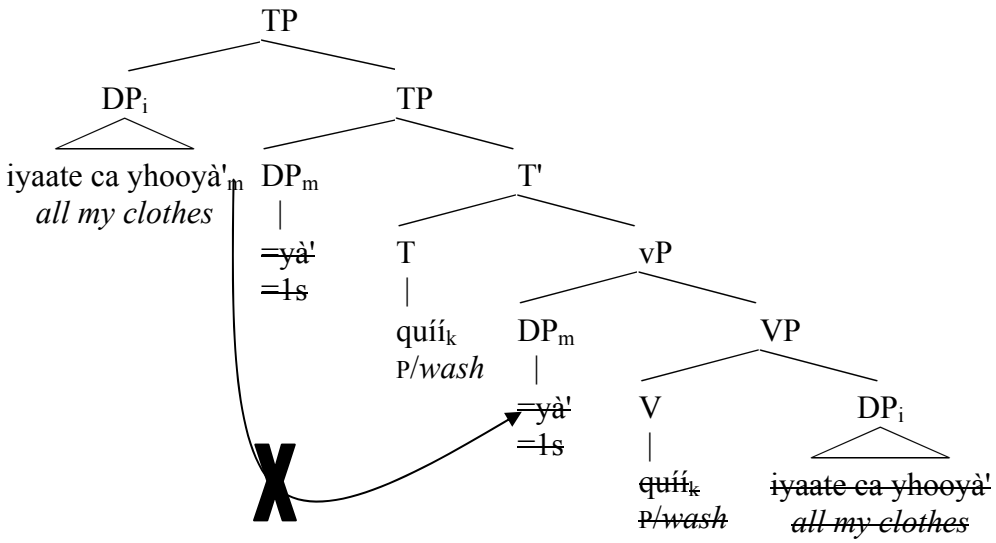
not achieved via "backward" movement. In other words, a downward overt movement account of CSB cannot be correct. Otherwise, we would be at a loss to explain the topicalization data.

The covert movement account may also help explain why the CSB possessed object cannot be moved either as discussed in Section 6.2.4.2.4. Like topicalizing the possessed DP, moving the possessed DP blocks CSB. In such cases, the null subject must be made overt as shown below in 267:

267. **[Iyaate ca yhooyà']$_i$ quií*(yà') t$_i$.**
iyaate ca yhoo *(=ya') quii =ya'
all PL clothes *(=1SG) P/wash =1s
I will wash all my clothes tomorrow.

Such a sentence faces the same difficulties in licensing CSB as a topicalization construction does. It would require illicit downward movement of the possessor to the subject argument position as shown below in 268:

268.

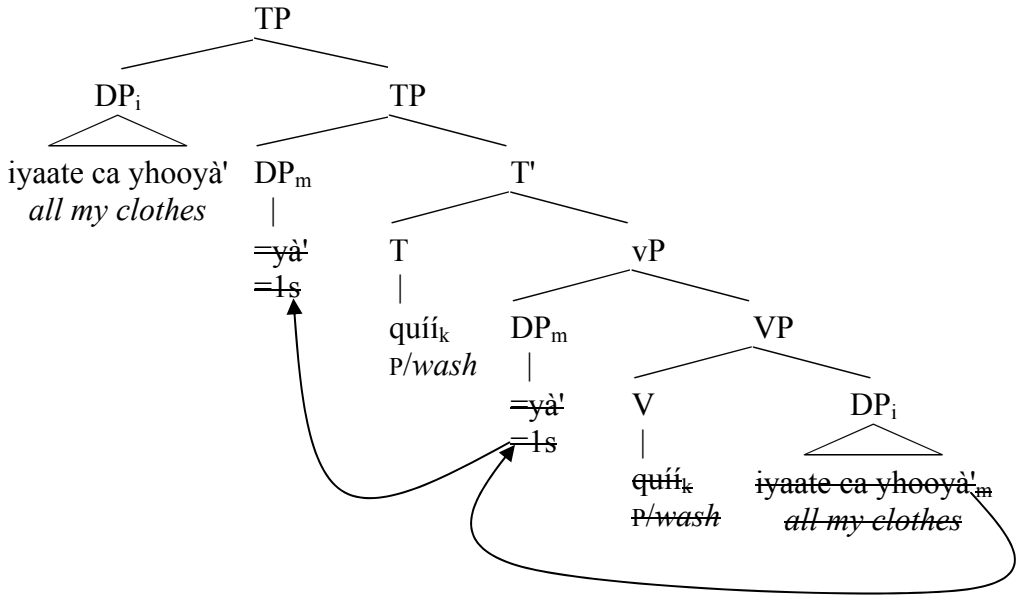


*Iyaate ca yhooyà' quií.

Such movement is blocked and CSB is not possible.

A question remains, however, as to why the possessor cannot move out of the lower instance of *iyaate ca yhooyà'* as illustrated below in 269.

269.



*Iyaate ca yhooyà' quíí.

Such movement seems initially plausible. It is movement to a c-commanding position and is how CSB is normally achieved. As can be seen however, the sentence remains ungrammatical. What blocks such a derivation?

This can be understood as an effect of the Copy Realization Conditions and the PF evaluation of the copies in 269. In the structure in 269, there are two relevant DP chains to evaluate. There is the chain involving *iyaate ca yhooyà'*, which has undergone overt QR, and there is the chain from the possessor of the lower instance of *iyaate ca yhooyà'* to [Spec,vP] and [Spec,TP]. By the first of the CRCs, repeated below, each chain must contain exactly one pronounced link. The chains which meet this minimum condition are given below in 270 and 271.

247. **Copy Realization Conditions**
   1. Pronounce exactly one link in a chain **(1Link)**.
   2. Pronounce the highest strong copy **(HighStrong)**.
   3. Do not pronounce weak copies (**NoWeak)**.

270. a. [$_{TP}$ iyaate ca yhooyà' … [$_{VP}$ … ~~iyaate ca yhooyà'~~]]
     b. [$_{TP}$ ~~iyaate ca yhooyà'~~ … [$_{VP}$ … iyaate ca yhooyà']]

271. a. [$_{TP}$ =ya' … [$_{vP}$ ~~=ya'~~ … [$_{DP}$ … ~~=ya'~~]]]
     b. [$_{TP}$ ~~=ya'~~ … [$_{vP}$ =ya' … [$_{DP}$ … ~~=ya'~~]]]
     c. [$_{TP}$ ~~=ya'~~ … [$_{vP}$ ~~=ya'~~ … [$_{DP}$ … =ya']]]

Both realizations in 270 must be viable since overt QR is generally optional. Perhaps this difference in QR is driven by an optional strong feature associated with the quantifier such that the quantified DP needs to move to some higher projection for interpretation. This may lead to simple adjunction to TP as represented above in 269 or maybe the DP is driven to a particular functional projections uniquely associated with different quantifier types (as in Beghelli and Stowell 1997). When the strong feature is present, then the chain must be realized as in 270a. Only this configuration will satisfy the HighStrong Condition in addition to the 1Link Condition (the NoWeak Condition will not apply since there would be no weak copies under the definitions given in 193 above).

The alternation in overt/covert QR could also possibly be driven by economy conditions. As discussed in Section 5.3.4.3, Bobaljik (2002:251) proposes an economy condition, Minimize Mismatch, similar to Diesing's (1997) Scope Principle, which requires PF to privilege the same copy as LF. Therefore, if a quantifier requires interpretation of a higher copy of a DP at LF, then to meet Minimize Mismatch, PF should pronounce that higher copy. If Minimize Mismatch is active in MacZ, it could lead to overt QR like that seen in 270a, even if the higher instance of the DP represents a weak copy. In that case, Minimize Mismatch would have to allow a violation of the NoWeak Condition (just as the Subject Parsing Constraint allows a violation of the 1Link Condition when it forces resumptive pronoun insertion). Since overt QR is not mandatory, Minimize Mismatch is perhaps sufficient to allow the NoWeak Condition to be overridden, but does not require it.[41]

Whatever is responsible for the overt/covert QR alternation, overt QR blocks CSB. The chain in 270a is incompatible with the CSB possessor chains presented in 271. Of the three alternatives provided in 271 repeated below, only 271c does not violate any of the CRCs as shown in 272.

271. a. [$_{TP}$ =ya' … [$_{vP}$ ~~=ya'~~ … [$_{DP}$ … ~~=ya'~~]]]
b. [$_{TP}$ ~~=ya'~~ … [$_{vP}$ =ya' … [$_{DP}$ … ~~=ya'~~]]]
c. [$_{TP}$ ~~=ya'~~ … [$_{vP}$ ~~=ya'~~ … [$_{DP}$ … =ya']]]

272.

CRCs	271a.	271b.	271c.
1. **1Link**	✓	✓	✓
2. **HighStrong**	N/A	N/A	N/A
3. **NoWeak**	*	*	✓

[41] Actually, LF should target both copies for interpretation. The higher copy would be needed for scope interpretation while the lower copy provides the thematic interpretation. As such, Minimize Mismatch might favor pronunciation in both positions leading to the optionality of overt QR.

Both 271a and 271b, violate the NoWeak Condition since they involve pronunciation of the weak copies generated to satisfy the weak EPP and weak theta-features respectively. As the foot of the chain does not count as a copy (weak or strong) according to the definitions in 193 above, this link can be overt without causing a violation of the NoWeak Condition.

However, the CSB chain in 271c conflicts with the overt QR chain in 270a. In 270a, PF cannot overtly realize the foot of the chain. But this contains the very link that must be overtly realized to allow the CSB possessor chain to form. The constraints on the chain in 270a require the possessor *=ya'* =1SG in the foot of the chain to be unpronounced. Doing so, however, requires the use of the ungrammatical realizations in 271a-b or requires a CSB possessor chain with no overtly realized links which violates the 1Link Condition. Pronouncing *=ya'* as in 271c violates the 1Link Condition for 270a since two (partial) links are realized (it probably violates general well-formedness conditions as well). The conflicting requirements on *=ya'* in the foot of these chains cannot both be satisfied, and overt movement of the CSB possessed DP results in ungrammaticality.

Either CSB or overt movement of the possessed DP may occur, but not both in the same clause. If overt movement does not take place, then CSB may obtain in the usual fashion as shown below in 219 with the PF evaluated structure given in 274 (upper case letters represent strong copies):

273. **Quií ___ iyaate ca yhooyà'.**
quií iyaate ca yhoo =yà'
P/wash all PL clothes =1SG
I will wash all my clothes tomorrow.

274. [$_{TP}$ ~~[iyaate ca yhooyà'$_i$]$_k$~~ [$_{TP}$ ~~=ya'$_i$~~ QUÍÍ [$_{vP}$ ~~=ya'$_i$~~ ~~quií~~ [$_{VP}$ ~~quií~~ [iyaate ca yhooyà'$_i$]$_k$]]]]

The QR chain in 274 does not interfere with the CSB possessor chain. Both chains require that the foot of their respective chains be pronounced. Since these overlap, there is no conflict and CSB may occur with covert movement of the possessed DP.

If overt movement does take place, then CSB is blocked. The subject argument must independently merge into the structure resulting in an overt subject like that in 275 below:

275. **Iyaate ca yhooyà' quíiyà'.**
iyaate ca yhoo =ya' quii =ya'
all PL clothes =1SG P/wash =1SN
I will wash all my clothes.

As can be seen in the corresponding structure in 276 below, *iyaate ca yhooyà'* 'all my clothes' first merges with the verb. The verb then moves to v° to license the agent argument. Here, instead of moving the possessor of the object, a distinct instance of the pronoun is merged into the structure, receiving the *washer* theta-role.

276. [$_{TP}$ [iyaate ca yhooyà']$_k$ [$_{TP}$ ~~=ya'$_i$~~ QUÍÍ [$_{vP}$ =ya'$_i$ ~~quií~~ [$_{VP}$ ~~quií~~ ~~[iyaate ca yhooyà']$_k$~~]]]]

The rest of the derivation proceeds as normal. The verb must overtly move to T° to check the strong tense feature. A weak copy of the subject is generated in [Spec,TP] to satisfy the weak EPP features associated with tense (as well as the weak nominative case features). The quantified object DP then undergoes overt QR, adjoining to TP.

As expected, since CSB is blocked in sentences like 275 and a distinct subject argument merges into the structure, obligatory coreference is lost. This is illustrated below in 277:

277. **Iyaate ca yhoonì quiinà.**
iyaate ca yhoo =nì quii =nà
all PL clothes =3G P/wash =3N
He/she will wash all his/her clothes.

As we have now seen, CSB shows some of the same restrictions that we have observed with movement. A null trace (copy) may not occupy the postverbal subject when a following object DP satisfies the selectional restrictions of the verb for subject. In such cases, a resumptive pronoun in subject position is required. As we have seen, the null subject in CSB is also blocked by a potentially ambiguous following DP. Other null subjects—those not derived via movement—do not show this sensitivity. This suggests that our movement analysis of CSB may be on the right track. The covert copy of the CSB subject shows the same restrictions as copies involving overt movement.

The movement account also naturally explains the local nature of CSB. CSB can only hold between a (null) subject and possessor within the same clause (within the same TP even). It cannot extend to subjects of higher clauses. Thus as shown in 278-281 below, a possessor in an embedded clause cannot license a null matrix subject. This is true whether CSB is licensed within the lower clause (as in 278-279) or not (280-281):

278. **Làànà rquiina'in*(nà) quii ___ ca yhoonià'.** {mm}
làà=nà rquiina' =ni *(=nà) quii ca yhoo =nì =à'
BAS=3 H/be.needed =PREP *(=3D) P/wash PL clothing =3G =DIST
He needs to wash his clothes.

279. **Làànà yuu*(nà) què' chi gutii ___ ca laayanì.** {mm}
làà=nà yuu *(=nà) què' chi gutii ca laaya =nì
BAS=3 S/know *(=3N) of already C/wash PL tooth =3G
He knows he already brushed his teeth.

280. **Làànà ribeeda*(nà) què' rtoottse' lagoo què'nià'.** {mm}
làà=nà ribeeda *(=nà) què' r-t-oo =ttse' lagoo què' =nì =à'
BAS=3 H/hope *(=3N) of H-MID-eat =well food of =3G =DIST
He hopes his food tastes good.

281. **Làànà arcalaasi'*(nì) què' ebiisixia ca yhoonià'.** {mm}
làà=nà arcalaasi' *(=nì) què' ebiisi =xia ca yhoo =nì =à'
BAS=3 H/want *(=3G) of P/get.dry =quickly PL clothing =3G =DIST
He wants his clothes to get dry quickly.

These locality effects can easily be captured via a movement account constrained by the notion of phases and the Phase Impenetrability Condition (Chomsky 1999, 2001). Chomsky (1999) proposes the Phase Impenetrability Condition (PIC) paraphrased in 282 below:

282. **Phase Impenetrability Condition**
Only the material at the edge of a phase is accessible for syntactic operations (i.e. movement) whose target is outside the phase.

Phases are generally assumed to be finite CP and agentive vP. Elements within these phases cannot be moved (or otherwise manipulated by the syntax) beyond their phases, unless they occur at the edge of the phase, which we can take to be the specifier position. The intuition is that syntactic operations can only look so far down into the structure. As a structure builds, the elements within become invisible for further syntactic manipulation.

The notion of the phase and the PIC provide a ready account for the clause-bounded nature of CSB. I have argued that CSB arises from coveret movement of a possessor to the thematic subject position and subsequently to [Spec,TP] to check the EPP and nominative case features of the verb. Since movement is constrained by Greed (movement can only occur to satisfy some feature), then there is nothing driving movement to a higher position within the phase. In particular, no features trigger movement to [Spec,CP]. As a result, the DP never appears at the edge of the CP phase and by the PIC above is therefore unavailable for additional movement to higher clauses.

There is another point of interest concerning phases. The behavior of CSB suggests that DPs do not count as phases since we have possessors moving out of the DPs that contain them. This is especially true since there is no evidence that any features drive the movement of the possessor to the edge of a potential DP-phase.

As discussed, the movement analysis also elegantly accounts for why the CSB possessed DP may neither be topicalized nor moved. Both disrupt the PF evaluation of the chain formed between the CSB possessor and the null subject. When the possessed DPs are topicalized and moved, the resulting chains cannot satisfy the Copy Realization Conditions (CRCs), the PF evaluation conditions that were independently motivated to account for postverbal subjects and the availability of non-nominative subjects.

The covert movement analysis of CSB therefore accounts for many of the major features of CSB. Obligatory coreference between the null subject and possessor is a natural byproduct of movement. Furthermore, the covert movement analysis explains various restrictions associated with CSB: the CSB possessed DP can neither be

topicalized nor moved and the possessed DP may not satisfy the verb's selectional restrictions for subject. It also accounts for the locality restrictions found with CSB. However, as noted previously, there are still several issues and complications that arise from this approach to CSB. These are addressed in the following section.

6.2.5.5 Issues and Implications

There are a few issues concerning our account of CSB that must be considered. First, we have taken a similar approach to CSB as Polinsky and Potsdam (2001, 2002) pursue for backward control. Interestingly, however, MacZ exhibits normal forward control, not backward control. This contrast will be taken up in Section 6.2.5.5.1 below.

A second and perhaps more serious issue concerns reflexives. To provide a movement account of CSB, it has been necessary to dispense with the biuniqueness condition of the Theta Criterion. With this condition dropped and MacZ's multiple case checking ability, it should be possible to have CSB not only between a possessor and subject but also between an object and subject. This is not in fact possible and in Section 6.2.5.5.2, we will pursue an explanation.

Finally, Cormack and Smith (2002) critique copy theory and Polinsky and Potsdam's account of backward control. They argue that distributive quantifiers should be blocked from the embedded subject position in backward control structures. And this is in fact the case for Tsez, the language presented in Polinsky and Potsdam 2002. Since I am using a very similar approach, it is interesting to test the behavior of distributive quantifiers in CSB. As we will see in Section 6.2.5.5.3, distributive quantifiers can

appear with the CSB controlling possessor, apparently contradicting the expectations of Cormack and Smith.

6.2.5.5.1 Backward Control

The covert movement account of CSB has drawn heavily on Polinsky and Potsdam's (2001, 2002) analysis of backward control which in turn relies on Hornstein's (1999) proposal recasting control in terms of movement. A natural question arises: if backward binding (CSB) and backward control are so similar, why doesn't MacZ exhibit backward control as well as CSB? The answer is that a movement account of control does not seem to be correct for MacZ. In our analysis of CSB, it has been necessary to follow Hornstein (1999) in rejecting the Theta-Criterion and helpful to treat theta-roles as features. However, the central tenet of Hornstein 1999 that control reduces to movement is not supported for MacZ.

While binding in MacZ appears to be "backward", control is of the normal "forward" type: a null element (PRO) in an embedded non-finite clause has its interpretation controlled by an argument in a higher clause. This is illustrated in 283-284 below:

283. **Diia'yà' gwediia PRO ttu carta.** {v21j}
diia' =yà' gwediia ttu carta
S/go =1SN N/write a letter
I'm on my way to write a letter.

284. **Béccú'nà' gudàànà gweyhiia PRO.** {v149e'}
béccú' =nà' gudàà =nà gweyhiia
dog =DIST C/be.doing =3N N/bark
That dog was barking.

The embedded subject can never be overtly realized whether or not the matrix subject is expressed. Thus, backward control can never occur in MacZ. The backward control counterparts to 283-284 are judged ungrammatical as seen below in 285-286:

285. ***Diia'(yà') gwediiayà' ttu carta.** {v21j}
diia' (=yà') gwediia =ya' ttu carta
S/go (=1SN) N/write =1SN a letter

286. ***Béccú'nà' gudàà(nà) gweyhiianà.** {v149e'}
béccú' =nà' gudàà (=nà) gweyhiia =nà
dog =DIST C/be.doing (=3N) N/bark =3N

Note that the presence of a potentially coreferential possessor and CSB in the embedded non-finite clause does not facilitate backward control. The matrix subject must remain overt:[42]

287. **Edgarnà' gudusii*(nà) gwecchu PRO ittsicchanì.** {v231b}
Edgar =nà' gudusii *(=nà) gwecchu ittsa iccha =nì
Edgar =DIST C/stop *(=3N) N/cut hair head =3G
Edgar stopped cutting his/her hair.

[42] CSB in fact cannot be licensed in non-finite clauses. The subject of the non-finite verb is always null regardless of the presence of a potentially coreferential possessor. Thus, while the matrix subject always controls the interpretation of the embedded PRO subject, the reference of a (third-person) possessor pronoun remains ambiguous as shown by the translation of 155. Not only are such sentences ambiguous between a CSB and non-CSB source, but if control involves some element like PRO, then it would seem that CSB must be blocked. CSB requires movement from the possessor to the grammatical subject position. Clearly, this cannot happen with PRO since the possessor must remain overt:
i. ***Edgarnà' gudusiinà gwecchu PRO ittsiccha PRO.** {v231b}
Edgar =nà' gudusii =nà gwecchu ittsa iccha
Edgar =DIST C/stop =3N N/cut hair head
(*Edgar stopped cutting his own hair.*)

The lack of backward control in MacZ is surprising if Hornstein's (1999) movement analysis of control is correct. I have argued that theta-features, nominative case features and EPP (D-features) are all weak in MacZ. As a result, if control consistently reduces to movement, then MacZ should only exhibit backward control. The higher, weak copies generated to satisfy the requirements of the matrix clause could not be overtly realized. According to the Copy Realization Conditions, only the foot of the chain should be spelled out as illustrated below in 288, the movement derivation that would be expected for 285 above:

288. [$_{TP}$ ~~=ya'~~ DIIA [$_{vP}$ ~~=ya'~~ ~~diia~~ [$_{VP}$ ~~diia~~ [$_{TP}$ ~~=ya'~~ GWEDIIA [$_{vP}$ =ya' ~~gwediia~~ [$_{VP}$ ~~gwediia~~ ttu carta]]]]]]

In 288, *=ya'* =1s would first merge into the non-finite embedded clause, satisfying the agent theta-features of the verb. It would then move (remerge) in [Spec,TP] of the embedded clause to satisfy its EPP/D-features. Additional weak copies of *=ya'* would be generated in the matrix clause to satisfy the matrix verb's subject theta-features and the EPP and nominative case features of the matrix TP. As all of the higher instance of *=ya'* are weak copies they should not be overtly realized, leaving only the foot of the chain in the embedded [Spec,vP] to be pronounced and resulting in backward control. Since backward control is not available in MacZ, it suggests that either there is a problem with our movement derivation presented in 288 or that control is not derived via movement in MacZ. The latter seems to be the correct conclusion.

Control structures in MacZ show none of the hallmarks of movement. As discussed in Section 4.2.7 and above for CSB in Section 6.2.3.1.4, movement of subjects shows peculiar restrictions in MacZ. In certain environments, a subject resumptive

pronoun is required with a moved subject. For example, a subject resumptive pronoun is required when a following object satisfies the verb's selectional restrictions for subject. A resumptive pronoun is also needed when a clitic object pronoun marks the object. An overt subject, however, can never occur with a non-finite verb, whether in these environments or any other.

As can be seen below in 289-142, an overt "resumptive" subject is not possible with a non-finite verb, even when a potentially ambiguous object follows. In both 289 and 142, the object satisfies the verb's selectional restrictions for subject which typically would lead to it being misparsed as the subject. To prevent this misparse in movement contexts, a moved DP must occur with a subject resumptive pronoun. The sentences in 289-142, however, lack a subject resumptive pronoun but do not result in a misparse of the intended object DP. This indicates that the null non-finite subject does not represent a trace (null copy) since movement of the subject in such cases always requires the subject trace to be overtly realized with a resumptive pronoun.

289. **Diia'nà gweyúú(*nà) naanquè'nìá.** {Wedding Story.14}
diia' =nà gweyúú (*=nà) naan -què' =nì =á
H/go =3 N/visit (*=3N) mother -of =3G =INVIS
She went to visit her mother.

290. **Diia'tù' gwesaa'(*tù') Aan Pánfila.** {v20d'}
diia =tù' gwesaa' (*=tù') Aan Pánfila
S/go =1EXCL N/get.together.with (*=1EXCL) Señora Pánfila
We are on our way to get together with Señora Pánfila.

One might argue that the overt non-finite marking on the verb requires a null subject trace, making an overt resumptive pronoun redundant and therefore, ungrammatical. However, subject traces must also be realized with resumptive pronouns

when followed by clitic object pronouns even when there is no possibility of misconstruing the object pronoun as a subject. But subject traces must still be overtly realized in such cases. They are not marked as redundant and blocked in such environments but are still required, presumably for purely phonological reasons. The lack of potential ambiguity may explain the unavailability of subject resumptive pronouns in 289 and 142, but if non-finite subjects are traces, they should still be forced to be overtly spelled out when followed by clitic object pronouns. As seen below in 291-292, however, resumptive pronouns for non-finite subjects are prohibited even in this context. This is unexpected if control reduces to movement, indicating that control is achieved by some other means in MacZ.

291. **Béccú'nà' gudàànà gweyhiani(*nà)ntè'.** {v149e}
béccú' =nà' gudàà =nà gweyhia =ni (*=nà) =ntè'
dog =DIST C/do? =3N N/bark =PREP (*=3) =1SA
That dog was barking at me.

292. **Diiayà' gubeesiya'ani(*yà')canà.** {v68e}
diia =yà' gubeesiya'a =ni (*=ya') =ca =nà
S/go =1SN N/yell =PREP (*=1S) =PL =3A
I am on my way to yell at them.

Additionally, Hornstein (1999) assumes that control movement is driven by the inability of the infinitive clause to assign nominative case. Since the embedded subject fails to get case in the embedded clause, it must raise into the higher clause to receive case (where it also receives an additional theta-role). In MacZ, non-finite verbs presumably do not assign nominative case either. However, as we have seen, MacZ also has verbs that license dative and genitive subjects. While nominative case and tense are intimately linked, it does not seem that the tense of the verb should also affect the

assignment of dative and genitive case. The presence of the dative applicative *=ni* should license dative case while the presence of an incorporated inalienable noun should license genitive case, regardless of the tense of the verb. If this is the case, then a non-finite subject of a genitive subject verb should be able to have its licensing requirements met entirely within the non-finite clause. The argument will be both theta-marked and case-licensed in the non-finite clause and by Hornstein's argument should be able to be overtly realized there (this should be optional depending on whether the sentence derives from a lexical array containing one or two potential subject DPs, one for the embedded clause, one for the higher clause). This is not possible, however. As seen below in 293-40, non-nominative subjects are as consistently blocked with non-finite verbs as nominative subjects are.[43]

293. **Làànà diia'nà gwettsa'nàá'(*nì).** {v21c}
làà=nà diia' =nà gwettsa'nàá' (*=nì)
IND=3 S/go =3 N/get.married (*=3G)
He's on his way to get married.

294. **Gwetthalaasi'(*yà') chò' reenyà'.** {v28c}
gwetthalaasi' (*=yà') chò' reeni =yà'
N/think (*=1SG) of/2SG H/be(PROG) =1S
I'm thinking about you.

This suggests that it is not some deficiency in case assignment that forces the embedded DP to move. Instead, it seems to be a requirement of the non-finite verb that it not have an overt subject, regardless of the case it is assigned. It is difficult to see how this requirement could be implemented under a movement account if movement is feature driven. Movement may only occur to check some feature of a target, but cannot be

[43] To my knowledge, no dative subject verbs have a non-finite form, which is typically restricted to only those roots that are capable of licensing an agentive subject.

triggered by some anti-feature driving movement away from a target as would be required for a movement account of control in MacZ.

Instead, the control facts in MacZ seem most amenable to a PRO theory of control in which PRO is licensed by null Case (Chomsky and Lasnik 1993). If non-finite verbs in MacZ can only assign null Case to their subjects which can only be checked by PRO, then it guarantees that the non-finite subject will be null regardless of the other case-licensing properties of the verb. This predicts that not only nominative subject verbs will have PRO subjects with non-finite forms, but so will genitive subject verbs. Furthermore, this explains the lack of resumptive pronouns with non-finite subjects since resumptive pronouns are only required when the subject undergoes movement. The PRO analysis does not rely on movement to explain the null non-finite subject, and therefore, there are no subject traces to be realized with resumptive pronouns.

Since control in MacZ is not achieved via movement, MacZ does not exhibit backward control. Additional research is needed of Tsez and the other backward control languages catalogued in Polinsky and Potsdam 2002 to understand precisely which features allow backward control and whether backward control and backward binding are compatible or mutually exclusive.

6.2.5.5.2 Reflexives

Although the evidence from MacZ does not support following Hornstein into reducing control to movement, the analysis of CSB I have been pursuing does follow Polinksy and Potsdam (2002) in adopting Hornstein's position that the biuniqueness condition of the Theta-Criterion be rejected. Under this approach, DPs are not restricted

to exactly one theta-role but may come to bear multiple theta-roles, which are assigned via feature-checking (following Lasnik (1995), Bošković (1994), and Bošković and Takashi (1998)). For CSB, I have argued that this construction is derived via covert movement of a possessor DP which bears a possessor theta-role. Subsequently, this theta-marked DP moves to the subject's thematic position acquiring the theta-role of the subject as well. Thus, for our familiar example in 295, the overt possessor DP is part of a chain as shown in 251 which also occupies [Spec,vP] where the verb's agent theta-role is assigned.

295. **Reyuuni ___ carru què'nìá.**
reyuuni carru què' =nì =á
H/repair car of =3G =INVIS
He$_i$ is fixing his$_i$ car.

296. [$_{TP}$ ~~=3$_i$~~ **reyuuni$_k$** [$_{vP}$ ~~=3$_i$ reyuuni$_k$~~ [$_{vP}$ ~~reyuuni$_k$~~ [$_{DP}$ carru què' =nì$_i$ =á]]]]
[$_{TP}$ ~~=3$_i$~~ **repairs$_k$** [$_{vP}$ ~~=3$_i$ repairs$_k$~~ [$_{vP}$ ~~repairs$_k$~~ [$_{DP}$ car of =his$_i$ =that]]]]

There is an immediate complication, however, with the rejection of the biuniqueness condition of the Theta-Criterion. It should yield backward reflexive sentences like those in 297a and 298a involving coreference between a null subject and object. As can be seen, such sentences are ungrammatical. A (null) subject and object cannot be coreferential and backward binding can only be licensed when the overt DP is embedded inside some larger DP as in the CSB counterparts in 297b and 298b.

297. a. ***Arcasi'ini ___$_i$ Felipeà'$_i$.** {mm}
arcasi'i=ni Felipe =à'
H/love=PREP Felipe =DIST
(Felipe loves himself.)

b. **Arcasi'ini ___$_i$ luesi' Felipeà'$_i$.** {mm}
arcasi'i=ni luesi' Felipe =à'
H/love=PREP self Felipe =DIST
Felipe loves himself.

298. a. ***Rugwiia' ___$_i$ Felipeà'$_i$ loo espejuà'.** {mm}
rugwiia' Felipe =à' loo espeju =à'
H/see Felipe =DIST on mirror =DIST
(*Felipe is looking at himself in the mirror*.)

b. **Rugwiia' ___$_i$ loo Felipeà'$_i$ loo espejuà'.** {mm}
rugwiia' loo Felipe =à' loo espeju =à'
H/see face Felipe =DIST on mirror =DIST
Felipe$_i$ is looking at his$_i$ face in the mirror.

Although they too drop the biuniqueness condition restricting a chain to exactly one theta-role, Polinsky and Potsdam do not run into the same backward reflexive problem with their analysis of backward control. In the languages they have analyzed, backward control is restricted to just a few predicates, which happen to only take clausal/infinitival complements. In Tsez, for example, presented in Polinsky and Potsdam 2002, only two verbs allow backward control: *–oqa* 'began' and *–ič̄a* 'continue'. These verbs cannot take DP objects as illustrated below in 299 for *–oqa* (from Polinsky and Potsdam 2002):

299. *kid-bā saγ b-oq-si (270:66)
girl-ERG treatment.III.ABS III-begin-PAST.EVID
('The girl began the treatment.')

Polinsky and Potsdam build this lexical restriction on backward control into their analysis. But if the ability to assign DPs multiple theta-roles is restricted to just these verbs, then problematic situations like 297a and 298a can never arise. A DP will not be able to move (covertly) from object to subject position when a verb does not license an object. If only these two verbs in Tsez can assign a second theta-role to a DP already

theta-marked, then only a (backward) control/raising structure could obtain, never (backward) reflexivization.

CSB, in contrast, is not lexically restricted. It occurs with a wide-range of predicates including those in the problematic 297a and 298a as seen in the grammatical 297b and 298b. Thus, we cannot rely on lexical peculiarities to account for the defectiveness of 297a and 298a, but instead, we need a general, principled account to explain why the CSB covert subject cannot be licensed by a direct object, but only by a more deeply embedded DP.

In rejecting the Theta-Criterion's biuniqueness condition, Hornstein (1999) utilizes the Case-Filter to rule out movement from object to subject position in English. Thus, *John$_i$ saw t_i* to mean 'John saw himself' is out because case features would go unsatisfied. *John* could only check the nominative case feature or the accusative case feature; the other, left unchecked, would cause the derivation to crash. Under his approach, *John tried t_i to hold his breath* goes through because only the higher TP assigns case; the infinitival does not.[44]

This explanation will not work for MacZ either. Both the presence of CSB and non-nominative subjects in MacZ seem to require that either DPs can bear multiple cases or that nominative case can consistently go unassigned. In CSB, the possessive DP is always realized with genitive case. Either it covertly moves and checks nominative case or nominative case goes unassigned in CSB clauses. Likewise, non-nominative subjects

[44] Hornstein does in fact suggest that inherently reflexive verbs in English such as *wash, dress* and *shave* do allow movement from object to subject. Thus, *Mary$_i$ washes t_i* yields the intended meaning 'Mary washes herself'. He argues that this is possible because these verbs (optionally) do not assign case to their objects, allowing a DP to move from object to subject position, acquiring two theta-roles, but only one case.

have their case assigned by the applicative clitic *=ni* (dative subjects) or by an incorporated inalienable noun (genitive subjects). They must subsequently satisfy the nominative case features generally associated with (finite) TP or again nominative case can go unassigned. Since MacZ must allow multiple case checking or optional assignment of nominative case, then case considerations also cannot be the source of the ungrammaticality of the (backward) reflexive sentences in 297a and 298a.

There are a couple of different ways to address the unavailability of backward reflexives in MacZ. The first possibility is that CSB is inherently insufficient to license reflexivity in the terms of Reinhart and Reuland 1993. Reinhart and Reuland (R&R) recast Binding Theory as conditions on reflexive predicates, defined below:

300. A predicate is *reflexive* iff two its arguments are coindexed. (663:11'a)

R&R observe that it is a universal property that reflexive predicates must be licensed and propose that there are only two methods by which this may be done. Either the head of the predicate (the verb) must be lexically marked as reflexive or one the arguments must be a SELF anaphor, which are complex anaphors that are universally local (as opposed to long-distance anaphors which are universally simplex). Only when a predicate is reflexive-marked in one of these two ways can it be reflexive (have two coindexed arguments).

If this is a (more) correct characterization of binding, then we have an explanation for the ungrammaticality of the reflexives in 297a and 298a above. The reflexive predicates in 297a and 298a have not been licensed since they are not reflexive-marked. The verbs clearly are not lexically marked as being reflexive, or else the sentences would

be grammatical (and *a priori* we would not expect verbs with the meanings of 'love' and 'see' to have unmarked reflexive forms and there is no overt morphology indicating reflexivization). Additionally, none of the arguments are SELF anaphors. As a result, the predicates in 297a and 298a are not reflexive-marked, and therefore, they may not be reflexive with coindexed arguments.

The additional structure added in 297b and 298b, repeated as 301 and 302 below, is able to license CSB, however. If *luesi' Felipeà'* in 301 is analyzed as a SELF anaphor (it is complex and must be locally bound), then this would reflexive-mark the predicate in 301, allowing it to be reflexive; *luesi' Felipeà'* and the null subject can be coindexed. If *luesi'* is instead better analyzed as simply a possessed noun, then its presence will license CSB in the same way as *loo* 'face' in 302.

301. **Arcasi'ini ___$_i$ *(luesi') Felipeà'$_i$.** {mm}
arcasi'i=ni *(luesi') Felipe =à'
H/love=PREP *(self) Felipe =DIST
Felipe loves himself.

302. **Rugwiia' ___$_i$ *(loo) Felipeà'$_i$ loo espejuà'.** {mm}
rugwiia' *(loo) Felipe =à' loo espeju =à'
H/see (face) Felipe =DIST on mirror =DIST
Felipe$_i$ is looking at his$_i$ face in the mirror.

In 302, the addition of *loo* allows CSB to obtain because it introduces *Felipeà'* as its possessor. Although *Felipeà'* remains coindexed with the null subject, it is no longer an argument of the predicate. As a result, the predicate is no longer a reflexive one and therefore does not need to be reflexive-marked (and in fact cannot be). Thus, coindexation between a null subject and a possessor can obtain precisely because they are not coarguments.

This approach provides a more principled explanation of why (backward) control, if derived via movement, also does not yield (backward) reflexive structures. The mechanisms that would be involved in (backward) control movement do not reflexive-mark predicates and therefore could not by themselves license reflexive predicates.

In addition, backward reflexives are also ruled out by independent principles we have already postulated for other aspects of MacZ grammar. The interaction of the Subject Parsing Constraint and the Copy Realization Conditions also predict that backward reflexive sentences should be ungrammatical in MacZ.

As discussed in Section 4.2.7 movement in MacZ, including CSB, is sensitive to the Subject Parsing Constraint repeated below in 303:

303. **Subject Parsing Constraint (SPC)**
If an overt DP immediately follows the verb and satisfies the verb's selectional restrictions for subject, parse it as the grammatical subject.

The SPC was developed to explain the distribution of resumptive pronouns in MacZ. Exceptionally, MacZ employs subject resumptive pronouns in exactly those environments in which the SPC would force an intended object to be parsed as the subject. The resumptive postverbal pronoun satisfies the SPC allowing a moved DP to be interpreted as subject instead of the postverbal object.

As discussed in Section 6.2.5.4, SPC considerations are also in effect in CSB. CSB is blocked when the possessed DP could satisfy the verb's selectional restriction for subject. By the SPC, the possessed DP has to serve as the grammatical subject. Without a null subject, CSB cannot hold.

Now, we can see how the SPC would similarly rule out backward reflexives like those in 297a and 298a, repeated below as 304 and 305:

304. ***Arcasi'ini ___$_i$ Felipeà'$_i$.** {mm}
arcasi'i=ni Felipe =à'
H/love=PREP Felipe =DIST
(*Felipe loves himself.*)

305. ***Rugwiia' ___$_i$ Felipeà'$_i$ loo espejuà'.** {mm}
rugwiia' Felipe =à' loo espeju =à'
H/see Felipe =DIST on mirror =DIST
(*Felipe is looking at himself in the mirror*.)

In order for a subject and object to be coindexed, then the object DP will necessarily have to satisfy the verb's selectional restrictions for subject (in addition to its restrictions on objects). Since the object DPs are the first overt DPs following the verb in 304-305, then by the SPC, they must be parsed as the subject. Thus, backward reflexivization is ruled out by the SPC. If these are to be reflexive structures, they must be of the more normal forward kind as in 306-307 below. Of course, these are the same pronounced string and as can be seen, forward reflexivization is also ungrammatical.

306. ***Arcasi'ini Felipeà'$_i$ ___$_i$.** {mm}

307. ***Rugwiia' Felipeà'$_i$ ___$_i$ loo espejuà'.** {mm}

The problem with the sentences in 306-307 is that they result in illicit chains as judged by our Copy Realization Conditions (CRCs). The CRCs were developed as PF-evaluation conditions to determine which link in a movement chain should be overtly realized. They are repeated below in 308:

308. **Copy Realization Conditions**
1. Pronounce exactly one link in a chain **(1Link)**.
2. Pronounce the highest strong copy **(HighStrong)**.
3. Do not pronounce weak copies (**NoWeak).**

If null reflexivization involves movement as I have assumed (following the analysis of CSB), then the reflexive sentences in 306-307 would have a structure like that given below in 309 for 307 (strong copies in bold):

309. [$_{TP}$ ~~Felipeà'$_i$~~ **rugwiia'$_k$** [$_{vP}$ Felipeà'$_i$ ~~rugwiia'$_k$~~ [$_{VP}$[$_{VP}$ ~~rugwiia'$_k$~~ ~~Felipeà'$_i$~~] loo espejuà']]]
[$_{TP}$ ~~Felipe$_i$~~ **sees$_k$** [$_{vP}$ ~~Felipe$_i$~~ ~~sees$_k$~~ [$_{VP}$[$_{VP}$ ~~sees$_k$~~ ~~Felipe$_i$~~] in the mirror]]]

The *Felipeà'* chain, however, cannot be resolved as it is in 309. By the CRCs, the middle link cannot be the one overtly realized. While this satisfies the 1Link Condition and the HighStrong Condition is vacuously satisfied, it violates the NoWeak Condition. The copy in [Spec,vP] is a weak copy generated to satisfy the weak agent theta-features of the verb. The only link that can be overtly realized and satisfy the CRCs is the foot of the chain. Since it is not a copy, it does not violate NoWeak. However, as we discussed earlier, the SPC will not allow this link to be realized. As the competing restrictions of the SPC and the CRCs cannot be resolved, then reflexivization (forwards or backwards) must be ruled out in MacZ. Only when the overt foot of the chain is embedded inside another DP that does not satisfies the verb's subject selectional restrictions can both the SPC and CRCs be satisfied resulting in CSB.[45]

6.2.5.5.3 Copy Theory and Quantifiers

There is one final interesting point to briefly address. Cormack and Smith (2002) critique the copy theory movement in general and Polinsky and Potsdam's covert

[45] One might wonder if CSB could obtain between the object of a preposition and a covert subject. This would not seem to be ruled out by SPC/CRC considerations. However, if the preposition introduces an argument of the verb, this would count as a semantic reflexive predicate according to Reinhart and Reuland and thus would be out if there was no reflexive marking.

movement analysis of backward control in Tsez in particular. Since I have adopted a copy theory of movement as well and have developed a covert movement account of CSB, it is helpful to consider their objections.

Cormack and Smith (C&S) note that controlled quantified DPs receive a bound variable interpretation in the embedded position but they do not appear to be represented this way in a copy theory. Under copy theory, the Spell-Out version of *Every boy tried to win* which would be sent to LF is as follows (from Cormack and Smith 2002):

310. Every boy [T [$_{VP}$ every boy [tried [every boy [to [$_{VP}$ every boy win]]]]] (359:4)

C&S observe that *every boy win* appears to have a proper meaning but it is not the one that enters into the whole. The sentence does not mean *Every boy tried (to make it true that) [every boy win]*, but instead, a bound variable interpretation obtains.

Interestingly, they show that Tsez does not allow backward control with distributive quantified embedded subjects as shown in 311 below (from Cormack and Smith 2002):

311. *šibaw/kinnaw už-a t'ek t'et'r-a ∅-oq-si (364:10)
every/each boy-ERG book-ABS read-INF I-begin-PSTEV
(*Every boy began to read a/the book.*)

It appears that backward control in Tsez is restricted to referential subjects.

Based on this fact, C&S conclude that a copy theory of movement is not necessary to account for backward control. They offer an alternative account to exclude such sentences and "predict that no language will permit cases of 'backward control' with essentially non-referential arguments in the embedded clause position" (p. 364).

MacZ CSB appears to provide a counterexample for this prediction.[46] Although it is a backward binding structure instead of backward control, it would still seem to have the properties that C&S rule out. Namely, the embedded possessors can be quantified, although in MacZ, the bound reading obtains:

312. **Rii ___ ca nàá' ttuttu ca unto'saanà'.**

rii	ca	nàá'	ttuttu	ca	unto'	-saa	=nà'
H/wash	PL	hand	each	PL	child	-DIMPL	=DIST

Each child$_i$ washed his$_i$ hands.

If C&S are correct that the availability of distributive quantifiers in the embedded position provides evidence for the copy theory of movement, then the example in 312 and others like it would seem to support a copy theory of movement.

6.3 Conclusion

In this chapter, we have seen that in addition to dative subjects, MacZ also allows genitive subjects. These occur with verbs that have an incorporated inalienable noun. Interestingly, MacZ has another construction, Covert Subject Binding (CSB), which looks superficially similar. It, too, has the subject interpretation provided by a genitive DP. But, as we have seen, CSB is structurally distinct: it has a null subject and the genitive DP is not a grammatical subject but syntactically remains a possessor. Surprisingly, it controls the interpretation of the null subject which both precedes and c-commands it.

So, what is the difference between genitive subject verbs and CSB? Why does the former have genitive DPs surface as grammatical subjects while in the latter they surface

[46] Monahan (2003) also argues that backward control in Korean allows the embedded subject with distributive quantifiers.

as grammatical possessors? Both involve covert movement to [Spec,TP]. Presumably incorporation is the answer. For genitive subjects, the licensing noun incorporates into the verb, making the possessor an argument of the verb. DP arguments licensed by a (complex) verb surface as subjects or objects of that verb. The genitive arguments appear as subjects because they are the highest arguments in the thematic projections of their verbs. The genitive arguments therefore block other arguments from raising to [Spec,TP] to satisfy the EPP and be marked as subject. Instead, the genitive argument must be the one that raises.

With CSB, however, there is no incorporation. The genitive argument enters the derivation as the object of the preposition *què'* or its silent counterpart. The same argument of course also checks the subject theta-role for the verb and checks the EPP and nominative case features of TP. The same argument is trying to fill two distinct grammatical positions, subject and possessor. Obviously there is a preference for only realizing one of these grammatical relations when they are realized by the same DP. Surprisingly, it is the possessor that is preferred. Given a choice between a covert subject and a covert possessor, MacZ consistently chooses the former. The demands of the prepositional (or nominal) head for a possessor outweigh the demands of the verb for a subject. And, as argued above, it is better to pronounce the foot of a chain than a weak copy in a chain.

References

Adam, Christopher C. 2003. A Study of Dihidx Bilyáhab (Santo Domingo Albarradas Zapotec) Morphophonology. M.A. Thesis, California State University, Northridge.

Aissen, Judith L. 1992. Topic and Focus in Mayan. *Language* 68: 43-80.

Andrews, Avery. 1976. The VP complement analysis in Modern Icelandic. *NELS* 6:1-21. Reprinted 1990 in *Modern Icelandic Syntax,* Joan Maling and Annie Zaenen (eds), 165-185. San Diego: Academic Press.

Avelino, Heriberto, John Foreman, Pamela Munro and Aaron Huey Sonnenschein. 2004. Covert Subjects in Zapotecan. Paper presented at the 2004 Annual Meeting of The Society for the Study of the Indigenous Languages of the Americas (SSILA); Boston, MA.

Avelino, Heriberto. 2004. Topics in Yalálag Zapotec, with particular reference to its phonetic structures. UCLA Ph.D. dissertation.

Baker, Mark. 1988. *Incorporation: A Theory of Grammatical Function Changing.* University of Chicago Press.

Bartholomew, Doris A. 1983. *Grammatica Zapoteca,* in Neil Nellis and Jane Goodner Nellis *Diccionario Zapoteco de Juarez* Instituto Lingüístico de Verano. Mexico.

Beam de Azcona, Rosemary G. 2004. *A Coatlán-Loxicha Zapotec Grammar.* Ph.D. dissertation. University of California, Berkeley.

Beghelli, Filippo and Tim Stowell. 1997. Distributivity and Negation: The Syntax of *Each* and *Every*, in A. Szabolcsi, ed., *Ways of Scope Taking.* Dordrecht: Kluwer.71-109.

Bejar, Susana, and Diane Massam. 1999. Multiple case checking. *Syntax* 2:65–79.

Bhaskararao, Peri and Karumuri Venkata Subbarao, eds. 2004. *Non-Nominative Subjects* Volumes 1& 2. Amsterdam: John Benjamins.

Bickmore, Lee and George Aaron Broadwell. 1998. High Tone Docking in Sierra Juárez Zapotec. *International Journal of American Linguistics,* vol. 64, no. 1, pp. 37-67.

Black, Cheryl A. 1996. "A Backwards Binding Construction in Zapotec." 1996 Work Papers of the Summer Institute of Linguistics University of North Dakota Session 40:73-87.

Black, Cheryl A. 2000. *Quiegolani Zapotec Syntax: A Principles and Parameters Account.* SIL International and University of Texas at Arlington.

Blake, Barry J. 1994. *Case*. Cambridge University Press.

Bobaljik, Jonathan D. 2002. A-Chains at the PF-Interface: Copies and 'Covert' Movement. *Natural Language & Linguistic Theory* 20: 197-267.

Bobaljik, Jonathan David. 1995. *Morphosyntax: The Syntax of Verbal Inflection*, unpublished Ph.D. dissertation, MIT.

Bošković, Željko and Daiko Takahashi. 1998. Scrambling and Last Resort, *Linguistic Inquiry* 29, 347–366.

Bošković, Željko. 1994. D-Structure, Theta-Criterion, and movement into theta-positions. *Linguistic Analysis* 24:247–286.

Bresnan, Joan and Jonni M. Kanerva. 1989. Locative Inversion in Chichewa: A Case Study of Factorization in Grammar. *Linguistic Inquiry* 20: 1-50.

Broadwell, George A. and Jie Zhang. 1998. Macuiltianguis Tone Paradigms. MS. UCLA.

Brody, Michael. 1993. θ-theory and arguments. *Linguistic Inquiry* 24:1–23.

Brody, Michael. 1995. *Lexico-Logical Form – A Radically Minimalist Theory*, MIT Press, Cambridge, Massachusetts.

Burzio, Luigi. 1986. *Italian syntax: A Government-Binding approach*. Dordrecht: D. Reidel.

Butler, Inez M. 1976. "Reflexive constructions of Yatzachi Zapotec." International Journal of American Linguistics 42: 331-37.

Butler, Inez M. 1980. *Gramática zapoteca: Zapoteco de Yatzachi el Bajo*. Gramáticas de Lenguas Indígenas de México, 4. Mexico: Instituto Lingüístico de Verano.

Butler, Inez M., compiler. 1997. *Diccionario Zapoteco de Yatzachi: Yatzachi el bajo, Yatzachi el alto, Oaxaca.* Serie de vocabularios y diccionarios indígenas "Mariano Silva y Aceves", 37. Tucson, AZ: Instituto Lingüístico de Verano.

Carrier-Duncan, Jill. 1985. Linking of Thematic Roles in Derivational Word Formation. *Linguistic Inquiry* 16: 1-34.

Chomsky, N. (1999) *Derivation by Phase*, MIT Occasional Papers in Linguistics 18, MITWPL, Cambridge, MA.

Chomsky, N. 1998. *Minimalist inquiries: the framework,* MIT working papers in linguistics.

Chomsky, Noam and Howard Lasnik. 1993. *The theory of principles and parameters,* in: J. Jacobs A. von Stechow, W. Sternefeld, and T. Vennemann (eds.) Syntax: an international handbook of contemporary research, De Gruyter, Berlin. Reprinted in: Chomsky (1995), The minimalist program, ch.1, pp.13-127, MIT Press, Cambridge MA.

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

Chomsky, Noam. 1992. *A Minimalist Program for Linguistic Theory.* MIT Occasional Papers in Linguistics 1. Cambridge, MA: MIT Press.

Chomsky, Noam. 1993. 'A Minimalist Program for Linguistic Theory', in Ken Hale and Samuel Jay Keyser (eds.), *The View from Building 20: Essays in Linguistics in Honour of Sylvain Bromberger*, MIT Press, Cambridge, Massachusetts, pp. 1–52.

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, Mass: MIT Press.

Chomsky, Noam. 2000. Minimalist Inquiries: The Framework in Roger Martin, David Michaels and Juan Uriagereka, eds., *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*. Cambridge, MA: MIT Press, 89-115.

Chomsky, Noam. 2001. Beyond Explanatory Adequacy, unpublished manuscript, MIT.

Cinque, Guglielmo. 1990. *Types of A'-Depdendencies.* Cambridge, MA: MIT Press.

Cole, Peter, Wayne Harbert, Gabriella Hermon and S. N. Sridhar. 1980. The Acquisition of Subjecthood. *Language* 56: 719-743.

Córdova, Fr. Juan de. 1886 [1578a]. *Arte del Idioma Zapoteco*. Morelia, Mexico: Imprenta del Gobierno.

Córdova, Fr. Juan de. 1987 [1578b]. *Vocabulario en Lengua Çapoteca.* México: Ediciones Toledo (INAH [Instituto Nacional de Antropología y Historia]).

Cormack, Annabel and Neil Smith. 2002. Compositionality, Copy Theory, and Control, UCL Working Papers: 355-375.

Diesing, Molly. 1992. *Indefinites.* Cambridge, MA: MIT Press.

Diesing, Molly. 1997. Yiddish VP Order and the Typology of Object Shift in Germanic, *Natural Language and Linguistic Theory* 15.2, 369–427.

Emonds, Joseph. 1980. Word Order and Generative Grammar. *Journal of Linguistic Research* 1.1.

Enç, Mürvet. 1991. The Semantics of Specificity. *Linguistic Inquiry* 22: 1-25.

Fillmore, Charles J. 1968. The Case for Case. In E. Bach and R. T. Harms (eds.), *Universals in Linguistic Theory*, 1-88. London: Holt, Rinehart & Winston.

Foley, William A. and Robert D. van Valin Jr. 1984. *Functional Syntax and Universal Grammar*. Cambridge University Press.

Foreman, John (in preparation). Possessors in Locative Possessive Constructions in Macuiltianguis Zapotec. To appear in *Expressing Location in Zapotec*, Brook Lillehaugen and Aaron Huey Sonnenschein (eds.); Lincom-Europa, Muenchen, Germany.

Foreman, John 2000b. The Phonetic Cues of Stress in Macuiltianguis Zapotec. Paper presented at the 29th Annual Meeting of the Linguistic Association of the Southwest; Puebla, Mexico.

Foreman, John and Pamela Munro. To appear. Reconstructing a Typologically Marked Strategy for Zapotec Relative Clauses. To appear in *Proceedings of High Desert Linguistic Society 6*.

Foreman, John. 1998a. Topic, Focus and Case Assignment in Northern Zapotec. Paper presented at the Mid-America Linguistics Conference 1998; Southern Illinois University, Edwardsville.

Foreman, John. 1998b. Pre-Verbal Structures in a Verb-Initial Language. Paper presented at the Western Conference on Linguistics 1998; Arizona State University, Tempe.

Foreman, John. 1999. Pre-Verbal Subjects in Macuiltianguis Zapotec. Paper presented at the 73rd Annual Meeting of the Linguistic Society of America; Los Angeles, CA.

Foreman, John. 2000a. Stress in Macuiltianguis Zapotec. Paper presented at La Voz Indígena de Oaxaca; University of California, Los Angeles.

Foreman, John. 2002. On the Interpretation of Demonstratives in Macuiltianguis Zapotec. Paper presented at the 31st Annual Meeting of the Linguistic Association of the Southwest; Los Angeles, CA.

Foreman, John. 2004a. Subjects in Macuiltianguis Zapotec. Paper presented at the 2004 Annual Meeting of The Society for the Study of the Indigenous Languages of the Americas (SSILA); Boston, MA.

Foreman, John. 2004b. Experiencer Subjects in Macuiltianguis Zapotec. Paper presented at the Conference on Oto-Manguean and Oaxacan Languages; University of California, Berkeley.

Foreman, John. 2005a. Backward Binding in Zapotec. Paper presented at the 79th Annual Meeting of the Linguistic Society of America; Oakland, CA.

Foreman, John. 2005b. Reconstructing Comitatives, Instruments and Datives in Zapotec. Paper presented at the 2005 Annual Meeting of The Society for the Study of the Indigenous Languages of the Americas (SSILA); Oakland, CA.

Foreman, John. 2005c. Possessors in Locative Possessive Constructions. Paper presented at the 34th Annual Meeting of the Linguistic Association of the Southwest; Texas Tech University, Lubbock, TX.

Franks, Steven. 1998. 'Clitics in Slavic', on-line conference paper available from http://www.indiana.edu/~slavconf/linguistics/index.html. Accessed October 5, 2005.

Galant, Michael R. 1998. *Comparative Constructions in Spanish and San Lucas Quiaviní Zapotec,* UCLA Ph.D. Dissertation.

García García, Angel, et al. n.d. [1998?]. *Oaxaca: Distritos (Municipios, Localidades, y Habitantes)*. n.p. (Priv. de Rayon no. 104, Centro, Oaxaca, Oax.)

Gibbs, William P. 1977. *Discourse elements in Sierra de Juarez Zapotec*. M.A. thesis. University of Texas at Arlington.

Givón, Talmy. 1984. *Syntax: A Functional Typological Introduction*. Amsterdam: John Benjamins.

Gordon, Raymond G., Jr. (ed.). 2005. Ethnologue: Languages of the World, Fifteenth edition. Dallas, TX: SIL International. Online version: http://www.ethnologue.com/.

Grimshaw, Jane. 1990. *Argument Structure.* Cambridge, Mass.: MIT Press.

Groat, Erich and John O'Neil. 1996. 'Spell-Out at the LF interface', in Werner Abraham, Samuel David Epstein, Höskuldur Thráinsson and C. Jan-Wouter Zwart (eds.), *Minimal Ideas: Syntactic Studies in the Minimalist Framework*, John Benjamins, Amsterdam and Philadelphia, pp. 113–139.

Haider, Hubert and Martin Prinzhorn, eds. 1986. Verb second phenomena in Germanic languages. Dordrecht: Foris.

Hale, Kenneth, and Samuel Jay Keyser. 1993. On argument structure and the lexical expression of syntactic relations. In *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger,* ed. Kenneth Hale and Samuel Jay Keyser, 53–109. Cambridge, Mass.: MIT Press.

Harbert, Wayne. 1989. Case attraction and the hierarchization of case. In *Proceedings of the Sixth Eastern States Conference on Linguistics,* ed. by Ken de Jong and Yongkyoon No, 138–149. Columbus: Ohio State University Press.

Harley, Heidi. 1995. Subjects, Events and Licensing, Ph.D. dissertation, MIT, Cambridge, MA.

Henry, Alison. 1995. *Belfast English and Standard English: Dialect Variation and Parameter Setting.* Oxford University Press.

Holmberg, Anders. 1986. *Word Order and Syntactic Features in the Scandinavian Languages and English,* Ph.D. dissertation, University of Stockholm, Stockholm.

Hornstein, Norbert. 1998. Movement and chains, *Syntax* 1, 99–127.

Hornstein, Norbert. 1999. Movement and control. *Linguistic Inquiry* 30:69-96.

Instituto Nacional de Estadística Geografía e Informatica (INEGI). 2006. Tabulados Básicos por Distrito y Municipio: Oaxaca. *XII Censo General de Población y Vivienda 2000.* Retrieved January 12, 2006 from http://www.inegi.gob.mx.

Jackendoff, Ray. 1972. *Semantic Interpretation in Generative Grammar*. Cambridge, MA: MIT Press.

Keenan, Edward L. 1976. Towards a Universal Definition of "Subject" in Charles Li, ed., *Subject and Topic*. Academic Press: New York. 303-333.

Keenan, Edward L. and Bernard Comrie. 1977. Noun Phrase Accessibility and Universal Grammar. *Linguistic Inquiry* 8:63-100.

Khalaily. 1993. The split-complementizer hypothesis and its relevance to case and agreement in Standard Arabic. Paper presented at the V-initial Conference, Leiden.

Kiss, Katalin É. 1996. Two Subject Positions in English, *The Linguistic Review* 13:119-142.

Koopman, Hilda and Dominique Sportiche. 1986. A Note on Long Extraction in Vata, *Natural Language and Linguistic Theory* 4:357-374.

Koopman, Hilda and Dominique Sportiche. 1991. The position of subjects. *Lingua* 85, 211-258.

Lasnik, Howard. 1995a. Case and Expletive Revisited: On Greed and Other Human Failings, *Linguistic Inquiry*, 23:381-405.

Lasnik, Howard. 1995b. Last Resort and Attract F. In *Proceedings of FLSM 6*, Indiana University Linguistics Club, Bloomington. 62-81.

Lee, Felicia. 1999. *Antisymmetry and the Syntax of San Lucas Quiaviní Zapotec.* UCLA dissertation.

Lillehaugen, Brook Danielle. 2003. The Categorial Status of Body Part Prepositions in Valley Zapotec Languages. M.A. UCLA.

Lillehaugen, Brook Danielle. 2004. Is Valley Zapotec *lohoh* a Dative Marker? Paper presented at the Conference on Otomanguean and Oaxacan Languages; Berkeley, CA.

Long C., Rebecca and Sofronio Cruz M., compilers. 1999. *Diccionario Zapoteco de San Bartolomé Zoogocho Oaxaca.* Serie de vocabularios y diccionarios indígenas "Mariano Silva y Aceves", 38. Coyoacán D.F.: Instituto Lingüístico de Verano.

López L., Filemón and Ronald Newberg. 1990. *La conjugación del verbo zapoteco.* México: Instituto Lingüístico de Verano.

Marantz, Alec. 1991. Case and Licensing, in Germán F. Westphal, Benjamin Ao and He-Rahk Chae, eds., *ESCOL '91: Proceedings of the Eighth Eastern States Conference on Linguistics*. 234-253.

Massam, Diane. 1985. Case theory and the Projection Principle. Doctoral dissertation, MIT, Cambridge, Mass.

May, Robert. 1985. *Logical Form: Its Structure and Derivation*. The MIT Press. Cambridge.

McCloskey, James and Kenneth Hale. 1984. On the syntax of person-number inflection in modern Irish, *Natural Language & Linguistic Theory* 1:487-533.

McCloskey, James. 1991. Clause Structure, Ellipsis, and Proper Government in Irish. In *The Syntax of Verb Initial Languages: Lingua Special Edition* 85.

McCloskey, James. 1996. Subjects and subject position in Irish, in Robert D. Borsley and Ian Roberts, eds., *The Syntax of the Celtic Languages: A Comparative Perspective*. Cambridge University Press. 241-283.

McCreight, Katherine L. 1988. Multiple Case assignments. Doctoral dissertation, MIT, Cambridge, Mass.

Meso-American Indian languages. 2006. *Encyclopædia Britannica.* Retrieved January 22, 2006 from Encyclopædia Britannica Online, http://www.search.eb.com/eb/article-9109815.

Mohammad, Mohammad A. 1989. *The Sentential Structure of Arabic.* USC dissertation.

Monahan, Philip J. 2003. Backward Object Control in Korean, in G. Garding and M. Tsujimura, eds., *WCCFL 22 Proceedings*. Somerville, MA: Cascadilla Press, 356-369.

Munro, Pamela and Felipe Lopez (with Olivia V. Méndez, Rodrigo Garcia and Michael R. Galant). 1999. *Dicyonaary X:te:e'n Di:i'zh Sah Sann Luu'c: San Lucas Quiaviní Zapotec Dictionary. Diccionario Zapoteco de San Lucas Quiaviní.* UCLA Chicano Studies Research Center. Los Angeles

Munro, Pamela. 1999. 'Chickasaw Subjecthood' in *External Possession*, Doris L. Payne and Immanuel Barshi (eds), Amsterdam: John Benjamins. 251-289.

Munro, Pamela. 2002. Studying the Syntax of Colonial Valley Zapotec: Resumptive Pronouns in Relative Clauses. Paper presented at Sources and Methods in the Ethnohistory of Mesoamerica, UCLA.

Nellis, Jane G. 1947. Sierra Zapotec forms of address, *International Journal of American Linguistics* 13: 231-32.

Nellis, Neil and Jane Goodner Nellis. 1983. *Diccionario Zapoteco de Juarez.* Instituto Lingüístico de Verano. Mexico.

Perlmutter, D. 1978. “Impersonal Passives and the Unaccusative Hypothesis,” in J. J. Jaeger and A. C. Woodbury (eds.) *Proceedings of the Berkeley Linguistics Society* 4, Berkeley, California, 157–189.

Pesetsky, David. 1998. ‘Some Optimality Principles of Sentence Pronunciation’, in Pilar Barbosa, Danny Fox, Paul Hagstrom,Martha McGinnis and David Pesetsky (eds.), *Is the Best Good Enough?*, MIT Press and MITWPL, Cambridge, Massachusetts, pp. 337–383.

Pickett, Velma B. and others. 1959. *Vocabulario zapoteco del Istmo : Castellano-zapoteco, zapoteco-castellano.* Serie de vocabularios indígenas "Mariano Silva y Aceves", 3. Mexico: Instituto Lingüístico de Verano. [2nd ed., revised and enlarged (1965); republished (1968, 1971)].

Pickett, Velma B., Cheryl A. Black and Vicente Marcial C. 1998. Gramática Popular del Zapoteco del Istmo. Instituto Lingüístico de Verano; Tucson, Arizona.

Polinsky, Maria and Eric Potsdam. 2002. Backward Control. *Linguistic Inquiry* 33: 245-82.

Polinsky, Maria, and Eric Postdam. 2001. Backward Control: Evidence from Malagasy. Paper presented at the Eighth Annual Meeting of the Austronesian Formal Linguistics Association.

Polinsky, Maria. 1997. Dominance in precedence: SO/OS languages. *CLS* 33.2: 253-270.

Pollock, Jean-Yves. 1989. Verb Movement, UC and the Structure of IP. *Linguistic Inquiry* 20:365-424.

Reinhart, Tanya, and Eric Reuland. 1993. Reflexivity. *Linguistic Inquiry* 24:657-720.

Reuland, Eric and Alice ter Meulen. 1987. The representation of (in)definiteness. Cambridge, MA: MIT Press.

Rizzi, Luigi, 2001. On the position ‘‘Int(errogative)’’ in the left periphery of the clause. In: Cinque, G., Salvi, G. (Eds.), Current Studies in Italian Syntax. Essays Offered to Lorenzo Renzi. Elsevier, Amsterdam,pp. 287–296.

Rizzi, Luigi. 1997. "The Fine Structure of the Left Periphery", in L. Haegeman (ed.) Elements of Grammar, Kluwer Publications, Dordrecht, 1997:281-337.

Rizzi, Luigi. 2004. “Locality and the Left Periphery”. In *Structures and Beyond: The Cartography of Syntactic Structures* (vol. 3), A. Belletti (ed.), 223-251. Oxford: Oxford University Press.

Sadler, Louisa. 1988. *Welsh syntax: A government-binding approach.* New York: Croom Helm.

Safir, Kenneth. 1985. *Syntactic Chains*, Cambridge University Press, Cambridge.

Smith-Stark, Thomas. 1988. 'Pied-piping' con inversion en preguntas parciales. Ms. Centro de estudios lingüísticos y literarios, Colegio de México y Seminario de lenguas indígenas.

Sonnenschein, Aaron Huey. 2004. *A Descriptive Grammar of Zoogocho Zapotec on a Typological Basis.* University of Southern California Ph.D. dissertation.

Sproat, Richard. 1985. Welsh syntax and VSO structure. *Natural Language and Linguistic Theory* 3:173-216.

Stubblefield, Morris and Carol Stubblefield. 1991. *Diccionario Zapoteco de Mitla.* Instituto Lingüístico de Verano, Mexico.

Suñer, Margarita. 1998. Resumptive Restrictive Relatives: A Crosslinguistic Perspective, *Language* 74:335-364.

van Gelderen, Elly. 1996. Parameterizing agreement features in Arabic, Bantu languages and varieties of English. *Linguistics* 34:753-767.

Yoon, James. 1996. Ambiguity of government and the Chain Condition. *Natural Language & Linguistic Theory* 14:105–162.