Expressing location in Tlacolula Valley Zapotec
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UNIVERSITY OF CALIFORNIA

Los Angeles

Expressing Location in Tlacolula Valley Zapotec

A dissertation submitted in partial satisfaction of the

requirements for the degree of Doctor of Philosophy

in Linguistics

by

Brook Danielle Lillehaugen

2006

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LIST OF ABBREVIATIONS

-	morpheme boundary
=	clitic boundary
√	grammatical, but not volunteered by speaker; approved and repeated by speaker
*	ungrammatical
#	syntactically grammatical, but semantically infelicitous
<< >>	enclose hypothetical forms
1	first person (§1.3.3)
2	second person (§1.3.3)
3	third person (§1.3.3)
ACC	accusative
ADJ	adjective
AN	animal (type of third person pronoun; §1.3.3.3.4)
ANAP	anaphoric (type of pronoun; §1.3.3)
AND	andative (go and …)
AT	non specific locative head
B	Bowerman n.d. (see References)
CC	*Cali Chiu* (Munro, Lillehaugen, and Lopez in prep.)
COMP	complementizer
CNJ	conjunction
CONTR	contrastive
COP	copula
DB	Dihidx Bilyáhab (SDAZ)
DEF	definite aspect (see §1.3.8)
DIM	diminutive
DP	determiner phrase
DS	different subject
DST	distal (type of third person pronoun; §1.3.3.3.6)
F	Figure
FAM	familiar (type of third person pronoun; §1.3.3.3.3)
FOC	focus
FORM	formal (type of second person pronoun; §1.3.3.2)
FP	free pronoun (§1.3.3)
G	Ground

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HAB	habitual aspect (§1.3.8)
INF	informal (type of second person pronoun; §1.3.3.2)
INTSV	intensive
IRR	irrealis aspect (§1.3.8)
LOC	general locative
MSC	masculine (used for pronoun identification in DB)
ML	Munro and Lopez, et al. 1999
ML in prep.	Munro and Lopez in prep.
MZ	Mitla Zapotec
N	noun
NEU	neutral aspect (§1.3.8.)
NMLZ	nominalizer
NOM	nominative
NP	noun phrase
O	object
P	preposition
PERF	perfective aspect (§1.3.8)
PL	plural (§1.3.2; also used for pronoun identification, see §1.3.3)
PosB	Ameka et al. 1999 (see References)
POSS	possessed
PP	prepositional phrase
PROG	progressive aspect (see §1.3.8.1)
PROX	proximate (type of third person pronoun; §1.3.3.3.5)
PRT	participle
PT	past / perfective
REL	relative pronoun
RESP	respectful (type of third person pronoun; §1.3.3.3.2)
REV	reverential (type of third person pronoun; §1.3.3.3.1)
RN	relational noun
SG	singular (used for pronoun identification, see §1.3.3)
S	subject
SDAZ	Santo Domingo Albarradas Zapotec (also known as Dihidx Bilyáhab)
SJGZ	San Juan Guelavía Zapotec
SLQZ	San Lucas Quiaviní Zapotec

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SMTZ	San Marcos Tlapazola Zapotec
TMZ	Tlacolula de Matamoros Zapotec
TVZ	Tlacolula Valley Zapotec
V	verb
VEN	venative (come and …)
ZPROG	z-progressive aspect (§1.3.8)

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ACKNOWLEDGEMENTS

I owe my sincere gratitude for all the language consultants who generously shared both their time and language with me. I owe special thanks to Roberto Antonio Ruiz (Tlacolula de Matamoros Zapotec; TMZ), Felipe H. Lopez (San Lucas Quiaviní Zapotec; SLQZ), and Catherine Willomond (Chickasaw). In addition I want to thank Fantino Aquino (Santa Ana del Valle Zapotec), Rodrigo Garcia (SLQZ), Florentino Jimenez (TMZ), Cecilia Lopez (San Juan Guelavía Zapotec), Silvia Lopez (SLQZ), and Victoria Lopez (SLQZ), Eloise Pickens (Chickasaw).

Silvia Lopez's assistance was integral in planning and implementing the child language project. I sincerely thank her and the Lopez family for their hospitality and for welcoming me into their home.

Thanks for the following people for helping me with Spanish translations at various points throughout my work: Heriberto Avelino, Michael Galant, Xóchitl Flores-Marcial, Olivia Martinez, Pamela Munro, and Aaron Sonnenschein.

Thanks to Melissa Bowerman for graciously sending me a copy of both the *Picture Series for Positional Verbs* (Ameka et al. 1999) and *Melissa Bowerman's Topological Relations Picture Series* (Bowerman [n.d.]). These have been wonderful stimuli and my work has benefited from having them.

Thanks to Thomas Smith Stark for sharing his electronic version of the Córdova vocabulary. This electronic (and searchable) vocabulary has been very helpful in working on the Colonial documents.

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I want to thank the following people for listening to and commenting on the development of this work: Christopher Adam, George Aaron Broadwell, Susie Curtiss, John Foreman, Michael Galant, Nina Hyams, Eric Jackson, Marcus Kracht, Olivia Martinez, Pamela Munro, Natalie Operstein, Carson Schütze, Shabnam Shademan, Marcus Smith, Aaron Sonnenschein, Tim Stowell, Kyle Kwanberg, and audiences at COOL 2004, SSILA 2004, SSILA 2005, WAIL 2003, and UCLA's American Indian Seminar and Syntax and Semantics Seminar.

I've been fortunate to have many colleagues join me in my fieldwork. Thank you to George Aaron Broadwell, Christina Esposito, John Foreman, and Pamela Munro for joining me in working on Tlacolula de Matamoros Zapotec and for lending me your ears and your thoughts. I also want to thank Kristine Jensen de López, who sent me audio recordings of some elicitation work she had done in Tlacolula. Thank you for thinking of me and sharing these materials. I'm always interested in any materials on Tlacolula de Matamoros Zapotec.

I've also been lucky to have on occasion been invited to join others in hearing the Zapotec language variety they have been working on. Thank to Christopher Adam, John Foreman, Michael Galant, Olivia Martinez, and of course Pamela Munro and their wonderful consultants for letting me stop by to hear and appreciate the diversity of Zapotec.

Finally, I owe sincere thanks to the members of my committee: Carson Schütze, Tim Stowell, and Kevin Terraciano. Thank you all for your comments and encouragement. And although it does not seem nearly enough, I offer a special thanks to my committee

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chair, Pamela Munro, for all of her support and encouragement on this project. I'm very lucky to have such a wonderful committee chair. Pam introduced me to the beautiful language of Zapotec and to the adventure of fieldwork. I've enjoyed being her student, learning from her, and traveling with her. All errors are, or course, my own.

This research was partially funded by the UCLA Department of Linguistics (1999-2005), a Dissertation Year Fellowship from UCLA (2004-2005), a Research Grant from the Institute of American Cultures through the Chicano Studies Research Center at UCLA (date), a Summer Research Mentorship Fellowship from UCLA, a Travel Grant from the UCLA Latin American Studies Center (Summer 2001) and Summer Research Grants from the Linguistics Department at UCLA (Summer 1999 and 2001).

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Lillehaugen, Brook Danielle. 2003. *The Categorial Status of Body Part Prepositions in Valley Zapotec Languages*. Thesis: UCLA.

Lillehaugen, Brook Danielle. 2004a. "The Acquisition of Body Part Prepositions in Valley Zapotec Languages." The First Conference on Indigenous Languages of Latin America Proceedings (published online at http://www.ailla.utexas.org/site/cilla1_toc.html), University of Texas at Austin.

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----. 2004b. "Syntactic and semantic development of body part prepositions in Valley Zapotec languages," pp. 69-82, Proceedings from the sixth Workshop on American Indigenous Languages, Santa Barbara Papers in Linguistics, vol. 14, Jeanie Castillo (ed.).

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---. 2004e. "Xily Ndrezh: Creating the first written bilingual story in Tlacolula de Matamoros Zapotec." Presented at the seventh Workshop on American Indigenous Languages (WAIL), Santa Barbara. (co-authored with Xóchitl Flores-Marcial)

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---. 2006a. "Viewpoint and the Role of the Ground in Expressing Location." Presented at the Linguistic Society of America (LSA) annual meeting, Albuquerque.

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---. 2006c. "Pied-piping with inversion in Tlacolula de Matamoros Zapotec." Presented at the Society for the Study of Indigenous Languages of the Americas (SSILA) annual meeting, Albuquerque. (co-authored with George Aaron Broadwell)

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ABSTRACT OF THE DISSERTATION

Expressing Location in Tlacolula Valley Zapotec

by

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Doctor of Philosophy in Linguistics

University of California, Los Angeles, 2006

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This dissertation examines how location is expressed linguistically in Tlacolula Valley Zapotec (TVZ), discussing syntactic and semantic issues specifically related to component part prepositions (CPP) and positional verbs.

Chapter 1 provides background on the language sources, my research methodology, a brief grammatical sketch of Tlacolula de Matamoros Zapotec, and an introduction to topics relevant to the expression of location.

In Chapter 2 I look closely at CPPs and how they function in TVZ grammar, describing their syntactic behavior and arguing that they should be classified as prepositions.

Chapter 3 examines the meaning and use of the CPPs in a wide range of locative and non-locative constructions. I show that an important part of the meaning of a CPP is the range of frames of reference it allows and that Grounds can constrain the types of frames

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of reference that can be used with them. Data from Zapotec child language acquisition shows that children can acquire the meaning of CPPs independently of referential component parts. Finally, I propose possible paths of language change to account for the synchronic behavior of component part prepositions.

Chapter 4 provides typological evidence showing that the syntactic realization (preposition or relational noun) of a component part locative is not predictable from its meaning, nor is the type meaning predictable from its syntactic realization.

Finally, in Chapter 5 I analyze the system of positional verbs in TVZ, describing their syntactic and semantic behavior.

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CHAPTER 1

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1. Preliminaries

In this chapter I provide relevant background information. In §1.1 I provide information about the language sources used in this dissertation. My research methodology is described in §1.2. I present a grammatical sketch of Tlacolula de Matamoros Zapotec in §1.3. §1.4 provides a foundation for further discussion on the expression of location linguistically.

1.1. Languages and data sources

My research is based on primary data from Tlacolula Valley Zapotec languages. For comparison I bring in data from other Zapotec languages, Colonial Valley Zapotec, and Chickasaw, a Muskogean language. These data sources are described in more detail in the following sections.

Zapotec languages belong to the Otomanguean stock and are spoken in Oaxaca, Mexico, and by many immigrants in the greater Los Angeles area. This dissertation presents data from the several Zapotec language groups: Tlacolula Valley Zapotec (§1.1.1), other Valley and Central Zapotec language varieties (§1.1.2), Northern Zapotec (§1.1.3), and Southern Zapotec (§1.1.4). Providing examples from other Zapotec languages where possible and appropriate is beneficial for several reasons. First of all it allows me to make comparative analysis, which is important for issues related to language change. Secondly, as Zapotec languages are under-described, and my own work on Tlacolula de Matamoros Zapotec is far from comprehensive, having access to data from other Zapotec varieties is useful in filling in potential data gaps. While of

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course such gaps are best filled by more work on the language variety in question, comparative data can give us an idea of the bigger picture in the mean time.

For all Zapotec language varieties, I provide the *Ethnologue* code (Gordon 2005) and the classification of the language according to Smith Stark (2003). (Smith Stark's classification of the Zapotec languages is the most recent classification, but not the only one. I refer readers interested in other classifications to the primary sources: Radin (1925), Angulo (1925, 1926), Angulo and Freeland (1935), Swadesh (1947), Fernández de Miranda (1965), Rendón (1967, 1975), Suárez (1973), and Kaufman (1989, 1994). Smith Stark (2003) provides a good summary of these previous classifications as well as others.

Table 1 below gives a visual overview of the organization of the various Zapotec varieties cited in this dissertation.

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a. papabuco*			
b. zapoteco de la sierra sur (§1.1.4)	**i. coateco extendido***	**1. Coatecas Altas Zapotec**	
		2. Coateco	2a. Zapoteco de Ejutla sur, Zapoteco de Coatlán norte
			2b. Coatlán-Loxicha Zapotec*
	ii. Miahuateco*		
	iii. Cisyautepequeño*		
	iv. zapoteco de Tlacolulita		
c. zapoteco central (§1.1.2)	i. zapoteco de Mazaltepec		
	ii. zapoteco de San Felipe Tejalapan		
	iii. zapoteco de Zimatlán norcentral		
	iv. zapoteco de Ejutla occidental		
	v. zapoteco de Antequera		
	vi. zapoteco de valle occidental	1. ocoteco extendido*	
		2. zapoteco de Ocotlán oriental*	
		3. zapoteco de Tlacolula occidental	**Tlacolula Valley Zapotec** (§1.1.1)
		4. zapoteco de Tlalixtac	
		5. zapoteco de Jalieza	
		6. zapoteco de Güilá	
	vii. zapoteco de Mitla	**San Pablo de Mitla Zapotec**	
	viii. zapoteco de Quiatoni		
	ix. zapoteco de Albarradas	Santo Domingo de Albarradas Zapotec	
	x. zapoteco transyautepequeño*		
d. zapoteco de la sierra norte (§1.1.3)	i. zapoteco de la sierra de Juárez*		
	ii. cajono	1. zapoteco de Cajonos	
		2. zapoteco de Zoogocho	**San Bartolomé Zoogocho**
		3. zapoteco de Yatzachi	
		4. zapoteco de Yalálag	
		5. zapoteco de Tabaá	
		6. zapoteco de Lachirioag	
	iii. zapoteco del Rincón*		
	iv. zapoteco de Choapan		

* indicates additional structure below the level shown which is given in Smith Stark (2003) and not presented here. Language and group names in bold are those for which data are cited in this dissertation. Details about the particular languages cited in this dissertation can be found in the sections cross-referenced by § in the table.

Table 1. Zapotec languages cited in this dissertation organized by Smith Stark's classification of "zapoteco medular" (2003)

In addition to providing data from several modern Zapotec varieties, I also provide data from Colonial Valley Zapotec (§1.1.5).

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Finally, in §1.1.6 I describe the sources for the data I present on the Muskogean language Chickasaw.

1.1.1. Tlacolula Valley Zapotec

My dissertation is primarily based on data from Tlacolula Valley Zapotec (TVZ) language varieties, which belong to the Valley Zapotec group (zapoteco del valle occidental (Smith Stark 2003:43)), which in turn belongs to the larger Central Zapotec group (Smith Stark 2003:41). The language group I refer to as TVZ contains the languages classified by the *Ethnologue* (Gordon 2005) as San Juan Guelavía Zapotec (Western Tlacolula Zapotec, Guelavía Zapotec, code ZAB). However, since San Juan Guelavía Zapotec is also the name of one of the speech varieties within TVZ, in order to prevent confusion I do not use this name to refer to the group of language varieties. Instead, I use the name Tlacolula Valley Zapotec to refer to the *Ethnologue*'s ZAB group. The TVZ language varieties are classified by Smith Stark (2003:45) as follows (where >> indicates a subgroup): zapoteco central >> zapoteco del valle occidental >> zapoteco de Tlacolula occidental.

The TVZ language varieties for which data are presented in this dissertation are Tlacolula de Matamoros Zapotec (TMZ), San Lucas Quiaviní Zapotec (SLQZ), San Juan Guelavía Zapotec (SJGZ), and San Marcos Tlapazola Zapotec (SMTZ). These language varieties are spoken in the Tlacolula Valley, which is located approximately 30 km to the southeast of Oaxaca City. Oaxaca City (labeled Oaxaca) can be located roughly south of Mexico City in Figure 1; the Tlacolula Valley is presented in Figure 2.

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Figure 1. map of Mexico (adapted from Virtual Mexico 2002)

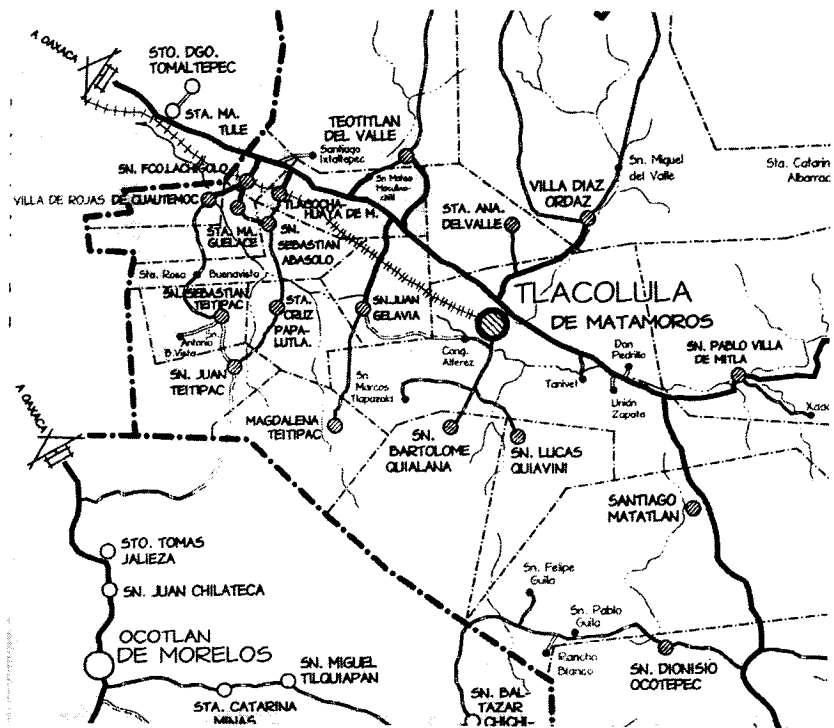

Figure 2. Tlacolula de Matamoros and the surrounding area
(adapted from García García et al. n.d.)

I don't know of any other published work on Tlacolula de Matamoros Zapotec (TMZ) except for my own and my joint work with Pamela Munro. TMZ is spoken in Tlacolula

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de Matamoros, which can be found near the center of Figure 2. I began my fieldwork on this language in 1999 with Pamela Munro and all of the data from TMZ come from my fieldwork. Most of the examples that I cite in my dissertation are followed by one of two types of references. A numeric reference, such as (4:233) is a reference to field notes. (The first number represents the number of the book and the second number the page number.) A reference such as (Zhat:12) is a reference to an oral narrative. (Before the colon is an abbreviation of the name of the story; "Zhat" is an abbreviation of: *Zh:àa't, Cu'nùu' Zh:àa't?* 'Toad, Where are You, Toad?' After the colon is a reference to the line number in the transcription of the story.) Currently this reference is primarily for my own use, but it may be of interest to other researchers in the future, as I plan to have my notebooks digitally archived at the Archive for Indigenous Languages of Latin America (AILLA; www.ailla.utexas.org), where I have already begun archiving my audio material on TMZ. One of the narratives referenced are included in the appendix, and some are available publicly at AILLA. The versions at AILLA will be updated and corrected and many are accompanied by publicly available audio versions. Those stories that are referenced and are not in the appendix may be made available on AILLA in the future, or in some other published format. A list of the narratives cited in this dissertation is below in Table 2, along with the abbreviations used to reference them.

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Abbreviation	Title and Narrator	In Appendix?	AILLA code
Bed	Peter's Escape from Prison, retold by Roberto Antonio Ruiz	no	n/a
Deluvia	The Flood Story, told by Juana Ramos	no	n/a
Mardom	The Story of the *Mayordomo*, told by Roberto Antonio Ruiz	no	ZAB001R003
Nav	The Christmas Story, retold by Roberto Antonio Ruiz	no	n/a
Sa	The Story of Weddings, told by Josefina Antonio	no	ZAB001R004
Zhat	Toad, Where are You, Toad?, told by Roberto Antonio Ruiz	yes	ZAB001R001

Table 2. TMZ narratives cited in this dissertation

I have previously written about TMZ in my master's thesis (Lillehaugen 2003), other papers (Lillehaugen 2004a, 2004c), and conference presentations (Lillehaugen 2004b, 2004d, 2005a, 2005b, 2006, Lillehaugen and Munro 2006).

SLQZ has been described by Pamela Munro and Felipe Lopez and their colleagues in a dictionary (Munro and Lopez, et al. 1999), an unpublished revision of the same dictionary (Munro and Lopez in prep.), dissertations by Felicia Lee (1999) and Michael Galant (1998), and a thesis by Olivia Méndez [Martínez] (2000), as well as a plethora of articles by Munro (e.g. Munro 1996, 2002, 2005a, 2005b, 2006b). Currently, Munro, Lopez, and I are co-authoring a first-year Zapotec language textbook (Munro, Lillehaugen, and Lopez in prep.) which has been used to teach Zapotec at University of California, San Diego for the past two years (2004-2005 and 2005-2006), and is planned to be used again this coming year (2006-2007).

SLQZ data that are not otherwise credited comes from my unpublished field notes on this language, based on joint fieldwork with Pamela Munro, which may be followed by a numeric reference to my field notes as described above for TMZ. Much of the cited SLQZ data are from Munro and Lopez, et al. 1999 and Munro and Lopez, in prep.

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References to these in examples will be abbreviated as "ML" and "ML in prep.". Data taken from *Cali Chiu* (Munro, Lillehaugen, and Lopez in prep.) are marked with the abbreviation "CC" in examples.

The New Testament has been translated into SJGZ (Liga Bíblica 1995). Ted Jones and his colleagues have written on its phonology (Jones and Knudson 1977) and pronoun system (Jones and Church 1985). Olivia Martínez has done fieldwork on this language (Martínez, in progress). All of the SJGZ data in this thesis come from Martínez's, Munro's, and my unpublished field notes.

The work on San Marcos Tlapazola Zapotec (SMTZ) that I am aware of is by Kristine Jensen de López, who has studied the acquisition of San Marcos Tlapazola Zapotec (Jensen de López 1999, 2002, 2005), specifically the acquisition of locatives. All of the SMTZ data cited are from Jensen de López's work.

TVZ language varieties should all be considered endangered since they are losing speakers faster than they are gaining them. Of the four varieties presented here, TMZ seems the most critically endangered: there are most likely no more than a few hundred speakers of TMZ, and to my knowledge, the youngest speakers are in their 50s. There are no children acquiring TMZ, though at the time I am writing this there are still children acquiring SLQZ and SMTZ.

1.1.2. Other Central Zapotec languages

I provide data from two other Central Zapotec varieties: Ayoquesco Zapotec and Mitla Zapotec. The data sources for these languages are discussed below.

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Ayoquesco Zapotec (*Ethnologue* code ZAF, also known as Western Ejutla Zapotec, Zapoteco de Santa María Ayoquesco (Gordon 2005)) is spoken in "the southern extreme of the Valley of Oaxaca" (MacLaury 1989:119). The *Ethnologue* states that it is closest to Ocotlán Zapotec (*Ethnologue* code ZAC) (Gordon 2005) and Smith Stark (2003:42) classifies it as zapoteco central >> zapoteco de Ejutla occidental. There is a lexicon for this language (MacLaury 1970). All of the Ayoquesco Zapotec data cited in this dissertation come from MacLaury (1989).

Mitla Zapotec (MZ) is categorized in the *Ethnologue* as Mitla Zapotec, with the alternate names of East Central Tlacolula Zapotec, East Valley Zapotec, and Didxsaj, code ZAW (Gordon 2005). MZ is a Valley Zapotec language, closely related to the TVZ language group; Smith Stark (2003:46) classifies it as zapoteco central >> zapoteco de Mitla. It is spoken in San Pablo Villa de Mitla, which can be located on the far right of the map in Figure 2. There is a dictionary (Stubblefield and Stubblefield 1991), a grammar (Briggs 1961), and a collection of texts (Stubblefield and Stubblefield 1994) for Mitla Zapotec. Although I have had the opportunity to hear MZ for a few hours, I have not done significant fieldwork worked on this language. All of the MZ data in this dissertation come from the Stubblefield sources.

1.1.3. Northern Zapotec

I cite data from one Northern Zapotec languages (classified as zapoteco de la sierra norte by Smith Stark (2003:48)): San Bartolomé Zoogocho Zapotec (*Ethnologue* code ZPQ; zapoteco de la sierra norte >> cajono >> zapoteco de Zoogocho (Smith Stark 2003:50)).

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The data are from Sonnenschein (2004a, 2004b, and 2005).

1.1.4. Southern Zapotec

I also cite data and / or analysis from two Southern Zapotec languages (classified as zapoteco de la sierra sur by Smith Stark (2003:37)): Coatlán-Loxicha Zapotec (*Ethnologue* code ZPS (Gordon 2005), zapoteco de la sierra sur >> coateco extendido >> coateco (Smith Stark 2003:38)) and Coatecas Altas Zapotec (Ethnologue ZCA (Gordon 2005)), zapoteco de la sierra sur >> coateco extendido (Smith Stark 2003:37). The Coatlán-Loxicha Zapotec data are from Beam de Azcona (2004 and in prep.) and the Coatecas Altas Zapotec data cited come from Benton (in prep.).

1.1.5. Colonial Valley Zapotec

I also present data from Colonial Valley Zapotec (CVZ), which come from documents (mostly wills) written in Zapotec by native speakers in Colonial Oaxaca. Since 1999, Pamela Munro and Kevin Terraciano (History, UCLA) have led a group of researchers at UCLA in a long term project of translating and analyzing Zapotec language texts from the Spanish Colonial period in Mexico. The current contributing members are Xóchitl Flores-Marcial, Michael Galant, Munro, Diana Schwartz, Aaron Sonnenschein, Lisa Sousa, and Terraciano. Past contributors have included Christina Esposito, John Foreman, Felipe H. Lopez, Olivia Martínez, Julie Morgenlender, and myself.[1]

[1] The group has also benefited from the following visiting participants: Heriberto Avelino, George Aaron Broadwell, and Michel Oudijk.

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These documents, collected by Terraciano and Sousa from archives in Mexico, were written in Zapotec by native speakers using Roman letters to approximate the language's complicated phonological system. The inaccuracy of the writing system and doubts about the meaning of the (inconsistent) spelling conventions make many types of phonological analysis nearly impossible, but does allow for some types of morphosyntactic analysis. These documents are also accompanied by Spanish translations, which were made at some point later (often significantly later) than the time the original documents were written. For the most part we have found the translations to be accurate, although on occasion there have been large sections of Zapotec which seem not to have been translated in the Spanish. On only a few instances have we found what we believe to be significant errors in the translation.

There are several additional Colonial period resources: a grammar and vocabulary written by Fr. Juan de Córdova (1578a, 1578b) and the later Junta Columbina vocabulary (1893). These tools have been invaluable in analyzing the Colonial documents, despite many problematic features. Additionally, there is a modern index to Córdova's vocabulary and the Junta Columbina (Whitecotton and Whitecotton 1993).

Figure 4 shows a sample page from a Colonial document. For each document, a member of the research group transcribes and provides a morphological analysis for the Zapotec. A small example of this process is shown below: in Figure 3 you can see one line of Zapotec, for which an analysis is given in (1).

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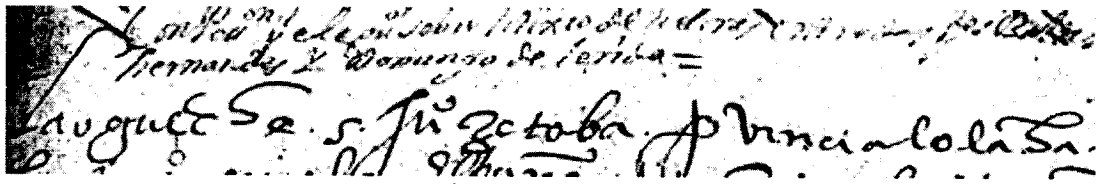

Figure 3. Te590;1

1. Lau gueche s. Ju° zetoba pvincia lolaha (Te590;1; Figure 3)
   face[2] pueblo San Juan Zetoba provincia Oaxaca
   'In the pueblo of San Juan Zetoba of the province of Oaxaca'

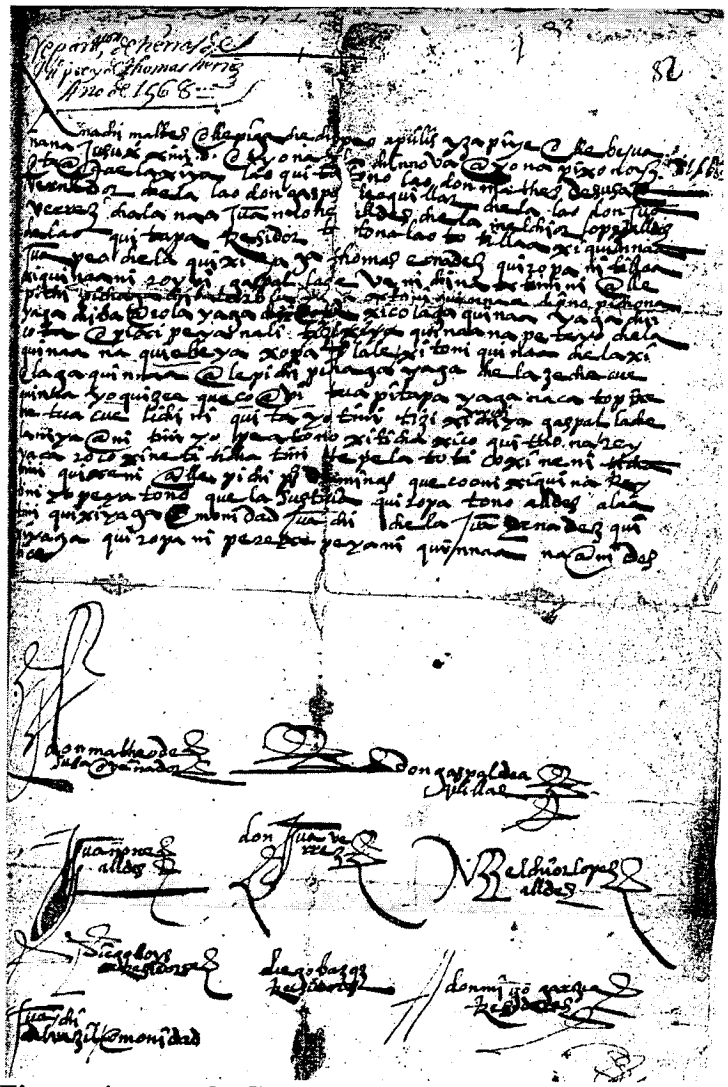

Figure 4. sample Colonial Valley Zapotec document

[2] CVZ component part locatives, such as *lao*, cognate to TVZ *loh* 'face; in front of; on', are glossed in the CVZ examples with their component part meaning, regardless of their semantic use in that example. For more discussion on this, see §2.11.

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At the time I left the group (December 2005), we had analyzed 29 documents. These documents are presented in Table 3 along with their abbreviations, which will be used to refer to these documents throughout this dissertation.[3] These documents come from eight different pueblos and cover 188 years, from 1565 to 1753. We do not know how many distinct languages these documents represented, even in Colonial times.

Document	Abbreviation
1565 Zimatlán	Zi565
1567 Doctrina de Feria	Doc
1568 San Sebastian Tectipaque	Te568
1589 San Sebastian Tectipaque	Te589a
1590 San Sebastian Tectipaque	Te590
1610 San Sebastian Tectipaque	Te610
1614 San Sebastian Tectipaque	Te614
1616 San Sebastian Tectipaque	Te616
1618 San Sebastian Tectipaque-a	Te618a
1618 San Sebastian Tectipaque-b	Te618b
1626 San Sebastian Tectipaque	Te626
1642 Tiltepec	Ti642
1643 Huizo	Hu643
1649 Tiltepec	Ti649
1675 Tlacochahuaya-a	Tl675a
1675 Tlacochahuaya-b	Tl675b
1683 Tiltepec-a	Ti683a
1686 Ocotlán	Oc686
1694 Tlacochahuaya	Tl694
1700 Tiltepec	Ti700
1702 San Sebastian Tectipaque	Te702
1709 Tiltepec	Ti709
1710 Tiltepec	Ti710
1711 Tiltepec-c	Ti711c
1715 Ocotlán	Oc715
1719 Zaachila	Za719
1721 Coyotepec	Co721
1740 Ocotlán	Oc740
1753 Ocotlán	Oc753

Table 3. CVZ documents

[3] Colonial Zapotec references are in this pattern: document.abbreviation -page.number; line.number where the page and line number indicate the beginning of the quoted passage.

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The Colonial documents are a rich source of data for the use of body and component part terms in CVZ. Given the nature of the material, however, I can use the documents only to provide positive evidence. Therefore, the lack of an example of a particular meaning of some word does not mean the word was not being used in that way at that time. And, of course, I have no access to CVZ speakers who could judge potential sentences as ungrammatical. Nevertheless, the type of information that the positive data provides is useful, and the CVZ data add an important dimension to the discussion of expressing location in Tlacolula Valley Zapotec, including the semantic range of the component part terms (Chapter 3), possible paths of semantic and syntactic change (Chapter 3), and the form and function of positional verbs (presented in Chapter 5).

1.1.6. Beyond Zapotec: Chickasaw

In addition to data from various Zapotec language varieties, for comparative purposes I also present data from the Muskogean language Chickasaw. Chickasaw is a language primarily spoken in Oklahoma. The fieldwork reported in this dissertation was done in Los Angeles with native speaker consultant Mrs. Catherine Willmond. The data are presented in the practical orthography of Munro and Willmond (1994). Unless otherwise noted, the Chickasaw data come from my and Munro's unpublished field notes.

1.2. Research methodology

The data presented in this dissertation were gathered in the field both in Los Angeles and Oaxaca, Mexico employing several methods. Traditional elicitation methods based on translation tasks were used, where a language consultant was presented with a sentence in

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English or Spanish, and asked to provide the equivalent in Zapotec. However, I found using this translation-style elicitation was often insufficient for doing detailed research on locatives.

Instead, I often employed a technique where I presented the speaker with a visual array using toys,[4] as illustrated in the Figures below, and asked the consultant to describe the relationship between the objects in the scene. This allowed me to record as much detail about the scene as was potentially relevant. If a speaker were asked to translate "the woman is in the car", for example, it is very probable that both I and the speaker would imagine a locative relationship like the one in Figure 5.

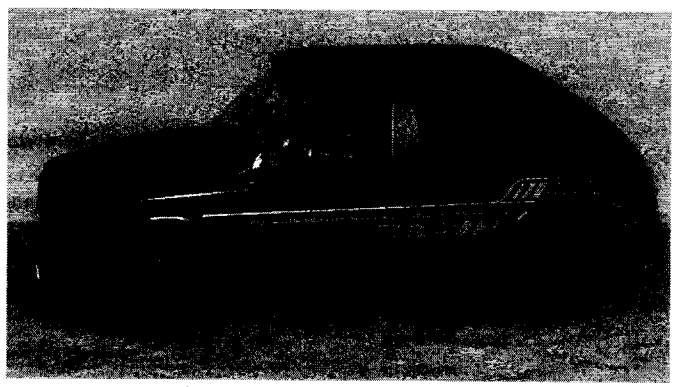

Figure 5. woman and car

However, if I wanted to ask a speaker how to say "the dog is on the car" and I had in mind the locative relationship in Figure 6, it would be very unlikely that the speaker would be imagining the same scenario. Since the patterns of component part locatives used in locative relationships where the items involved are in non-canonical orientations

[4] Thanks to Pamela Munro who brought the first set of toys to our meetings! Her original farm set was inspiration for me.

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proved to be very important to this research, employing toys to create such scenes was very useful, since explaining such a scene using words is difficult to say the least.

Figure 6. dog and car

Another benefit of having language consultants describe scenes instead of translating is that I could keep track of the direction that all of the entities were facing in relation to each other and to the speaker, which also proved to be of interest. For example, in Figure 7, the man is beside the woman, but his body is also facing her, though his face is toward the speaker. This type of information is not available when a speaker is simply asked to translate "the man is beside the woman", because there is no way I could know what particular array the speaker is imagining in his or her mind. By using these visual stimuli, I could be certain that the particular locative relationship I was interested in was in fact the same scene my consultant was describing.

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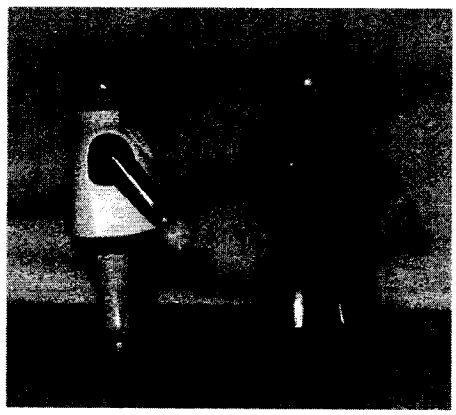

Figure 7. man and woman

There was an additional, unexpected benefit of using these visual stimuli. I believe that because of the toys, people were willing to work with me who otherwise might not have been. For example, in Tlacolula I visited an elderly couple, and the husband sat down at the table to work with me, while the wife sat farther away, observing us. When I got out the toys and set them up and began to work with the husband, she became very interested. Then, at one point, her husband said something that she disagreed with, and she came over to correct him by moving the toys until in her opinion they matched what he had said. After that she became very involved in the conversation and I was able to get a lot of judgments from her.

I have also collected data using stimuli developed at the Max Planck Institute for Psycholinguistics at Nijmegen: "PosB", which was designed to elicit data on positional verbs (Ameka et al. 1999) and "BowPed" which was designed to elicit data regarding topological relations (Bowerman n.d.). These have been very useful both for gathering linguistic data (e.g. discovering the boundaries in the meanings of locatives and positional verbs) and in engaging consultants.

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1.3. Grammatical description of TMZ

In this section I present a brief grammatical description of TMZ. For a detailed description of SLQZ see the wonderful introduction to the SLQZ dictionary (Munro and Lopez, et al. 1999), and for a detailed description of TVZ in general, see *Cali Chiu* (Munro, Lillehaugen, and Lopez in prep.). In this section, I seek only to describe areas that will be important in understanding the rest of the dissertation, and in documenting areas of TMZ grammar that differ significantly from SLQZ. In my future work I hope to document more fully the grammar of this beautiful language.

The following topics will be introduced in the sections to follow: phoneme inventory and orthography (§1.3.1), plural marking (§1.3.2), pronouns (§1.3.3), word order (§1.3.4), non-focus *làa'* (§1.3.5), possession (§1.3.6), demonstratives (§1.3.7), verbs (§1.3.8), and conjunction (§1.3.9).

1.3.1. Phoneme inventory and orthography

The TVZ data are presented in the orthography developed for SLQZ (Munro and Lopez, et al. 1999); for a detailed discussion of the phonemes and their allophones in SLQZ, please refer to Munro and Lopez, et al. 1999 and for a pedagogical introduction to the sounds in TVZ refer to *Cali Chiu* (Munro, Lillehaugen, and Lopez in prep.). Table 4 summarizes the consonant inventory of the TVZ languages. Sounds that are found only in loan words are in parentheses. The sounds in the shaded boxes are found in only some TVZ varieties, as indicated in parenthesis after that sound.

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Most TMZ consonants come in fortis / lenis pairs. The following description of fortis and lenis for SLQZ seems a good characterization for TMZ as well.

> Like other Zapotec languages, SLQZ has a pervasive phonological contrast between fortis and lenis consonants; most of these occur in pairs. The terms "fortis" and "lenis" identify phonetically disparate groups of sounds: there seems to be no single phonetic feature whose presence of absence can identify all the fortis consonants or all the lenis consonants. The distinguishing characteristics of fortis obstruents is articulatory tension; that of fortis sonorants in increased duration.
>
> The fortis stops... are voiceless and often aspirated (especially finally)... The lenis stops... range in most positions from voiced stops to very lenited voiced fricatives...
>
> Munro and Lopez, et al. 1999:1

P, *t*, and *c* / *qu* are fortis stops. *B*, *d*, *g* / *gu* are their lenis counterparts. *C* is written as *qu* and *g* as *gu* before the vowels *e*, *ë*, and *i* because of a similar rule in Spanish orthography. Since many Zapotec speakers can read and write Spanish, this orthographic convention is familiar to them. (While there is no letter *ë* in Spanish orthography, it so closely resembles the Spanish letter *e* that extending this orthographic rule to it seems natural.)

TMZ has the following fricatives: *s* (fortis alveolar), *z* (lenis alveolar), *x* (fortis alveopalatal), *zh* (lenis alveopalatal), *x:* (fortis retroflex), *zh:* (lenis retroflex). Additionally, borrowed words may use *f* (fortis labio-dental) and *j* (fortis velar).

More research is needed on the phonetic inventory and phonological status of affricates in TMZ. My preliminary conclusion is that there are three affricates: *ts* (fortis alveolar) (2), *ch* (fortis alveopalatal) (3), and *dzh* (lenis alveopalatal) (4). This inventory is asymmetric lacking *dz* (lenis alveolar). It also includes one more affricate than SLQZ, which does not have *dzh*, as indicated with shading in Table 4. Examples of these

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affricates in TMZ are shown below in (2) – (4), along with their cognates in SLQZ. (As mentioned earlier, references to Munro and Lopez, et al. 1999 are abbreviated as ML in examples and references to *Cali Chiu* (Munro, Lillehaugen, and Lopez in prep.) are abbreviated as CC.)

2. a. behts (TMZ)
   'brother (of a man)'
   b. behts (SLQZ; ML:66)
3. a. chìel (TMZ)
   'spouse'
   b. chìel (SLQZ: CC)
4. a. dìi'dzh (TMZ)
   'word; language'
   b. dìi'zh (SLQZ; ML:108)

Sonorants also appear in fortis / lenis pairs. The fortis sonorants are *ll*, *mm*, *nn*, and *nng*. The corresponding lenis sonorants are *l*, *m*, *n*, *ng*. The description below of SLQZ also seems accurate for TMZ.

> ... fortis sonorants ... are generally longer in duration than the corresponding lenis sonorants... (for corresponding phenomena in other Zapotec languages, cf. Jaeger 1983:190, Jones and Knudson 1977:166)... The velar nasals *ng* and *nng* are usually pronounced as simple lenis and fortis nasals, respectively, in final position (where they occur must commonly); in other positions, and rarely even finally, the *g* is clearly pronounced, so perhaps these sounds should be analyzed as clusters or prenasalized stops.
>
> ...Sonorants of all types are generally fully voiced in all positions, though some fortis sonorants, especially *ll*, may be slightly devoiced following breathy vowels or before final *y*.
>
> Munro and Lopez, et al. 1999:2

The pair *rr* and *r* look orthographically like a fortis / lenis pair, but this remains an open questions, as described in the SLQZ dictionary below. *Rr* represents a trill and *r* represents a tap, when word initial or word internal, and a trill when word final.

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Rr is a trilled *r* that appears in Spanish loans or over a morpheme boundary in non-loans, where it functions phonologically as a cluster (as suggested for Guelavía Zapotec by Jones and Knudson 1977:169); only the tap *r* occurs internal to native morphemes... Although the pair *rr* / *r* orthographically resemble the fortis / lenis sonorant pairs *ll* / *l*, *mm* / *m*, and *nn* / *n*, we are not yet sure of the phonological parallelism suggested by our spelling is correct.

Munro and Lopez, et al. 1999:2

W and *y* are glides.

The inventory of consonants is summarized below in Table 4.

		bilabial	labio-dental	alveolar	alveo-palaltal	palatal	retro-flex	velar	glottal
stop	**fortis**	p		t				c/qu	
	lenis	b		d				g/gu	
fricative	**fortis**		(f)	s	x		x:		(j)
	lenis			z	zh		zh:		
affricate	**fortis**			ts	ch				
	lenis				dzh (TMZ)				
nasal	**fortis**	mm		nn				ng	
	lenis	m		n				nng	
lateral	**fortis**			ll					
	lenis			l					
trill				rr					
tap				r					
glide		w				y			

Key: shading indicates a sound not found in all TVZ varieties; parenthesis indicate sounds found only in borrowed words.

Table 4. Consonant inventory of Tlacolula Valley Zapotec in orthography

TMZ has six vowel qualities, which are presented in Table 5. The pronunciation of *a*, *e*, *i*, *o*, and *u* corresponds with their IPA equivalents. The sixth vowel, *ë*, is a high back unrounded vowel. While the vowel qualities seem to be roughly equivalent between SLQZ and TMZ, the correspondence of the vowel qualities is an open question. Impressionistically, *ë* is much more common in TMZ than in SLQZ, and often

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corresponds to SLQZ *e* or *u*. Note that in SLQZ some speakers use *ë* instead of *e* for some words.

> In many words Felipe Lopez has *e* corresponding to Rodrigo Garcia's *ë*. We have not yet investigated the historical consequences of this observation, although impressionistically it seems likely that the *ë* pronunciation is conservative.
>
> Munro and Lopez, et al. 1999:2

I hope to look at this and other correspondence of vowel qualities between these two varieties in the future.

	front	back	
	unrounded	unrounded	rounded
high	i	ë	u
mid-high	e		o
low		a	

Table 5. vowel inventory of Tlacolula Valley Zapotec in orthography

While the vowel inventory itself may seem simple, in fact vowels and combinations of vowels in TVZ are very complex. Each TMZ vowel occurs with one of four phonation types: modal (plain), breathy, checked, or creaky. Breathy vowels are written with an *h* following the vowel (*ah, eh, ëh, ih, oh, uh*). Checked vowels are written with an apostrophe following the vowel (*a', e', ë', i', o', u'*). Creaky vowels are written with a grave accent over the vowel (*à, è, ì, ò, ù*), except for the vowel *ë*, for which a circumflex is used (*ê*).

Each TVZ word has a "key syllable" which can contain a sequence of such vowels, as described for SLQZ below.

> The fullest SLQZ syllable template is CCGVVVCG, where C represents a true consonant, G a glide, and V is a vowel, which may (with certain restrictions) have any of the four phonation types just described. Thus, for example, the word *barcwiaha'cw* "bird witch" ends with a sequence of *rcwiaha'cw* which could, on its own, constitute a key syllable representing the fullest expansion of this syllable template. All elements of the template except a single V are optional, though

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> almost all syllables have a consonantal onset and the majority contain more than one vowel. Most often, only the final syllable of a non-compound uninflected native word (which we will call the key syllable) is as elaborated as this template. This key syllable generally is perceived as stressed, though we do not have a clear understanding of this phenomenon...
>
> Munro and Lopez, et al. 1999:3

If the final syllable of a non-compound uninflected word is not the stressed syllable, for example in some Spanish loans, an acute accent is used on the first vowel of the syllable which is stressed to indicate that it is the key syllable, as in *fá'sihlly* 'easy, easily' (SLQZ; Munro and Lopez, et al. 1999:3).

Each vowel complex (i.e. sequence of vowels within a syllable) has a tone pattern, e.g. high, low, falling, and rising. This tone is predictable from the sequence of phonation types, as described for SLQZ (Munro and Lopez, et al.). In SLQZ twenty-seven different combinations of vowel phonations can occur in a vowel complex in the key syllable of a word (Munro 2005a). These patterns are shown in Table 6.

It is also possible for vowels of different qualities to appear together in one vowel complex. However, all logic possibilities are not possible. The vowels that can occur together in a vowel complex are diphthongs. Below is the description of diphthongs in SLQZ.

> A two- or three-vowel sequence generally contains only one vowel quality or reflects one of the standard SLQZ diphthongs, *ai*, *au*, *ei*, *eu*, *ia*, *iu*, *ua*, *ue*, and (for some speakers) *ëa*; a few additional diphthongs appear in Spanish loans, and the rare additional diphthong *ëa* occurs in one word.
>
> Munro and Lopez, et al. 1999:3

TMZ also has diphthongs, the inventory of which will be part of my future work on this language. There do, however, seem to be some differences in the diphthong inventory between TMZ and SLQZ which you may notice in the data cited in this dissertation.

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Pattern	Example (from Munro and Lopez, et al. 1999)	Tone
a'	**cha't** 'kiss'	high
aa	**syudaa** 'city'	high
ah	**zah** 'grease'	low
ahah	**lohoh** 'face'	low
àa	**dàany** 'mountain'	low
a'a	**da'ad** 'father'	rising
a'aa	**gami'iizh** 'blouse'	rising
àaa'	**àaa'** 'yes, that's right'	rising
àaa	**nnàaan** 'mother'	rising
aha'	**rlaha't** 'gets unloaded'	falling
a'ah	**cu'uhb** 'tejate'	falling
a'ahah	**gahllgui'ihihzh** 'sickness'	falling
a'aha	**Byu'uhu** 'young person from Mitla'	falling
a'àa'	**zhi'ìi'zh** 'pineapple'	falling
a'àa	**zhi'ìilly** 'sheep'	falling
a'aah	**gyibzhi'iihlly** 'type of bamboo'	falling
a'aa'	**ca'aa'n** 'will stroke'	falling
àa'	**rcàa'z** 'wants'	falling
àa'ah	**dàa'ah** 'petate'	falling
àa'a	**zhìi'iny** 'son'	falling
ààa'	**mnnààa'** 'woman'	falling
ààa'ah	**rcwààa'ah** 'throws'	falling
aah	**baahlly** 'flame'	falling
aa'	**bax:aa't** 'toad'	falling
aa'ah	**baa'ah** 'earlier today'	falling
aàa'	**yaàa'** 'up'	falling
aàa'ah	**rloòo'oh** 'floods'	falling

Table 6. SLQZ vowel complexes and associated tones (Table 2 from Munro 2005a)

Some vowels are very strongly nasalized in TMZ, for example the *a* in *Pa'anfy* 'Panfila'. In fact, in some cases I do not hear the *n* at all and only hear a very strongly nasalized *a*, something more like *Pã'ãfy*, where ˜ indicates nasalization. There are not very many words like this, and in all but one case there is a nasal consonant adjacent to the word. For now I am not considering nasalization to be phonemic, and am assuming some conditioning environment can be found, so I will not indicate nasalization in the orthography. The only word that remains a real question for me under this working

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hypothesis is the word for 'yes' which I might write as *õhõh*. This word always sounds very nasalized to me, and I have never heard a final *n*. This remains an unresolved problem.

The spelling of some TMZ words has been changed from that my previous work (e.g. Lillehaugen 2003). In these cases, the updated spelling reflects my current belief about the phonemes in these words.

This description of the sounds of TMZ is very brief and certainly inadequate for the reader to imagine the sounds of this beautiful language. Some audio recordings of TMZ are available publicly at the AILLA archive (www.ailla.utexas.org). A search for "Tlacolula de Matamoros Zapotec" will return everything archived on this language. Some items are password protected, but other are available to listen to freely to the public, currently including a frog story (*Zh:àa't, Cu'nùu', Zh:àa't?* record #ZAB001R001) and a speaker counting from one to twenty (record #ZAB002R001).

1.3.2. Plural marking

Plural nouns are optionally marked with the plural marker *da* in TMZ. The SLQZ plural marker *ra*[5] is identified in the dictionary as a plural proclitic (Munro and Lopez, et al. 1999:206). I believe the same is probably true of the plural marker *da* in TMZ.
In context, certain nouns not marked with *da* can be interpreted as plural (5a), and a noun marked with *da* always receives a plural interpretation (5b).

[5] Note that while *da* and *ra* seem to suggest a correspondence between *d* and *r* in TMZ and SLQZ, this is not usually the case. For example, the word for 'all' is *raa* in both TMZ and SLQZ (Munro and Lopez, et al. 1999:207).

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5. a. Li'eb w-xèe'll **gyia'** loh chi'el=nìi'. (TMA; 4:245)
Felipe PERF-send flower to spouse=3ANAP
'Felipe sent flowers to his wife' / 'Felipe sent a flower to his wife'

b. Li'eb w-xèe'll **da gyia'** loh chi'el=nìi'. (TMA; 5:99)
Felipe PERF-send PL flower to spouse=3ANAP
'Felipe sent flowers to his wife' / *'Felipe sent a flower to his wife'

Syntactically, a noun following *raa* 'all' or *raate'* (which consists of *raa* 'all' and an intensifier) can either be preceded by *da* (6a), (6c) or not (6b), (6d).

6. a. Zh:ùaan r-ahcnèe **raa** **ma'estr**. (TMZ; 5:100)
Juana HAB-help all teacher
'Juana helps all the teachers'

b. Zh:ùaan r-ahcnèe **raa** **da** **ma'estr**. (TMZ; 5:100)
Juana HAB-help all PL teacher
'Juana helps all the teachers'

c. Zh:ùaan r-ahcnèe **raa=te'** **ma'estr**. (TMZ; 5:100)
Juana HAB-help all=INTSV teacher
'Juana helps all the teachers'

d. Zh:ùaan r-ahcnèe **raa=te'** **da ma'estr**. (TMZ; 4:276)
Juana HAB-help all=INTSV PL teacher
'Juana helps all the teachers'

There seems to be some semantic differences among these, but more work is needed to determine the nature of this difference, which may be in e.g. definiteness or specificity.

1.3.3. Pronouns

The pronoun systems found in TVZ languages are rather complex (Munro and Lopez, et al. 1999:14, Munro 2002), with many different types of pronouns and different types of distinctions. Consider the following description of the pronouns in SLQZ.

> Zapotec has several different types of independent (non-clitic) pronouns: ordinary pronouns (used for emphatic subjects, for ordinary subjects of verbless predicate nominal sentences, for objects, and as pronominal predicates), nominal pronouns (third person pronouns used only as clause-initial subjects or focused objects), and

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> demonstrative pronouns (third person demonstratives that can be used in any sentence role or position). In addition there is a relative pronoun, **nih**, and interrogative pronouns.
>
> Munro and Lopez, et al. 1999:23

In this section I will present the outline of the pronominal system in TMZ focusing on the ordinary free (or independent) pronouns and clitic pronouns. By doing this, I leave many relevant issues open for future investigation. For a detailed discussion on the types and uses of pronouns in SLQZ see Munro and Lopez, et al. 1999 (e.g. 14-16, 23-24).

In Table 7 I present the forms of both the free and clitic pronouns in TMZ and in the following sections I discuss the morphology and meaning of the first person (§1.3.3.1), second person (§1.3.3.2), and third person (§1.3.3.3) pronouns in turn. Throughout this discussion, I will contrast the TMZ pronouns in form and meaning with SLQZ.

The particular distinctions made in the pronouns depend on the person. For example, for the first person, the only (clear) distinctions made are in number. For the second person there are distinctions in both number and formality. For the third person there are distinctions in number and "hierarchy". These third person distinctions in hierarchy are very complex, and I can only offer a basic description here. For more detailed discussion of such distinctions in SLQZ see Munro 2002.

As in SLQZ,[6] pronominal subjects, possessors, and objects of native prepositions are realized as clitic pronouns. Verbal pronominal objects, focused or topic pronominal

---

[6] Munro and Lopez, et al. (1999) describe the use of clitic pronouns and independent pronouns in SLQZ as follows.

> In theory, Habitual verbs inflected for subject are derived from the listed unsuffixed r-stem by adding one of the 18 pronominal subject clitics... The same clitics are also used to express nominal possessors and one type of prepositional object [i.e. of a native preposition]...
>
> Munro and Lopez, et al. 1999:14

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subjects, and objects of borrowed prepositions are realized with free pronouns. As Munro and Lopez, et al. point out, the free pronouns are formed of a base plus the clitic pronouns (1999:14, 23). The most common base is *làa'* which is used for all third person and for some second persons; the other bases are discussed in the relevant sections below.

		singular		plural	
person	distinctions	free	clitic	free	clitic
1		narèe' nàa'	=a'	dunnùuëhnn dunnùudahnn dunnùuëhnnùu'	=nn =dahnn =nnùu'
2	informal	lìi'	=ùu'	làa'tuu'	=tuu'
	formal	yòo'byùu'	=byùu'	yòo'bytùu'	=yòo'bytùu'
3	reverential	lài'ny	=ni' =ny	làa'dani'	=dani'
	respectful	làa'b	=ba =b (after vowel)	làa'dab	=dab
	familiar	làa'by	=bi =by (after vowel)	làa'daby	=daby
	animal	làa'mm	=mma =mm (after vowel)	làa'damm	=damm
	proximate	làa'nìi'	=nìi'	làa'danìi'	=danìi'
	distal	làa'na'ah	=na'ah	làa'dana'ah	=dana'ah

Table 7. pronouns in TMZ

1.3.3.1. First person pronouns

The most common form for the first person singular free pronoun in TMZ is *narèe'* (7a), which seems to consist of a (phonologically reduced) shorter first person singular free pronoun *nàa'* (7b) and the demonstrative *rèe'* 'here' (cf. §1.3.7). My main consultant will accept *nàa'* as a first person free pronoun, and will happily repeat sentences I created

---

These [independent pronouns] have five main uses: they may indicate verbal objects... and objects of the second type of preposition described in section 4.33 below [Spanish prepositions], they may function as pronominal predicates, they may be used as the subjects of verbless predicate nominal sentences..., and they may be used emphatically (for instance, a verb whose subject is indicated by a pronominal clitic may also have an optional preceding independent pronoun subject... Munro and Lopez, et al. 1999:23

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using it, but he does not volunteer it. Note that the first person singular free pronoun in SLQZ *nàa'* (Munro and Lopez, et al. 1999:173) looks like the shorter form in TMZ; the form *narèe'* is not used in SLQZ.

7. a. na-rèe' (TMZ)
   1.FP-here
   'I; me'

   b. nàa' (TMZ)
   1.FP
   'I; me'

The clitic form of the first person singular is *=a'*. Note that the shorter free first person singular pronoun, *nàa'* (7b), seems to end in *=a'*.

TMZ seems to have three forms for the first person plural. All three forms start with *dunnùu=*; for this reason, I identify it as a first person plural base. The shortest form is *dunnùuëhnn* 'we; us' (8a), with clitic form *=(h)nn* (8b). This form seems to correspond to the form in SLQZ: *dannoohnn, dannuahnn* 'we; us' (Munro and Lopez, et al. 1999:101), with clitic form *=ëhnn* (Munro and Lopez in prep.:115). While the string *=ëhnn* is found in the TMZ free pronoun, which seems to be composed of the base *dunnùu=* and *=ëhnn*, I have no other evidence that it is ever used as a clitic pronoun in TMZ. Attempts to use it are judged as ungrammatical (8c).

8. a. dunnùuëhnn (TMZ; 5:158)
   1PL.BASE.1PL
   'we; us'

   b. R-gwi'ih=nn. (TMZ; 5:170)
   HAB-see=1PL
   'we see'

   c. *x:-yèe'cw=ëhnn (TMZ; 5:158)
   bad with any meaning; e.g. cannot mean 'our dog'

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One longer form (9a) consists of the first person plural base *dunnùu=* followed by the plural proclitic *da* (see §1.3.2) and the *=(h)nn* 'we' pronoun clitic. (This is not unlike the formation of third person plural clitic pronouns, which are composed of the plural clitic and the third person singular clitic, cf. §1.3.3.3.) The clitic version of this first person plural pronoun is *=dahnn.* Thus, this first person plural forms seem to be composed of "first person plural" plus "plural". The meaning of these pronouns may corroborate this, as I discuss below.

9. a. dunnùu=da=hnn (TMZ; 5:158)
   1PL.BASE=PL=1PL
   'we; us'

   b. N-u'uh=**da=hnn** gahx:=gah yu'uh. (TMZ; 5:161)
   NEU-be=PL=1PL near=right house
   'We are very near the house'

While SLQZ only has one pronoun for 'we', another form *=rënn* is mentioned in an endnote.

> In addition, there may also be an archaic *=rëhnn* (1 pl. formal) ending, or possibly this is characteristic of another language or dialect closely related to SLQZ.
> Munro and Lopez, in prep.:32

While at first glance *=rëhnn* might not appear very similar to *=dahnn*, in fact their morphological composition seems almost identical, as the plural morpheme in SLQZ is *ra* (not *da*), and the first person plural clitic pronoun is *=ëhnn*. Thus, both TMZ *=dahnn* and SLQZ *=rëhnn* seem to be composed of the plural clitic and a first person plural pronominal clitic.

While the SLQZ form *=rëhnn* is identified as possibly being a formal pronoun, when TMZ speakers are asked to explain the difference between the two forms for 'we', most of

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the responses have to do with the number included in 'we', saying that the short form is for a few people (two or three) and that the long form is for many. This may be supported by textual examples, such as the examples in (10) which are consecutive lines from a narrative about a wedding, where the two 'we' forms seem to correspond to two different groups: a large group of everyone attending the wedding (10a) and (10b), and a smaller group of the people actually involved in the wedding, including the storyteller, who will be accompanying the bride (10b).

10. a. Cho'o=**da=hnn** mi'is. (TMZ; Sa:12)
IRR.go=PL=1PL mass
'We all will go to mass'

b. Cho'o=nèe=**nn** zh:àa'p mi'is. (TMZ; Sa:13)
IRR.go=with=1PL girl mass
'We will go to mass with the bride'

c. Chih=nìi' z-àa=**da=hnn** mi'is.
when=NÌI' DEF-go=PL=1PL mass

chih=ru'=nìi' y-zhya'ally guehs bahahzh. (TMZ; Sa:14)
then=still=NÌI' IRR-get_opened pot tepache

'When we all have gone to mass then the pot of tepache will get opened'

My best guess, based on the apparent morphological composition of *dunnùudahnn* 'we', narrative data such as those presented in (10), and comments from consultants, is that the short form is a paucal plural and the longer form is for larger plural or "multiple". However, the determination of the meaning of these pronouns is a work in progress, as pinning the distinction down through elicitation has not been successful so far.

(10) also helps to rule out a possible inclusive / exclusive distinction between *dunnùuëhnn* 'we' and *dunnùudahnn* 'we', as I, the listener, am neither part of the group that will go with the bride to the church (paucal), nor part of the group that will go to the

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mass (multiple), as the wedding was to be held the following month in Oaxaca, and I wouldn't be there, and the storyteller knew that.

As I mentioned, the hypothesis that the distinction being made in these first person plural pronoun forms is that of paucal / multiple distinction isn't always convincing, and in some cases there seem to be contradictions, such as in (11) where the "paucal" free pronoun is used, and then later in the clause the "multiple" clitic pronoun is used as a possessor. If my hypothesis were right, this would mean something like 'Today he was born in David's hometown, one who will save us (few): he is Christ our (many) Lord'. There may be ways to reconcile this with my hypothesis, however, examples such as these point out the need for more work. One possible explanation is a semantic one: perhaps the narrator is saying that only few will be saved, while Christ is everyone's Lord, whether they will be saved or not.

11. Nah-zhih	rèe'	gùuly=ni'		làa'any	lahahzh	Dabi'd,
now-day	this	PERF.be_born=3REV		in	hometown	David
to'ohby	nih	g-a'c=nèe	**dunnùuëhnn**:			
one	REL	IRR-do=with	1PL.FP			
làì'ny	nài=ny	Cri'st	X:-ta'ad=**da=hnn**. (TMZ; Nav:27)			
3REV.FP	COP=3REV	Christ	POSS-father=PL=1PL			

'Today he was born in David's hometown, one who will save us: he is Christ our Lord'

Another possible explanation relies on the lack of a vowel initial clitic form of *dunnùuëhnn*, as demonstrated earlier in (8c) and repeated below as (12c). In fact, the use of the shortest clitic form *=(h)nn* seems blocked on consonant final stems, where one would expect a vowel initial variant of the clitic like <<=*ëhnn*>> to be used. Instead, one

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of the other first person plural clitic forms is used: =*dahnn* (12a) or =*nnùu'* (which will be introduced below) (12c).

12. a. x:-yèe'cw=da=hnn (TMZ; 5:169)
POSS-dog=PL=1PL
'our dog'

b. x:-yèe'cw=nnùu' (TMZ; 5:169)
POSS-dog=1PL
'our dog'

c. *x:-yèe'cw=ëhnn (TMZ; 5:158) =(8c)
bad with any meaning; e.g. cannot mean 'our dog'

The final first person plural form is *dunnùunnùu'* (13a) with clitic form =*nnùu'* (13b). I don't know if or how this pronoun differs in meaning from the other first person plural pronouns. Like the other first person plural forms, the free pronoun seems to be built on the base *dunnùu*=. My preliminary hypothesis is that this clitic form begins with the short clitic form =*nn* 'we' and may also contain the second person informal singular clitic =*ùu'* 'you'. Since this is tentative at this point, I do not segment these in the data. This hypothesis might also suggest that the pronoun is inclusive in meaning; however, based on my current data, this does not seem to be the case.

13. a. dunnùu=nnùu' (TMZ; 5:158)
1PL.BASE=1PL
'we; us'

b. **Dunnùu=nnùu'** chòo'**=nnùu'** rèe. (TMZ; 5:169)
1PL.BASE=1PL IRR.go=1PL there
'We will go there'

Colonial Valley Zapotec (CVZ) also has several forms for the first person plural. The longer form has two syllables and usually is written as *tonoo* or *tono* (as in (14)), although fortis / lenis, tone, vowel length, and phonation distinctions are not reliably

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conveyed in the writing of CVZ. The shorter form starts with *n* and is usually written as *na*, as in (15). So far I haven't been able to determine anything about potential meaning differences based on our relatively small CVZ corpus, but I will continue to collect instances on them in hopes of developing an analysis.

14. a. lao=**tonoo** justicia aldes (CVZ; Oc686-2;6)
face=1PL justice alcaldes
'before us, the justice-alcaldes'

b. firma xiteni=**tonoo** lani testamento niri (CVZ; Oc686-2;7)
signature of=1PL stomach will this
'our signatures in this will'

15. n-aca=yaa Cristiano hua- roba=ya ni[sa] lao
NEU-be=1SG Christian NOM-get_spilled_on=1SG water face

guela-gracia xtenij Bejuanaa=**na** Dios (CVZ; Co721-1;12)
NOM-grace of high_lord=1PL God

'I am a Christian baptized with / by the grace of our lord God'

1.3.3.2. Second person pronouns

There is a division between informal and formal in the second person. *Lìi'* and *làa'tuu'* are the singular and plural informal free pronouns, respectively (16).

16. a. lìi' (TMZ)
2INF.FP
'you (inf. sg.)'

b. làa'=tuu' (TMZ)
BASE=2INF.PL
'you (inf. pl.)'

The corresponding clitic forms are *=ùu'* for the second person informal singular (17) and *=tuu'* for the second person informal plural (18).

17. **Lìi'** r-àa'p=**ùu'** bèe'ecw èee? (TMZ; 5:92)
2INF.FP HAB-have=2INF dog Q
'Do you (inf. sg.) have a dog?'

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18. a. Quë'ity y-zhìiby=di'=**tuu'**! (TMZ; Nav:24)
NEG IRR-be_afraid=NEG2=2INF.PL
'Don't (you inf. pl.) be afraid!'

b. Ndèe g-a'c to'ohby se'nny pahr **làa'tuu'**:
that IRR-be one sign for 2INF.PL.FP

y-dzhìe'll=**tuu'** to'ohby bdòo'... (TMZ; Nav:32)
IRR-find=2INF.PL one baby

'That will be a sign for you (inf. pl): you (inf. pl.) will find a baby...'

In addition to the informal forms, TMZ also has formal second person pronouns. The singular free pronoun is *yòo'byùu'* (19a). Since the clitic form is *=byùu'* (19b) it seems that the base for the free pronoun is *yòo'*, as segmented in (19a). (Notice that the second person formal clitic seems to end in the second person informal clitic *=ùu'*. Perhaps the *=by* is segmentable at some level as well.)

19. a. yòo'=byùu' (TMZ)
BASE.2FORM=2FORM
2FORM.FP
'you (form. sg.)'

b. Xi r-càa'z=**byùu'**? (TMZ; 5:102)
what HAB-want=2FORM
'What do you (form.) want?'

There is only one form for the second person plural formal pronoun, which is *yòo'bytùu'*. This can be used as either a free pronoun (20a) or a clitic pronoun (20b).

20. a. yòo'bytùu' (TMZ)
BASE.2FORM.2FORM.PL
2FORM.PL.FP
'you (form. pl.)'

b. Xi r-càa'z=**yòo'bytùu'**? (TMZ; 5:102)
what HAB-want=2FORM.PL
'What do you (form. pl.) want?'

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The formal plural forms seems to end in the second person informal plural clitic *=tùu'*. This suggests that we may be able to segment it as *yòo'=by=tùu'* giving further support to the hypothesis above that *yòo'=* is the base for the second person pronoun clitics and that the formal pronouns are built using the informal pronouns along with the morpheme <<*=by*>>. Given this hypothesis, though, we might expect there to be a clitic form for the second person formal plural (for which there is no evidence) of the shape <<*=bytùu'*>>.

The second person pronouns in SLQZ are presented in Table 8 along with the TMZ forms. The forms in the two language varieties look related, although I don't present an analysis for the correspondence between the forms here, and there certainly are many obvious differences. Note, however, that SLQZ has two sets of formal forms: one set with a *b* and one set without a *b*. Additionally, the formal forms in SLQZ also seem to end with the informal clitic forms.

	TMZ				SLQZ*			
	singular		plural		singular		plural	
	free	clitic	free	clitic	free	clitic	free	clitic
inf.	lìi	=ùu'	làa'tuu'	=tuu'	lìu'	=ùu'	làa'd	=ad
form.	yòo'byùu'	=byùu'	yòo'bytùu'	=yòo'bytùu'	yu'uu' yëbu'uu'	=yuu' =yëbùu'	yùad yëbùad	=yùad =yëbùad

*data from Munro and Lopez, et al. 1999

Table 8. second person pronouns in TMZ and SLQZ (Munro and Lopez, et al. 1999)

1.3.3.3. Third person pronouns

As shown in Munro (2002), the third person pronoun system in TVZ is very complex. TMZ, like SLQZ, has six third person pronouns, which seem to make hierarchical distinctions. While SLQZ also has six third person pronouns (Munro and Lopez, et al.

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1999; Munro, Lillehaugen, and Lopez, in prep.) many do not seem to correlate in form with the pronouns in TMZ (Munro 2002).

In the following sections I describe the third person pronouns in TMZ: reverential (§1.3.3.3.1), respectful (§1.3.3.3.2), familiar (§1.3.3.3.3), animal (§1.3.3.3.4), proximate (§1.3.3.3.5), and distal (§1.3.3.3.6). I will make comparisons to the third person pronouns in SLQZ throughout, and in §1.3.3.3.7 I present a summary of the third person pronouns in SLQZ for comparison.

1.3.3.3.1. Third person reverential

The third person reverential pronouns are used for God, Jesus, and other holy things such as the angels or tortillas. The third person free reverential pronoun is *làì'ny* (21) with clitic forms =*iny* (21a) and =*ni'* (21b).

21. a. **Làì'ny** nà=**iny** Cri'st X:-ta'ad=da=hnn. (TMZ; Nav:29)
3REV.FP COP=3REV Christ POSS-father=PL=1PL
'He is Christ our Lord'

b. Jesu's n-aga'ah-yeisy=**ni'**. (TMZ; 5:108)
Jesus NEU-lie-sleep=3REV
'Jesus is sleeping'

c. R-nààab=a' mila'gr loh=iny. (TMZ; 5:109)
HAB-put-1SG milagro in_front_of=3REV
'I put the milagro in front of him (Jesus)'

I am not sure if the clitic forms are phonologically conditioned, as with the other third person clitics. It seems from the examples in (21) that =*ny* occurs after a vowel (21a, c) and =*ni'* after an consonant (21b), but the plural forms of the pronoun seem to contradict that hypothesis: the plural free pronoun is *làa'dani'* (22a) and the plural clitic reverential form is =*dani'* (22b).

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22. a. làa'=da=ni' (TMZ)
BASE=PL=3REV
'they; them (rev.)'

b. Derrpe'nnt b-ri'cah to'ohby a'anngjl quëhnn stàal a'nngjl=e'eh
suddenly PERF-appear one angel with many angel=DIM

zhaybààa', cay-ùa'all=**da=ni'** pahr Dyooz (TMZ; Nav:33)
heaven PROG-sing=PL=3REV for God

'Suddenly an angel appeared, with many little angels from heaven, singing for God'

Unlike most of the pronouns, the plural form of the pronoun does not transparently consist of the plural marker *da* and the singular clitic. If that were the case, we would expect the plural reverential form to be *làa'dany* with clitic form =*dany*. I don't know how to account for this. The reverential pronoun is not very frequent, and possibly there is such a form that I haven't encountered. However, it is probably relevant that there are two third person reverential free pronouns in SLQZ (Munro and Lopez, et al. 1999 (ML)): one that ends in =*ny* (23a) and one that ends in =*ni'* (23b), although there is only one plural form, which is based on the =*ny* clitic (23c).

23. a. làa'iny (SLQZ; ML:148)
'he, she, it; him, her, (rev.)'

b. làa'ni' (SLQZ; ML:148)
'he, she, it; him, her (rev.)'

c. làa'riny (SLQZ; ML:149)
'they; them (rev.)'

1.3.3.3.2. Third person respectful

The singular third person respectful pronouns are *làa'b* (free pronoun) (24a); and clitic forms =*b* (after a vowel) (25a) and =*ba* (after a consonant) (24a). The plural forms

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are *làa'dab* (24b) and clitic form *=dab*. This pronoun looks similar in form, though not in meaning, to the SLQZ formal pronoun *làa'b* (Munro and Lopez, et al. 1999:147).

24. a. **Làa'=b** n-aga'ah-yeihsy=**ba**. (TMZ; 5:107)
BASE=3RESP NEU-lie-sleep=3RESP
'He (resp.) is sleeping'

b. làa'=**da=b** (TMZ)
BASE=PL=3RESP
3RESP.PL.FP
'they; them (resp.)'

The respectful pronouns are frequently used to translate an unspecified 'he' in elicitation contexts, but also seem to convey respect, as shown in the following examples, where the respectful pronoun is being used to refer to Mary, the mother of Christ (25a), and a group consisting of a *mayordomo* (which is a respected position as the host of a fiesta) and his guests (25b).

25. a. Mariia b-lu'chìia' raa=te' da dìi'zh=qui
Maria PERF-save all=INTSV PL word=this

làa'any làa'stòo'=**b** (TMZ; Nav:60)
in heart=3RESP

'Maria saved all of these words in her heart'

b. Dehts mu'syc a nàall mardo'mm
behind band already NEU.hang mayordomo

cohnn raa=te' x:-piu'uz=ni'ih... Làa'any
with all=INTSV POSS-guest=3ANAP in

ydòòo' che-sàa'an=**da=b** binnih co'innch (TMZ; Mardom:35)
church IRR.go-leave= PL=3RESP candle shell

'Behind the band the *mayordomo* follows with all his guests... They will go and leave the shell candles in the church.'

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1.3.3.3.3. Third person familiar

The third person familiar singular free pronoun is *làa'by* (26a) and the clitic forms are *=by* (after a vowel) and *=bi* (after a consonant) (26a). The plural free form is *làa'daby* (26b), and the clitic form is *=daby*. There does not seem to be a third person pronoun in SLQZ that is related directly in form or meaning.

26. a. **Làa'=by** n-aga'ah-yeisy=**bi**. (TMZ; 5:107)
BASE=3FAM NEU-lie-sleep=3FAM
'He (fam.) is sleeping'

b. làa'=**da=by** (TMZ)
BASE=PL=3FAM
3FAM.PL.FP
'they; them (fam.)'

The third person familiar pronoun is used very frequently by my main consultant. He often translates it as "con cariño [with affection]" and usually uses it to refer to people that we both know, even if we aren't particularly close to them. (But it may be the case that these people are all younger that my main consultant, which may also be relevant.) My understanding is that this pronoun is used for children, babies, and people that you have affection for in general. Perhaps "familiar" is not the best name for this pronoun, but it is my current working label.

1.3.3.3.4. Third person animal

The free singular animal pronoun is *làa'mm* (27a) with clitic forms *=mm* (after a vowel) and *=mma* (after a consonant) (27a). The plural free animal pronoun is *làa'damm* (27b). This seems related to the SLQZ animal pronoun *làa'mm* (Munro and Lopez, et al. 1999:149) in both form and meaning. One major difference in use, however, is that while

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the animal pronoun is used for children in SLQZ (Munro and Lopez, et al. 1999:14) it is not in TMZ. (The familiar pronoun (§1.3.3.3.3) is used for children and babies in TMZ.)

27. a. **Làa'=mm** n-aga'ah-yeisy=**mma**. (TMZ; 5:108)
BASE=3AN NEU-lie-sleep=3AN
'It (an.) is sleeping'

b. làa'=**da=mm** (TMZ)
BASE=PL=3AN
3AN.PL.FP
'they; them (an.)'

1.3.3.3.5. Third person proximate

The proximate pronouns are singular *làa'ni'ih* (28a) with clitic form *=ni'ih* (28a) and plural form *làa'dani'ih* (28b) with clitic form *=dani'ih* (28b). These pronouns are primarily used for non-humans, but can be used to refer to people in certain contexts. For example, my main TMZ consultant (who is male) told me that teenage boys might use it to one another, in a perhaps derogatory manner. However, in some cases the proximate (and the distal) have been used to translate 'he' in what seemed to me to be a neutral elicitation context.

28. a. **Làa'=ni'ih** n-aga'ah-yeisy=**ni'ih**. (TMZ; 5:109)
BASE=3PROX NEU-lie-sleep=3PROX
'He is sleeping'

b. **Làa'=da=ni'ih** n-aga'ah-yeisy=**da=ni'ih**. (TMZ; 5:109)
BASE=PL=3PROX NEU-lie-sleep=PL=3PROX
'They are sleeping'

It is my impression that the proximate and distal pronouns (§1.3.3.3.6) form some sort of class, although more work is needed on this.

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1.3.3.3.6. Third person distal

The distal pronouns are singular *làa'na'ah* (29a) with clitic form *=na'ah* (29a) and plural form *làa'dana'ah* (29b) with clitic form *=dana'ah* (29b). As with the proximate pronouns, the distal pronouns are primarily used for non-humans, but can be used to refer to people in certain, perhaps insulting, contexts.

29. a. **Làa'=na'ah** n-aga'ah-yeisy=**na'ah**. (TMZ; 5:109)
BASE=3DIST NEU-lie-sleep=3DIST
'He is sleeping'

b. **Làa'=da=na'ah** n-aga'ah-yeisy=**da=na'ah**. (TMZ; 5:109)
BASE=PL=3DIST NEU-lie-sleep=PL=3DIST
'They are sleeping'

1.3.3.3.7. Comparison with SLQZ third person pronouns

Table 9 presents all of the third person pronouns in SLQZ. While I have referred to relevant forms where appropriate above, let me point out here that there does not seem to be a pronoun in TMZ that corresponds either in form or (from what I understand) meaning to the SLQZ respectful pronoun *làa'zh:* (Munro and Lopez, et al. 1999:149). Also, as mentioned above, the proximate *la'anng* (Munro and Lopez, et al. 1999:146) and distal *la'ai* (Munro and Lopez, et al. 1999:146) seem significantly different in both form and use from the TMZ proximate *làa'nìi'* (§1.3.3.3.5) and distal *làa'nàa'* (§1.3.3.3.6).

	singular		plural	
	free	clitic	free	clitic
reverential	làa'iny làa'ni'	=iny =ni'	làa'riny	=riny
respectful	làa'zh:	=ahzh:	laa'rahzh:	=rahzh:
formal	làa'b	=ëb	làa'rëb	=rëb
animal	làa'mm	=ëmm	làa'rëmm	=rëmm
proximate	la'anng	=ëng	làa'rëng	=rëng
distal	la'ai	=ih	làa'rih	=rih

Table 9. third person pronouns in SLQZ (data from Munro and Lopez, et al. 1999)

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1.3.4. Word order

In the following sections I present a basic description of word order within sentences and phrases in TMZ. In §1.3.4.1 I discuss the basic word order in TMZ, contrasting it with the basic word order and other word order possibilities in SLQZ in §1.3.4.2. Finally, in §1.3.4.3 I present the word order of phrases that will be particularly relevant in this dissertation: prepositional phrases and possessed noun phrases.

1.3.4.1. Basic word order in TMZ

Zapotec languages are head initial languages. In SLQZ, and many other Zapotec languages, the basic word order is VSO. However, for TMZ the most common word order (at least in elicitation) is SVO, although VSO is possible, as shown in (30), where the √ indicates that the sentence was not volunteered, but was judged as grammatical and repeated by the speaker.

30. a.	S	V	O
	Li'eb	b-dìiny	Jwaany. (TMZ)
	Felipe	PERF-hit	John
	'Felipe hit John'		
b.	V	S	O
	√B-dìiny	Li'eb	Jwaany. (TMZ)
	PERF-hit	Felipe	John
	'Felipe hit John'		

Preliminary analysis of my small corpus of transcribed oral narratives suggests that VSO is significantly more frequent for my consultants in volunteered narration. In my future work on TMZ I hope to be able to investigate this more in depth.

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Likewise, both VSO (31a, b) and SVO (31c, d) word orders are allowed for embedded clauses, regardless of the word order of the matrix clause: SVO (31a, c) or VSO (31b, d).

31. a.

S	V	O		[V	S	O]
Li'eb	gw-u'uhts[7]	làa'	Beed	b-tòo'oh	Wsee	x:-camiony=nìi'.
Felipe	PERF-tell	LÀA'	Peter	PERF-sell	Jose	POSS-car=3ANAP

(TMZ; 5:145b)
'Felipe told Peter that Jose sold his car'

b.

V	S	O		[V	S	O]
√ Gw-u'uhts	Li'eb	làa'	Beed	b- tòo'oh	Wsee	x:-camiony=nìi'.
PERF-tell	Felipe	LÀA'	Peter	PERF-sell	Jose	POSS-car=3ANAP

(TMZ; 5:145b)
'Felipe told Peter that Jose sold his car'

c.

S	V	O		[S	V	O]
Li'eb	gw-u'uhts	làa'	Beed	Wsee	b- tòo'oh	x:-camiony=nìi'.
Felipe	PERF-tell	LÀA'	Peter	Jose	PERF-sold	POSS-car=3ANAP

(TMZ; 5:145b)
'Felipe told Peter that Jose sold his car'

d.

V	S	O		[S	V	O]
√ Gw-u'uhts	Li'eb	làa'	Beed	Wsee	b- tòo'oh	x:-camiony=nìi'.
PERF-tell	Felipe	LÀA'	Peter	Jose	PERF-sold	POSS-car=3ANAP

(TMZ; 5:145b)
'Felipe told Peter that Jose sold his car'

1.3.4.2. Comparison of word order in SLQZ and TMZ

In SLQZ the basic word order is VSO (Munro and Lopez, et al. 1999, Lee 1999, and Munro, Lillehaugen, and Lopez, in prep.) SVO is a possible word order, but is used to focus the subject, as explained in the excerpt from *Cali Chiu*[8] below.

---

[7] This seems to be the perfective form of *re'ihpy* 'tell'. It corresponds with the SLQZ imperative form of this verb (*gwu'ahts*); although this verb has "no perf[ective]" form in SLQZ (Munro and Lopez, et al. 1999:247).

[8] The orthography used in *Cali Chiu* (Munro, Lillehaugen, and Lopez in prep.) underrepresents certain phonemic contrasts, including tone and phonation. For a full explanation of the orthography, see Munro, Lillehaugen, and Lopez in prep.: Lessons 1 – 4.

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> Verb plus subject is the most basic WORD ORDER used in Zapotec sentences...
> Rzhuny zhyap. "The girl runs."
>
> ...
>
> It's possible to begin a Zapotec sentence with something other than a verb, such as a noun or a name:
>
> Zhyap rzhuny. "<u>The girl</u> runs."
>
> ...
>
> In these examples, the subject comes first, not the verb. Speakers use this word order to show a greater emphasis, or FOCUS, on the subject. When the subject is before the verb, it is the subject specifically, not just the whole event, which is the focus of the speaker's attention. The most common use of sentences like these is to answer a question like "Who runs?" or "What boils?", for example... In English, answers to such questions are often pronounced with more loudness or vocal emphasis on the focused noun or name corresponding to "who" or "what". In English translations in this book, we will represent English focus by underlining.
>
> Munro, Lillehaugen, and Lopez in prep.: Lesson 5

I am not sure if the SVO word order focuses the subject in TMZ, but SVO seems to be a neutral word order, at least in some contexts. For example (32a) was volunteered as the translation of 'Pedro scared me', but (32b) was accepted as grammatical and repeated. While this is not strong evidence and more work remains to be done, my current hypothesis is that SVO in TMZ does not carry the same type of subject-focus as in SLQZ. Therefore, in this dissertation I do not translate SVO sentences in TMZ with focus.

32. a. Beed b-chìi'by narèe'. (TMZ; 5:90)
Pedro PERF-scare 1SG.FP
'Pedro scared me'

b. √ B-chìi'by Beed narèe'. (TMZ; 5:145b)
PERF-scare Pedro 1SG.FP
'Pedro scared me'

TMZ also seems to differ from SLQZ in how objects can be fronted. As shown below, in SLQZ an object can be focused by fronting it before the verb. No special

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marking on the object is required. Sometimes this results in an ambiguous sentence, and one needs to rely on context to know whether it is the subject or the object that is focused.

> ... sentences like the following involve focus on the object. The first sentence might be used to answer the question "What does the girl grab?"
>
> Guet re rnaz zhyap. "The girl grabs that tortilla."
> Mes rguad manyser. "The bee stings the teacher."
>
> ...
>
> Sometimes the situation is more complicated, however. Consider the following sentence:
>
> Mna re rcwany mniny.
>
> Does this mean "This woman wakes up the boy" (for instance, in answer to the question "Who wakes up the boy?"), or does it mean "The boy wakes up this woman" (for instance, in answer to the question "Who does the boy wake up?")? In fact, we can't tell! The Zapotec sentence could have either of these meanings – all you know if you hear it is that the woman is the focus of the speaker's attention. To be sure of what this sentence means, you have to consider the whole conversational CONTEXT in which the sentence is used, including what information both the speaker and hearer had and what had been said before. In any such context, the meaning of the sentence will be clear to the participants in the conversation.
>
> Munro, Lillehaugen, and Lopez in prep.: Lesson 5

But in TMZ there are far fewer "ambiguous" sentences of this type, because not every object noun phrase can simply be moved to the pre-verbal position (33b). In order to move the object in this case, the marker *làa'* needs to be used (33c). See §1.3.5 for more information about *làa'* and this type of construction.

33. a. B-chìi'by=a' Beed. (TMZ; 5:91)
PERF-scare=1SG Peter
'I scared Peter'

b. *Beed b-chìi'by=a'. (TMZ; 5:91; 5:121)
Peter PERF-scare=1SG
bad with any meaning; e.g. cannot mean 'I scared Pedro' or 'Pedro scared me'

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c. Làa' Beed b-chìi'by=a'. (TMZ; 5:121)
LÀA' Peter PERF-scare=1SG
'I scared Peter'

In SLQZ when a pronoun subject is focused, a free pronoun appears sentence initially, and a pronominal clitic is used after the verb. It is not possible to have only a sentence initial free pronoun without the pronominal clitic, as explained below in a passage from *Cali Chiu*.

> Another way to use free pronouns is when you want to focus a pronoun subject, as in the following examples:
>
> Laëng bguadëng bar mes. "She poked a stick at the teacher."
> Lai cacwanyi zhyet. "He is waking up the cat."
>
> ... When a pronoun subject is focused, the sentence must contain not only the focused free pronoun at the beginning of the sentence, but also the bound pronoun subject attached to the verb. You can never begin a sentence with a focused free pronoun subject without including a bound subject pronoun attached to the verb.
>
> A good way to think of how this works is to remember that any verb with a pronoun subject must have a bound pronoun attached to it. The bound pronoun attached to the verb is what tells you what the subject is. Adding a focused version of the pronoun at the beginning of the sentence is extra. A free pronoun can never be the only indicator of the subject of a sentence that contains a verb.
>
> Munro, Lillehaugen, and Lopez in prep.: Lesson 5

However, in TMZ, this very construction which is ungrammatical in SLQZ is allowed, at least in a some cases. There is much about this construction that I do not know including the range of verbs is can occur with. It also does not seem to be able to occur with the first person singular pronoun, though it can occur with all other pronoun subjects. In addition, as of now it remains an open question as to the semantics of this construction. I don't know exactly how (or if) the examples in (34) differ in meaning from each other.

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34. a. Làa'by n-u'uh gahx:=gah yu'uh (TMZ; 5:103)
3FAM.FP NEU-be near=very house
'He is very near the house'

b. Làa'by n-u'uh=by gahx:=gah yu'uh (TMZ)
3FAM.FP NEU-be=3FAM near=very house
'He is very near the house'

c. N-u'uh=by gahx:=gah yu'uh (TMZ)
NEU-be=3FAM near=very house
'He is very near the house'

The final construction I want to compare is the "topic" construction in SLQZ which involves the use of both a pre-verbal nominal subject and a post-verbal subject clitic, as explained for SLQZ below.

> These sentences all start with names or noun phrases, so they look like ordinary focus sentences. But then they include either a subject or an object pronoun following the verb. This pronoun refers to the noun phrase at the beginning of the sentence. This is called a TOPIC sentence pattern. The name or noun phrase at the beginning is called the topic, usually someone or something that the speaker has already been speaking about. Following the topic is a complete sentence containing a pronoun referring to the topic.
> ...
>
> Ra mninyag bsedya larëng. "These kids, I taught them."
> Jwany bgyai nai. "Juan, he danced yesterday."
> Mazh btaz Chiecw laëng. "Tomas, Chico hit him."
>
> Munro, Lillehaugen, and Lopez in prep.: Lesson 22

Such constructions exist in TMZ (35). More research is required to confirm their use and meaning, but I will take as a starting hypothesis that they function like the topic construction described for SLQZ.

35. Beed b-chìi'by=a' làa'by. (TMZ)
Pedro PERF-scare=1SG 3FAM.FP
'Pedro, I scared him'

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1.3.4.3. Additional constituent order in TMZ

Constituent order overall is consistent with head initial typologies. Adpositions must precede their objects; i.e. they are prepositions. This is true of both component part prepositions (38), and non-component part prepositions (36) and (37); native prepositions (37) and (38) and borrowed prepositions (36). (The different types of prepositions will be discussed in §1.4.3.)

36. a. Jwaany b-guhty bèe'll **cuhnn** **mazheety**. (TMZ)
John PERF-kill snake with machete
'John killed the snake with the machete'

b. *Jwaany b-guhty bèe'll **mazheety** **cuhnn**. (TMZ)
John PERF-kill snake machete with

37. a. Li'ebr rèe' nàa li'ebr **x:tèe'n** **Jwaany**. (TMZ)
book this COP book of John
'This book is John's book'

b. *Li'ebr rèe' nàa li'ebr **Jwaany** **x:tèe'n**. (TMZ)
book this COP book John of

38. a. Bèe'ecw zuu **ni'ih** **me'es**. (TMZ)
dog NEU.stand under table
'The dog is standing under the table'

b. *Bèe'ecw zuu **me'es** **ni'ih**. (TMZ)
dog NEU.stand table under

Possessed noun phrases precede their possessor (39).

39. a. **Ni'ih** **me'es** gwùu'ch. (TMZ)
foot table PERF.break
'The leg of the table broke'

b. ***Me'es** **ni'ih** gwùu'ch. (TMZ)
table leg PERF.break
bad with any meaning; e.g. cannot mean 'The leg of the table broke'

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1.3.5. *Làa'*

The focus morpheme *làa'* and its cognates can be found in many Zapotec language varieties. In SLQZ, this morpheme (when used independently) functions as a focus marker (Munro and Lopez, et al. 1999:149; Munro and Lopez in prep.:112; Lee 1999), as indicated in the dictionary entry below:

> **làà a'** (foc[us]) {followed by n[oun]; *Btàa'aza' làà a' Gye'eihlly, Làà a' Gye'eihlly btàa'aza'* "It was Mike that I hit"; *Tu bìe'd steeby nah, làà a' Lia Pahstiiny èe o làà a' Lia De'sy?* "Who else came, now, Faustina or Modesta?"; *Làa' Gye'eihlly chiia* "It's Mike who's going to go"; *Rro't btàa'az làa' Gye'eihlly* "It was Mike that Rodrigo hit"} § comb[ination form] *làa'* ¶ *làa'la'*...
> §§ *Làà a'* is often, but not always, replaced by the comb[ination form] *làa'* when used before a noun. *Làa'* is always used before a suffix.
> §§ A foc[used] subj[ect] must preceded the v[erb]. A foc[used] non-subj[ect] may precede or follow the v[erb].
> Munro and Lopez, in prep.: 112; Spanish omitted; italics added

Munro and Lopez state (above) that "A foc[used] subj[ect] must precede the v[erb]" (in prep.:112). SLQZ *làà a'* can be used before preverbal subjects to add semantic focus; compare (40b) with (40a).

40. a. **Làa'** **Gye'eihlly** chiia. (SLQZ; Munro and Lopez (ML) in prep.:112)
FOC Mike IRR.go
'It's Mike who will go'

b. Chiia **Gye'eihlly**. (SLQZ)
IRR.go Mike
'Mike will go'

The fact that "a foc[used] non-subj[ect] may precede or follow the v[erb]" (Munro and Lopez in prep.:112) is exemplified below with examples from the dictionary entry where *làà a'* can be used to add focus to a post-verbal (41a) or preverbal (41b) object.

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41. a. B-tàa'az=a' **làà'a'** **Gye'eihlly**. (SLQZ; ML in prep.:112)
PERF-hit=1SG FOC Mike
'It was Mike that I hit'

b. **Làà'a'** **Gye'eihlly** b-tàa'az=a'. (SLQZ; ML in prep.:112)
FOC Mike PERF-hit=1SG
'It was Mike that I hit'

As in SLQZ, a subject can be focused in TMZ by appearing in front of the verb preceded by *làa'* (42c). This is easiest to elicit as a response to a question such as (42d).

42. a. Chiia **Li'eb**. (TMZ; 5:89)
IRR.go Felipe
'Felipe will go'

b. **Li'eb** chiia. (TMZ; 5:89)
Felipe IRR.go
'Felipe will go'

c. **Làa'** **Li'eb** chiia. (TMZ; 5:145b)
LÀA' Felipe IRR.go
'Felipe will go'

d. Tu-nìi' chiia. (TMZ; 5:145b)
who-NÌI' IRR.go
'Who will go?'

However, the use of *làa'* with objects in TMZ seems to be different than in SLQZ. It seems that some instances of the use of *làa'* are conditioned by something other than focus, because in some cases the use of *làa'* before an object is obligatory, as in (43). Thus, in (43b), *Jwaany* can only be interpreted as a subject, since it is not preceded by *làa'*.

43. a. Gùu'ann w-cwani'ih **làa'** **Jwaany**. (TMZ)
bull PERF-kick LÀA' John
'The bull kicked John'

b. Gùu'ann w-cwani'ih **Jwaany.** (TMZ)
'John kicked the bull' / *'The bull kicked John'

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An analysis of *làa'* awaits further research. In this dissertation I gloss TMZ *làa'* when used with objects simply as LÀA' instead of FOC, since my current hypothesis is that focus alone cannot explain paradigms such as those in (43).

1.3.6. Possession

There are two main constructions that can be used to indicate possession. The syntax and morphology of possession in SLQZ has been previously described (Munro and Lopez, et al. 1999 and Munro, Lillehaugen, and Lopez in prep.). Please refer to these works for more detail as I will present only a brief summary of the constructions in TMZ here, and there remain many open questions, especially in regards to which type of possessive construction different nouns can participate in. In the discussion, unless otherwise indicated, I follow the terminology used in Munro, Lillehaugen, and Lopez in prep.

The first type of possession I will discuss is the optional possession construction (§1.3.6.1) in which the word *x:tèe'n* 'of' (or in certain conditions *x:tèe'*) links the possessed noun and possessor (44). The second type is essential possession (§1.3.6.2). In this type of possession, a possessor can directly follow a noun to create a possessed noun phrase, as in (45). The pronominal clitics used to indicate possession (as in (44a) and (45a)) are the same as those used to indicate subjects (§1.3.3).

44. a.	Co'ch	x:tèe'n=a'		nàa	n-quiets. (TMZ; 5:126)
	car	of=1SG		COP	ADJ-white
	'My car is white'				
b.	Co'ch	x:tèe'n	Pa'anfy	nàa	n-quiets. (TMZ; 5:126)
	car	of	Pam	COP	ADJ-white
	'Pam's car is white'				

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45. a.	X:-co'ch=a'		nàa	n-quiets. (TMZ; 5:126)
	POSS-car=1SG		COP	ADJ-white
	'My car is white'			
d.	X:-co'ch	Pa'anfy	nàa	n-quiets. (TMZ; 5:126)
	POSS-car	Pam	COP	ADJ-white
	'Pam's car is white'			

Many types of nouns can participate in both types of possessive constructions, as with 'car' in (44) and (45) above. However, other types of nouns can only participate in essential possession (46).

46. a.	Zh:ii'ny=a'		làa	Danieel. (TMZ; 5:126)
	child=1SG		be_named	Daniella
	'My child is named Daniella'			
b.	*Zh:ii'ny	xtèe'n=a'	làa	Danieel. (TMZ; 5:126)
	child	of=1SG	be_named	Daniella
	bad with any meaning; e.g. cannot mean 'My child is named Daniella'			

1.3.6.1. Optional possession

Optional possession, as mentioned above, uses the word *x:tèe'n* 'of' to link the possessed noun and possessor. Unlike in essential possession, in this type of possessive construction no morphology is ever added to the possessed noun.

The simplest way to express OPTIONAL POSSESSION is to put the word **xten** [x:tèe'n] between the possessed noun and the possessor:

possessed noun	**xten**	**possessor**	
liebr	*xten*	*Bed*	"Pedro's book"
guan	*xten*	*buny*	"the man's bull"
camyuny	*xten*	*-a*	"my truck"

...

OPTIONAL POSSESSION 1
Munro, Lillehaugen, and Lopez in prep.: Lesson 14

X*tèe'* can also be used to link the possessed noun and possessor in an optional possession construction, but only if the possessor is a noun phrase, as described below.

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Here is another optional possession pattern, using **xte** [x:tèe'] instead of **xten**. This pattern is only used when the possessor is a noun phrase (a noun, with or without a modifier, or a name, but not a pronoun).

possessed noun	**xte**	**noun phrase possessor**	
liebr	*xte*	*Bed*	"Pedro's book"
guan	*xte*	*buny*	"the man's bull"

OPTIONAL POSSESSION 2
used only with noun phrase possessors

There is no difference in meaning between these two patterns. **Xte** and **xten** can only be used with optionally possessed items, however, never with members of the family, parts of the body, or certain other items that Zapotec speakers always think of as essentially possessed.

Munro, Lillehaugen, and Lopez in prep.: Lesson 14

As mentioned above, this type of possessive construction is used with things typically identified as alienable, as further explained below.

Optional possession is used to show that someone owns an item or animal that you might think of as possessed or you might not. If you see a bull or a book, it's probably the case that someone owns it, but not necessarily: we can mention the owner, or not, as we choose. In this optional possession pattern, **xten** comes after the possessed noun, before the possessor. If the possessor is a pronoun, you use the same bound pronouns that you use for subjects...

Munro, Lillehaugen, and Lopez in prep.: Lesson 14

1.3.6.2. Essential possession

Certain nouns, including kinship terms and body part terms can only participate in the essential possession construction. They have been called "inalienably possessed" (Munro and Lopez, et al. 1999) and "essentially possessed nouns" (Munro, Lillehaugen, and Lopez in prep.) While the morphological category of inalienable possessed noun seems to be semantically based, there are some perhaps surprising members and non-members of this category. For example *zu'ùu'dy* 'corte (traditional Zapotec woman's wrap-around skirt)' (Munro, Lillehaugen, and Lopez in prep.: Lesson 14) is an essentially possessed

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noun (i.e. it must participate in the essential possession construction and cannot occur without a possessor or in the optional possession construction); and *gyihchi'ihcy* 'hair' is not an essentially possessed noun (Munro, Lillehaugen, and Lopez in prep.: Lesson 14). But most nouns that are essentially possessed are things that would traditionally be classified as inalienable, as described below.

> In Zapotec, it really doesn't make sense to think of a concept like "sister" or "head" without remembering that a sister or a head must be possessed by someone. Although possession is optional with nouns like "bull" or "book", with possessed nouns like "sister" and "head", we have ESSENTIAL POSSESSION. Most nouns that are essentially possessed are kinship terms like "sister" ... or body parts like "head" ...
>
> When you use one of these nouns in a sentence, you must mention its possessor, because these nouns are essentially possessed (we call them E-POSSESSED NOUNS, with e-possessed abbreviated as "e-poss."). **Xte** and **xten** are never used with e-possessed nouns. Here's the pattern used for essential possession:

e-possessed noun	**possessor**	
bel	*Lia Glory*	"Gloria's sister"
bets	*buny*	"the man's brother"
zhinygan	*-ëb*	"her son"

...

ESSENTIAL POSSESSION 1
Munro, Lillehaugen, and Lopez in prep. Lesson 14

1.3.6.2.1. Essential possession of inalienably possessed nouns

Most body and component part nouns in TVZ are obligatorily possessed. They require a possessor, as explained below, which can be expressed with a bound pronominal clitic corresponding to the person and number of the possessor or with a noun phrase or name possessor. This restriction, along with the head initial constituent order, is important to the study of component part locatives in TVZ, because component part prepositional phrases can be phonetically ambiguous with possessed noun phrases, since

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the object of the preposition follows the preposition and the possessor of the body or component part follows it.

> E-possessed nouns have to be used with a possessor... Zapotec speakers often do not even like to say e-possessed nouns without mentioning a possessor. If you ask a speaker how to say an e-possessed word like "stomach", he or she may say **lany buny** "a person's stomach", to avoid saying the word by itself. Thus, if you use a word like **lany** without a possessor, you probably won't be speaking good Zapotec.
>
> Munro, Lillehaugen, and Lopez in prep,: Lesson 14

1.3.6.2.2. Essential possession of alienably possessed nouns

It is also possible to use the essential possession construction to talk about the possession of non-essentially possessed nouns. To do this the possessed noun must first be turned into an essentially possessed noun through morphology, as explained below.

> Another way to talk about the possession of optionally possessed items is to change these nouns into e-possessed nouns:
>
> | | |
> |---|---|
> | xliebr Bed | "Pedro's book" |
> | xcuan buny | "the man's bull" |
> | xcamyunya | "my truck" |
>
> ...
>
> These examples use the same possessed noun phrases you saw in §14.1, but each possessed noun has a prefix **x-** [x:], and there is no **xten** or **xte** before the possessor, which appears right after the possessed noun, in the following pattern:
>
> | **x-** | **possessed noun** | **possessor** |
> |---|---|---|
> | | **e-possessed noun** | |
> | *x-* | *liebr* | *Bed* |
> | *x-* | *cuan* | *buny* |
> | *x-* | *camyuny* | *-a* |
>
> ...
>
> ESSENTIAL POSSESSION 2
>
> When the **x-** prefix combines with the possessed noun, this forms a new e-possessed noun. The possessed nouns in these phrases (the ones starting with the prefix **x-**) are e-possessed, so they must have a possessor. Although **liebr** "book" is an ordinary noun, whose possessor the speaker may choose to mention or not, **xliebr** is an e-possessed noun. Just like the e-possessed kinship terms and body parts, an e-possessed noun like **xliebr** cannot be used in a sentence without

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mentioning the possessor, and speakers may be reluctant to say this word on its own.

Munro, Lillehaugen, and Lopez in prep,: Lesson 14

(47) is an example of this construction in TMZ, where the alienable noun *amiu* 'friend' has been turned into an essentially possessed noun with the addition of the *x:-* prefix, and can now participate in the essential possession construction.

47. Chi'c g-uhc niilly **x:-amiu** **mìi'iny**. (TMZ; Zhat:35)
then PERF-be mole POSS-friend child
Then the mole became the child's friend.

While this morphological process is fairly productive and most nouns seem to be able to participate in essential possession, some seem to be inappropriate, as the attempt to use essential possession to possess the borrowed noun *Mini* in Figure 8. (The exact reason that this is inappropriate is not clear to me. Certainly borrowed words can participate in this process, as shown in (47).)

Do not attempt this at home! Here's a California license plate [Figure 8] that says "my Mini" in Valley Zapotec – but not all speakers feel that using the **x-** prefix on this kind of borrowed word is appropriate.

Munro, Lillehaugen, and Lopez in prep.: Lesson 14

Figure 8. xminia: inappropriate essential possession

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1.3.7. Demonstratives

TVZ languages have several sets of demonstratives, the full syntax and semantics of which I will not discuss here.

Like SLQZ (Munro and Lopez, et al. 1999; Munro, Lillehaugen, and Lopez, in prep.) TVZ has the demonstrative adverbs *rèe* 'there' and *rèe'* 'here'.

rèe 1. there; 2. that (dem. adj.) {*bùunny rèe* "that person"}; 3. that, that one (property) (dem. pron.) {*Rro'd bzìii' rèe* "Rodrigo bought that one (that land, that house)"
§§ R- dem. are primarily used as adj. As pron., they refer only to real property.
...
rèe' 1. here {*A lìu' zìe'dùu' rèe'* "Here you come"}; 2. this (not so close) (dem. adj.) {*bùunny rèe'* "this person"}; 3. this, this one (property) (dem. pron.) {*Rro'd bzìii' rèe'* "Rodrigo bought this (this house, this land) ...
§§ R- dem. are primarily used as adj. As pron., they refer only to real property.
Munro and Lopez, et al..:248; Spanish omitted, italics added

In TMZ these *r*-demonstratives are also demonstrative adjectives meaning 'this' and 'that' respectively, and can occur after noun phrases. *Rèe'* 'here' is very common, appearing at the end of the most common first person pronoun (§1.3.3.1) and often appears with the word for 'today', as in (48). I do not know if the *r*-demonstratives can function as demonstrative pronouns in TMZ in the limited sense described above for SLQZ.

48. Nah-zhih **rèe'** g-ùuly=ni' làa'any lahahzh Dabi'd (TMZ; Nav:21)
now-day this PERF-be_born=3REV in hometown David
'Today he was born in David's hometown'

SLQZ also has the *r*-demonstrative pair *re'nn* and *rèenn*. These do not occur in TMZ:

re'nn 1. this (very close) (dem[onstrative] adj[ective]) {*bùunny re'nn* "this person"}; 2. here; 3. this, this one (property) (dem[onstrative] pron[oun]) {*Rro'd bzìii' re'nn* "Rodrigo bought this (this land, this house)"}
... §§ R- dem[onstratives] are primarily used as adj[ectives]. As pron[ouns], they refer only to real property.
...
rèenn 1. that (dem[onstrative] adj[ective]); 2. there; 3. that, that one (property)

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(dem[onstrative] pron[oun])
... §§ R- dem[onstratives] are primarily used as adj[ectives]. As pron[ouns], they refer only to real property.

Munro and Lopez, et al. 1999:248; Spanish omitted, italics added

SLQZ also has the demonstrative adverb pair *ru'c* here (Munro and Lopez, et al. 1999:269) and *ri'cy* 'there' (Munro and Lopez, et al. 1999:268). While I do not know if TMZ has *ru'c*, *ri'cy* 'there' is attested, e.g. (49).

49. G-u'uh to'ohby rsoon deh queh n-u'uh=da=b **ri'cy**
PERF-be one news of that NEU-be=PL=3RESP there

b-zëhnny zhih nih g-àal bdòo'. (TMZ; Nav:13)
PERF-arrive day REL PERF-be_born baby

'There was a story that when they were there the day arrived that the baby was born'

TVZ also has a set of *n*-demonstratives: TMZ has the demonstrative pair *nndèe'* 'this' and *nndèe* 'that', which also occur in SLQZ:

nndèe that, that one (dem[onstrative] pron[oun]) § pl[ural] *ra nndèe*
...
nndèe' this, this one (dem[onstrative] pron[oun]) § pl[ural] *ra nndèe'*
§§ Prox[imate] dem[onstrative] pron[ouns] are not generally used to refer to hum[ans] because such reference to people nearby is considered impolite.

Munro and Lopez, et al. 1999:194; Spanish omitted, italics added

In TMZ these demonstratives can also function as demonstrative pronouns meaning 'this; this one' (50a) and 'that; that one' (50b).

50. a. **Nndèe'** nàa to'ohby istoory x:tèe' to'ohby mìi'iny
this COP one story of one child

nih w-ni'ihty zh:àa'at x:tèe'n=nìi' (TMZ; Zhat:1)
REL PERF-lose toad of=3ANAP

'This is a story of a child who lost his toad'

b. **Nndèe** g-a'c to'ohby se'nny pahr làa'tuu' (TMZ; Nav:32)
that IRR-be one sign for 2INF.PL.FP
'That will be a sign for you'

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In TMZ they may also function as demonstrative adjectives: *nndèe'* 'this' (51a) and *nndèe* 'that' (51b).

51. a. **Nndèe'** bèe'cw nàa n-gaàa'ts. (TMZ; 5:125)
this dog COP ADJ-yellow
'This dog is yellow'

b. **Nndèe** bèe'cw nàa n-gaàa'ts. (TMZ; 5:125)
that dog COP ADJ-yellow
'That dog is yellow'

SLQZ also has the demonstrative pair *nnde'nn* and *nndèenn* which don't occur in TMZ:

nnde'nn this, this one (dem[onstrative] pron[oun]) {*Nnde'nn nàa ca'rr nih bzìii' Rro'd* "This is the car that Rodrigo bought"; *Mnnaàa' loh nnde'nn* "I saw this one"} § pl[ural] *ra nnde'nn*
§§ Prox[imate] dem[onstrative] pron[ouns] are not generally used to refer to hum[ans] because such reference to people nearby is considered impolite.
...
nndèenn that, that one (dem[onstrative] pron[oun]) {*Nndèenn guzàa'll x:cùu'ann-ni'* "That one lost his bull"} § pl[ural] *ra nndèenn*
Munro and Lopez, et al. 1999:194; Spanish omitted, italics added

The final pair of demonstratives that I will discuss are enclitics, and unlike most other pairs of demonstratives are not tone / phonation pairs with each other. They are =*ca* 'this' (52a) and =*qui* 'that' (52b; 53).

52. a. bèe'ecw=ca (TMZ; 5:145c)
dog=this
'this dog'

b. bèe'ecw=qui (TMZ; 5:145c)
dog=that
'that dog'

53. a. Per làa'any guêêë'dy=**qui** b-rììa' to'ohby niilly. (TMZ; Zhat:34)
but in hole=that PERF-leave one mole
'But a mole went out of that hole'

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b. N-u'uh da pastoor lugaar=**qui** (TMZ; Nav:19)
NEU-be PL shepherd place=that
'There were shepherds in that place'

SLQZ does have a pair of clitic demonstratives, which may be cognate to the demonstratives above: they share some phonetic similarity, but I am not sure if they are related: =*ahg* 'this' and =*ih* 'that':

=ahg, =g 1. this (n[oun] cl[itic]) {*bèe'cwag* "this dog"}; 2. himself, herself, itself, themselves (n[oun] cl[itic]) {*Gye'illyag bèèi'ny nìi* "Mike himself did it"}
Munro and Lopez, in pre.:52; Spanish omitted, italics added

=ih 1. (3sg. dist[al] cl[itic]); 2. that {*bèe'cwih* "that dog"}; 3. (3sg. dist[al] obj[ect] cl[itic]) § pron. *la'ai*
Munro and Lopez, et al. 1999:139; Spanish omitted, italics added

1.3.8. Verbs

Verbal morphology in TVZ is rather complex, and I will not discuss it much in this dissertation. To get a feeling for the bigger picture, see the description of verb forms from the SLQZ dictionary below.

> SLQZ verbs are inflectionally very complex, usually consisting of an aspectual prefix plus a theme (forming an aspectual stem), with optional pronominal clitics to indicate all non-third person subjects and third person subjects (in the absence of overt nominal subjects), and clitics indicating certain third person objects; additionally, verb stems may be augmented by adverbial or valence clitics or suffixes and compounded elements that come between the theme and any pronominal clitics. Verbs themes themselves may be complex, containing, for example, causative and directional elements prefixed to simple roots.
> Munro and Lopez, et al. 1999:13

Like SLQZ, verbs in TMZ begin with an aspect prefix (in bold in the examples below), such as habitual (54a), perfective (54b), or irrealis (54c).

54. a. Narèe' **r**-la'ab=a' bë'ëhdy gui'idy raa zh:ih. (TMZ; 3:5)
1SG.FP HAB-count=1SG chicken hen all day
'Every day, I count chickens'

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b. Narèe' **b**-la'ab=a' bë'ëhdy gui'idy nài'. (TMZ; 3:5)
1SG.FP PERF-count=1SG chicken hen yesterday
'Yesterday, I counted chickens'

c. Narèe' **y**-la'ab=a' bë'ëhdy gui'idy zhii. (TMZ; 3:3)
1SG.FP IRR-count=1SG chicken hen tomorrow
'Tomorrow, I will count chickens'

I haven't yet investigated the meanings of the TMZ aspect markers in detail, although this is something I hope to do in the future. That said, I also have not noticed any major differences from the description for the meaning and use of aspect markers in SLQZ (e.g. Munro and Lopez, et al. 1999; Munro, Lillehaugen, and Lopez in prep.). In Table 10, I present a simplified summary of the meaning of aspect markers in SLQZ. Please note that this does gloss over some complications, especially in regards to the definite aspect and z-progressive aspects. For details on this please see the dictionary (Munro and Lopez, et al. 1999) and *Cali Chiu* (Munro, Lillehaugen, and Lopez in prep.). Nevertheless, this chart should give the reader the necessary background for understanding the basics of the aspect system for the purposes of this dissertation.

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Aspect	Meaning / Use	Forms	Example
habitual	habitual; inchoative; negative imperatives	r-	**ra**'ahcw 'puts on (a shirt)'
perfective	action anterior to some reference point; non-negative imperatives with singular informal subjects	b-, gw-, gu-, w-, m-	**gwu**'aht 'put on…'
irrealis	event that is unaccomplished at some reference point; negative imperatives (forbidding events that have not yet begun)	y-, g-, c-, ch-, il-, ily, in-, iny-, l-, qu-	**ga**'acw 'will put on…'
progressive	event that is in progress relative to some reference point (can also occur with stative verbs)	ca-, cay-, cagy-	**caya**'ahcw 'is putting on…'
definite	definite, certain future	s-, z-	**za**'ahcw 'will surely put on…' **zeheh** 'will surely go…'
z-progressive	past motion events	s-, z-	**zèe** 'was going…'
subjunctive	subjunctive, usually in complement clauses	n-, ny-	**nya**'ahcw '(if…) had put on…'
neutral	habitual or stative meaning (usually only occurs with auxiliary-like verbs and positional verbs)	n-, m-	**naa**'cw 'is wearing…'

Table 10. aspect markers in SLQZ (data from Munro and Lopez, et al. 1999:16-17; and Munro, Lillehaugen, and Lopez in prep.: Lesson 21 and 22)

1.3.9. Conjunction

In the following sections I discuss conjoining noun phrases (§1.3.9.1) and verb phrases (§1.3.9.2).

1.3.9.1. Conjoining noun phrases

There are several ways to conjoin noun phrases. They can be juxtaposed (55), with no overt marking of coordination. They can be coordinated with the clitic *=neh* (56) and with the borrowed conjunction *cohnn* 'with' (and its phonological variants) (57). In the examples below, the phrases being coordinated are in boxes.

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55. a. N-u'uh co'ohb, gueht. (TMZ; Sa:7)
NEU-be masa tortilla
'There is tejate and tortillas'

b. Z-êi'd=nèe bìinny bë'ëhdy nguhahll,
DEF-come=with people turkey male

zh:o'ob, mêëëlly, su'rc. (TMZ; Mardom:8)
corn money sugar

'People will bring turkeys, corn, money, and sugar'

56. B-dìi'ny loh Dyooz zhaybààa' tèe' ch-u'uh pa'z=**neh**
PERF-ask from God heaven COMP IRR-be peace=and

gahll-na-za'c pahr da bìinny loh gax:lyuh! (TMZ; Nav:39)
NOM-ADJ-good for PL person on world

'Blessings from God in heaven such that there will be peace and goodness for the people on earth!'

57. Chih b-dzhìe'lly=da=b
when PERF-find=PL=3RESP

làa' Mariia **quëhnn** Wsee **quëhnn** bdòo' (TMZ; Nav:50)
LÀA' Maria with Jose with baby

'Then they found Mary and Joseph and the baby'

1.3.9.2. Conjoining verb phrases

TMZ appears to differ from SLQZ in the way that verb phrases can be conjoined. In SLQZ there must be an overt nominal subject for each of the verbs, while in TMZ it seems that if the subject of the second verb is the same as the subject of the first verb, it can be omitted.

58. a. Chi'c b-rìia' mìi'iny s-to'ohby laad
then PERF-leave child DEF-one side

gwatèe'az làa' bèe'ecw. (TMZ; Zhat:24)
PERF.AND.hug LÀA' dog

'Then the child went out the other side and went and hugged the dog'

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b. Z-èe dyee'p yaàa' **sanàall** làa' bèe'ecw (TMZ; Zhat:39)
ZPROG-go wasp up DEF.follow LÀA' dog
'The wasps went and were following the dog'

c. Chi'c b-zh:êë'nny bzêëny
then PERF-run deer

z-àa=nèe làa' mìi'iny làa'any x:-ca'ch=nìi'. (TMZ; Zhat:56)
ZPROG-go=with LÀA' child in POSS-horn=3ANAP

'Then the deer ran and took the child in his antlers'

While in many instances the first verb in such constructions is a motion verb (58) and (61), this is not always the case. In (59) the first verb is 'lose' and in (60) the first verb is 'bark', neither of which are motion verbs.

59. Ndèe' nàa to'ohby istoory x:tèe' to'ohby mìi'iny nih w-ni'ihty
this COP one story of one child REL PERF-lose

zh:àa'at x:tèe'n=nìi', **zuu** guë'ëhcy to'ohby gyahg
toad of=3ANAP NEU.stand on one tree

ca-bëhzhàa'a=ni'ih, "Zh:àa'at cu'un=ùu', zh:àa'at?" (TMZ; Zhat:1)
PROG-yell=3PRX toad where=2INF toad

'This is a story of a child who lost his toad, standing on a log, he was yelling, "Toad, where are you, toad?'

This construction is only possible if the subject is nominal (60) and (61); if the subject in question is a pronoun (60b) and (61b), this construction is not permitted (60c) and (61c).

60. a. Chi'c bèe'ecw ca-du'uhx **ca-wìii'** loh to'ohby bteheh
then dog PROG-bark PROG-look to one hive
(TMZ; Zhat:36)
'Then the dog was barking and looking at a hive'

b. Ca-du'uhx=mma **ca-wìii'=mma** loh bteheh (TMZ; 5:91)
PROG-bark=3AN PROG-look=3AN to hive
'It's barking and looking at the hive'

c. *Ca-du'uhx=mma **ca-wìii'** loh bteheh (TMZ; 5:91)
bad with any meaning; e.g. cannot mean 'It's barking and looking at the hive'

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61. a. b- rìia' to'ohby da'amm **b-chiiby** làa' mìi'iny
PERF-leave one owl PERF-scare LÀA' child
(TMZ; Zhat:41)
'an owl came out and scared the child'

b. B- rìia'=mm **b-chiiby=mma** làa' mìi'iny (TMZ; 5:91)
PERF-leave=3AN PERF-scare=3AN LÀA' child
'It came out and scared the child'

c. *B- rìia'=mm **b-chiiby** làa' mìi'iny (TMZ; 5:91)
bad with any meaning; e.g. cannot mean 'It came out and scared the child'

As of now, I do not have an analysis of this construction. Let me just point out another construction that may be relevant, i.e. relative clauses. Some relative clauses, e.g. (62), also have an apparently subject-less verb (in bold) whose semantic subject occurs previously in the sentence (boxed).

62. a. Ndèe' nàa to'ohby istoory x:tèe' to'ohby mìi'iny
this COP one story of one child

nih **w-ni'ihty** zh:àa'at x:tèe'n=nìi' (TMZ; Zhat:1)
REL PERF-lose toad of=3ANAP

'This is a story of a child who lost his toad'

b. N-u'uh da pastoor lugaar=qui nih
NEU-be PL shepherd place=that REL

r-ahp do'oby guèèe'll làa' da zhi'ìi'lly. (TMZ; Nav:17)
HAB-look_after whole night LÀA' PL sheep

'There were shepherds in that place who were taking care of sheep the whole night'

1.4. Introduction to expressing location

The following terms will be used throughout the dissertation: Figure, Ground, and locative construction. A locative construction is any sentence or phrase that expresses a

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locative relationship. I consider both of the sentences in (63) to be locative constructions; however, they have very different characteristics.

63. a. The cat is on the table.
    b. The cat on the table is staring at me.

In (63a) the locative relationship is asserted, and the relationship is between two entities: *cat* and *table*. In (63b), the phrase *the cat on the table* shows that a locative relationship need not be asserted in a locative construction, but rather can be presupposed. For the most part, the discussion in this dissertation will concern sentences of the type (63a), where one entity is being located in reference to another entity.

The term Figure, as defined in (64), refers to the entity being located in a locative construction. For example, in (63), *cat* is the Figure in both examples.

64. *Figure*: the entity being located in a locative construction, e.g. *cat* in *the cat is on the table*.

My use of Figure is compatible with Talmy's definition of the same term (below), Levinson's (2003) use of the same term (further below), and Langacker's "trajectory" (1987).

> The Figure is a moving or conceptually moveable entity whose site, path, or orientation is conceived as a variable the particular value of which is the relevant issue
>
> Talmy 2000a: 184

> ...the thing to be located is the figure...
>
> Levinson 2003:65

Although I will utilize examples like (65) on occasion in this dissertation, I will not specify what the Figure is in sentences like these.

65. The dog was sleeping under the table yesterday.

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The term Ground, defined in (66), refers to the entity in a locative construction that the Figure is being located in reference to. In the examples in (63) the Figure *cat* is being located in reference to the Ground *table*.

66. *Ground*: the entity that the Figure (or an event) is being located in reference to, e.g. *table* in *the cat is under the table*.

My use of Ground is compatible with Talmy's (2000a) definition "Ground" and "Reference Object" (below); Levinson's (2003) use of the same term (further below); and Langacker's "landmark" (1987).

> The Ground is a reference entity, one that has a stationary setting relative to a reference frame, with respect to which the Figure's site, path, or orientation is characterized. In a linguistic context, the term Reference Object may at times be more suggestive than Ground and will be used interchangeably with it from now on.
>
> Talmy 2000a:184

> ...the thing with respect to which something is located is the ground...
>
> Levinson 2003:65

Consider (67), where the Figure *dog* is not being located in reference to an entity, but rather is being located deictically with an adverbial demonstrative. For the purposes of this dissertation, unless otherwise specified, I will use the term Ground for referential Grounds only (i.e. excluding deictic Grounds).

67. The dog is over there.

1.4.1. The basic locative construction

In this section I offer a preliminary definition of the basic locative construction, which will be refined further in Chapter 5, and discuss the specific form of the basic locative construction in TVZ. The basic locative construction is a complete sentence which

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asserts the location of a Figure in relation to a Ground, (68). In the basic locative construction both the Figure and the Ground should be full, lexical noun phrases.

68. *Basic locative construction:* A complete sentence which asserts the location of a Figure in relation to a Ground. The Figure and the Ground should be full, lexical (i.e. non-pronominal) noun phrases. *[preliminary definition; see §5.2 for revised definition]*

1.4.1.1. The basic locative construction in TVZ

The basic locative construction is an operationally defined construction whose actual form is language specific. The basic locative construction in TVZ can be schematized as in (69) (with variations discussed below). It consists of a Figure followed by a positional verb followed by a locational phrase. (Positional verbs will be discussed in detail in Chapter 5.) The Figure is the subject of the positional verb.

69. Figure – Positional Verb – Locational Phrase (basic locative construction in TVZ)

The locational phrase (which is represented in bold in (70) – (72)) may be instantiated in various ways. For example, it may consist of a component part prepositional phrase ((70); see §1.4.3.1 and Chapter 2 for discussion of component part prepositions), a non-component part prepositional phrase ((71); differences between types of prepositional phrases are discussed in §1.4.3), or an adverbial demonstrative (72). For locational phrases that are prepositional phrases the object of the preposition is the Ground. Various other types of phrases may also function as locative phrases in Zapotec, for example proper place names and the possessed form of 'house' (Munro 2005; cf. §1.4.4).

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70. Figure Positional Verb Locational Phrase = component part PP

Bote'iy	zuu	**loh**	**me'es**. (TMZ; 5:147)
bottle	NEU.stand	on	table

'The bottle is (standing) on the table'

71. Figure Positional Verb Locational Phrase = non-component part PP

Do'ctoor	zu'bga'ah	**tráhsdeh**	**gyahg**. (SLQZ; CC*)
doctor	NEU.sit	behind	tree

'The doctor is (sitting) behind the tree'
*(adapted from *Cali Chiu* (Munro, Lillehaugen, and Lopez, in prep.; henceforth CC in examples), Lecsyony 18; henceforth CC18 in examples)

72. Figure Positional Verb Locational Phrase = adverbial demonstrative

Ra bote'iy	zuu	**rèe**. (SLQZ; CC18)
PL bottle	NEU.stand	there

'The bottles are (standing) there.'

1.4.1.2. Variations of the basic locative construction

The are several variations of the basic locative construction in TVZ.

The basic locative construction may differ in word order. Another common word order is *Locational Phrase – Positional Verb – Figure*, as in (73) below.

73. Locational Phrase Positional Verb Figure

Loh	me'es	zuu	bote'iy. (TMZ; 5:147)
on	table	NEU.stand	bottle

'The bottle is (standing) on the table'

A less common but possible word order in TVZ is *Positional Verb – Figure – Locational Phrase*, as in (74).

74. Positional Verb Figure Locational Phrase

Zuu	bote'iy	loh	me'es. (TMZ; 5:147)
NEU.stand	bottle	on	table

'The bottle is on the table.'

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There are additional variants of basic locative construction as well; for instance some begin with a particle or demonstrative adverb. The particle *a* (bolded below) is often used at the beginning of locative sentences in SLQZ (75). This can also occur in TMZ, although my impression is that it is less frequent than in SLQZ. (I use underlining in the English translation to represent focus.)

75. Particle	Figure	Positional Verb	Locational Phrase	
A	bote'i	zuu	loh	me'es. (SLQZ)
PART	bottle	NEU.stand	on	table

'There's a bottle (standing) on the table' / 'The bottle is (standing) on the table'

A	bèe'cw	zubga'ah	dehts	me'es. (SLQZ, CCL18)
PART	dog	NEU.sit	behind	table

'The dog is (sitting) behind the table' / 'There's a dog (sitting) behind the table'

This particle is a bit mysterious, and occurs in a wide range of constructions. The SLQZ dictionary defines this particle as follows: "(used before some preverbal subj[ects] with a-pred[icates] or non-irr[ealis] v[erbs]; emphatic?)" (Munro and Lopez, et al. 1999:49). In *Cali Chiu* (Munro, Lillehaugen, and Lopez in prep.) this particle is defined and explained in the chapter dealing with expressing location, in reference to its use in locational sentences:

> Putting **a** before a focused subject of a locational sentence can express two meanings. Often this type of sentence corresponds to ordinary focus, and might be used to answer a "where?" question. Sometimes, though, these **a** sentences are more like English "there" sentences.
>
> Munro, Lillehaugen, and Lopez in prep.: Lesson 18

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1.4.2. The basic locative question

A basic locative question is a question used to ask 'Where is the *Figure*?' There are two types of basic locative questions in TVZ. The first, presented in (76), involves an initial question word 'where', followed by a positional verb, followed by the Figure.

76. Where Positional Verb Figure

Cali	zuu	bote'iy? (TMZ; 4:122)
where	NEU.stand	bottle

'Where is the bottle?'

The second type of the basic locative question in TVZ uses a question word but no verb, as in (77).

77. Where Figure

Cu'an	bote'iy? (TMZ; 4:122)
where	bottle

'Where is the bottle?'

The question word *cali* must always be used with a verb (78b) and the question word *cu'an* cannot be used with a verb (78a).

78. a. ***Cu'an** zuu bote'iy? (TMZ; 5:92)
where NEU.stand bottle
bad with any meaning; e.g. cannot mean 'Where is the bottle?'

b. ***Cali** bote'iy? (TMZ; 5:93)
where bottle
bad with any meaning, e.g. cannot mean 'Where is the bottle?'

Sonnenschein (2005) states that in San Bartolomé Zoogocho Zapotec (SBZZ), the different types of basic locative questions elicit different types of responses. If the variant with a positional verb is used, the response is just a locational phrase, as in (79a). The positional verb used in the question is implicit in the response. (This means that the Figure, i.e. the subject of the positional verb, must satisfy the various restrictions the verb

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puts on its subject. For a detailed discussion of positional verbs and such restrictions in TVZ, see Chapter 5, and in SBZZ see Sonnenschein 2005: 172-176). Sonnenschein states that the response to this kind of basic locative question "presupposes the figure and the position"; for this reason no positional verb or subject is used, and the response consists only of a locative phrase (2005:122). If the form of the basic locative question without a positional verb is used in SBZZ, the response will be sentential, complete with subject, positional verb, and locational phrase, as in (79b).

79. a. lhoo yixe (SBZZ; Sonnenschein 2005:123)
in grass
'in the grass'

b. Dxi=ba lhoo yixe. (SBZZ; Sonnenschein 2005:123)
stative.sit=3AN in grass
'It's sitting in the grass'

Although I have only briefly looked at responses to 'where' questions in TMZ, I have not noticed such a preference with my consultant. For example, I asked him what an appropriate answer might be to (80a) and he volunteered (81a) and (81b). I asked if (81c) and (81d) would be okay answers to (80a) and he said they would. Then I asked him (80b) and asked him to reply with a response. Again, he gave (81a) and (81b). So, again, I asked if (81c) and (81d) would be okay responses to (80b) and he said they would. Certainly further investigation is warranted here, but initially it seems as though the two types of 'where' questions can be answered the same way in TMZ.

80. a. **Cali** zuu bèe'ecw? (TMZ; 5:93)
where NEU.stand dog
'Where is the dog?'

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b. **Cu'an** bèe'ecw? (TMZ; 5:93)
where dog
'Where is the dog?'

81. a. Bèe'ecw zuu rèe'. (TMZ; 5:93)
dog NEU.stand here
'The dog is here'; volunteered as an answer to (80a) and (80b)

b. Bèe'ecw zuu dehts yu'uh. (TMZ; 5:93)
dog NEU.stand behind house
'The dog is behind the house'; volunteered as an answer to (80a) and (80b)

c. dehts yu'uh (TMZ; 5:93)
behind house
'behind the house'; accepted as an answer to (80a) and (80b)

d. rèe' (TMZ; 5:93)
here
'here'; accepted as an answer to (80a) and (80b)

1.4.3. Prepositions

TVZ has different classes of prepositions. The most common way of classifying these prepositions is by the type of pronominal object they take. In SLQZ the two types of prepositions are preposition "prep." and Spanish preposition "Sp. prep.".

> **Prepositions**. There are two classes of Zapotec prepositions. Many basic prepositional ideas are expressed with body part words...; the prepositional object is expressed either with a possessive pronominal agreement clitic or with an overt noun following the preposition. Such prepositions... are identified in the Dictionary as "prep.". The second class of Zapotec prepositions, all borrowed from Spanish... and identified in the Dictionary as "Sp. prep.", express their objects similarly to verbal objects (with a following pronoun or overt nominal). Both types of prepositional phrases, rather similarly to English prepositional phrases, generally do not need to be licensed in any special way by the verb of their clause.
>
> Munro and Lopez, et al. 1999:24

In *Cali Chiu* this same distinction is made between "native prepositions", which take bound pronouns as objects and "Spanish prepositions" which take free pronouns as

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objects. These syntactic classes in general align with the etymology conveyed in their names, but not always, i.e. there are "native prepositions" which have been borrowed from Spanish.

> Zapotec has two types of prepositions. One group of prepositions, which includes **cuan**, **par**, **trasde**, and a number of others, are primarily words that were borrowed from Spanish — we'll refer to these as SPANISH PREPOSITIONS. Objects of Spanish prepositions can be expressed with free pronouns:
>
> | | |
> |---|---|
> | cuan na | "with me" |
> | par yuad | "for you (form. pl.)" |
> | trasde lai | "behind it (dist.)" |
>
> ...But most Zapotec location phrases use NATIVE PREPOSITIONS, not Spanish prepositions. Normally, a native preposition is a Zapotec word (not a borrowed word)... The major difference between native and Spanish prepositions concerns how you express prepositional objects that are pronouns... With native prepositions, ... you have to use a bound pronoun to express a prepositional object:
>
> | | |
> |---|---|
> | Detsa zubga Jwany. | "Juan is (sitting) <u>behind me</u>." |
> | Zugwa Lia Len loo. | "Elena is (standing) in front of you." |
>
> ...Although most native prepositions are not borrowed, this is not always true. Here's another new native preposition.
>
> | | |
> |---|---|
> | Puan gyag zubga many. | "The bird is sitting at the top of the tree." |
> | Puani zubga many. | "The bird is sitting at the top of it." |
>
> **Puan** [pu'ann] "on the peak of, at the top of" is a word that is borrowed from Spanish, but it is considered a native preposition, since, like native prepositions and unlike Spanish ones, it is used with bound pronoun objects rather than free ones, as the second example shows.
>
> Munro, Lillehaugen, and Lopez in prep.: from Lesson 18

I will use the terms "native preposition" and "borrowed preposition" to refer to the two classes of prepositions as described in Munro, Lillehaugen, and Lopez (in prep.) and Munro and Lopez, et al. (1999) above.

In the following sections I introduce the various types of prepositions: component part prepositions, a type of native preposition (§1.4.3.1; which are treated only briefly

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here, being the main subject of Chapters 2 - 4); native non-component part prepositions (§1.4.3.2); and borrowed prepositions (§1.4.3.3).

1.4.3.1. Component part prepositions

TVZ has component part prepositions that are derived from component part nouns. Most of the component part nouns which have been grammaticized as prepositions are body parts, such as *ni'ih* 'foot; under' (82), and elsewhere (e.g. Lillehaugen 2003) I have referred to these prepositions as body part prepositions.

82. a. R-ahc **ni'ih** Jwaany. (TMZ; 5:94)
HAB-hurts foot John
'John's foot hurts'

b. Narèe' n-u'=a' **ni'ih** me'es. (TMZ; 5:94)
1SG.FP NEU-be=1SG under table
'I am under the table'

However, it is not only body parts which have grammaticized in this way, but also other types of component parts, such as words for 'peak' (84). For this reason, I think a better term for these is "component parts", which includes both the body parts and other compositional parts.

All component part prepositions take clitic pronouns (83b) to specify their objects, thus classifying them as a "native prepositions".

83. a. Narèe' n-u'=a' **dehts** me'es. (TMZ)
1SG.FP NEU-be=1SG behind table
'I am behind the table'

b. Narèe' n-u'=a' **dehts**=nii'. (TMZ)
1SG.FP NEU-be=1SG behind=3PROX
'I am behind it'

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c. Narèe' n-u'=a' **dehts** làa'nìi'. (TMZ)
1SG.FP NEU-be=1SG behind 3PROX.FP
bad with any meaning; e.g. cannot mean 'I am behind it'

Although all component part prepositions are classified as "native prepositions" (because they take clitic pronoun objects) some are borrowed Spanish words, such as *pu'unnt* from Spanish *punta* 'tip' (84).

84. a. **Pu'unnt** me'es gwùu'ch. (TMZ; 5:26)
end table PERF.break
'The end of the table broke'

b. B-zêëb=a' li'ebr **pu'unnt** me'es. (TMZ; 5:25)
PERF-put=1SG book at_end_of table
'I put the book at the end of the table'

c. B-zêëb=a' li'ebr **pu'unnt**=nìi'. (TMZ; 5:25)
PERF-put=1SG book at_end_of=3PRX
'I put the book at the end of it'

d. *B-zêëb=a' li'ebr **pu'unnt** làa'nìi'. (TMZ; 5:25)
PERF-put=1SG book at_end_of 3PRX.FP
bad with any meaning; e.g. cannot mean 'I put the book at the end of it'

The cognate to *pu'unnt* in SLQZ is also identified as a native preposition, as discussed above.

I present arguments for the syntactic status of component part locatives as prepositions in Chapter 2.

1.4.3.2. Native non-component part prepositions

All TVZ speech varieties (and most likely all Zapotec languages) have non-component part prepositions. Some of these are borrowed (§1.4.3.3), but many are native, such as *x:tèe'n* and *x:tèe'* 'of, about', which can be used in possessive constructions (§1.3.6), but can be used in non-possessive contexts as well, as in (85).

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85. Li'ebr rèe' nàa li'ebr x:tèe' ra rraan. (SLQZ; ML in prep.:363)
book this COP book about PL frog
'This book is a book about frogs'

Table 11 lists some native non-component part prepositions in TMZ, and Table 12 shows additional native-non component part prepositions in SLQZ. (These tables are not mean to be exhaustive.)

TMZ	gloss
gahx:	near, close to
x:tèe'	of, about
x:tèe'n	of, about

Table 11. Some native non-component part prepositions in TMZ

SLQZ	gloss
càa'nta'	along, by
gagyèe'i	around
gayààa'	along the edge of, around
làì'	through (a group); among; into the middle of

data from Munro 1998, p.c.; Munro and Lopez, et al. 1999

Table 12. Some native non-component part prepositions in SLQZ

All the TVZ native non-component part prepositions take as their object either an overt nominal or a bound pronominal clitic, i.e. they do not take free pronouns as objects.

1.4.3.3. Borrowed prepositions

All TVZ speech varieties also have prepositions which have been borrowed from Spanish. Two such examples from TMZ can be seen in (86).

86. a. Chi'cy gw-eheh Wsee **a'st** Bele'nng (TMZ; Nav:7)
then PERF-go Joseph until Bethlehem
'Then Joseph went to Bethlehem'

b. **Dehsdeh** ante-byi'spr zëhnny bìinny. (TMZ; Mardom:6)
since before-eve DEF.arrive people
'Beginning two days before (the party), people will arrive'

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The tables below gives some examples of borrowed prepositions TVZ. (These tables are not meant to be exhaustive.)

TMZ	meaning	Spanish origin
a'sta', a'st	as far as, to (a place); until (a time)	hasta
cuhnn, cohnn, quëhnn	with, and	con
dehsdeh	since (a time)	desde
pahr	for; because of	para
pohr	because of	por
se'rc	regarding	cerca
tráhsdeh	in back of	tras de

Table 13. some borrowed prepositions in TMZ

SLQZ	meaning	Spanish origin
co'nnr	against	contra
deh	in the style of, like; (equipped) with; from	de
pahr	for; because of; as for; from	para
pohr	for; because of	por
sihnng	without	sin

data from Munro 1998, p.c.; Munro and Lopez, et al. 1999

Table 14. some additional borrowed prepositions in SLQZ

Spanish prepositions require either a free pronoun or an overt nominal as their object; i.e. the cannot take pronominal clitics as objects, as exemplified below (87).

87. a. W-dìi'x Mariia bdòo' làa'any peseebr, tye'nn
PERF-lay_down Maria baby in stable because

quë'ity=di' to'ohby x:lyeht **pahr** làa'dab làa'any mesoon.
NEG=NEG one place for 3RESP.PL.FP in hostel

(TMZ; Nav:18)

'Mary laid the baby down in a stable, because there was no place for them in the hostel'

b. **pahr**=da=b
for=PL=3RESP
bad with any meaning; e.g. cannot mean 'for them'

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1.4.4. Place names

There seem to be a few nouns which can be the complements of locational verbs without a preceding preposition, as described in Munro (2005). One such word is the possessed form of house: *liihahz*. In some ways this seems parallel to some of the irregular behavior of English *home*:

88. a. I am going home.
    b. *I am going to home.

Additionally "placenames", such as 'Santa Monica' (89a), 'Culver City', and even 'car wash' (89b) are not used with prepositions, as described by Munro (2005): "Placenames, whether borrowed or native, are never used with basic locative prepositions in Valley Zapotec".

89. a. ...m-nàa'az polisiia nàa' steeby ***Santa Mónica***.
    ...PERF-grab police 1SG.FP again Santa Monica
    (SLQZ; Munro 2005: ex15)
    '... the police caught me again in Santa Monica'

    b. ...te'ihby gwe'ell=ih b-i-zhìel=ëhnn zèèi'ny **Cu'lbeersiiry**,
    ...one time=DIST PERF-go-find=1PL work Culver_City

    nadìi'zh ***car wash*** ny-utìe=nn ny-ie'ny=ëhnn zèèi'ny.
    supposed car wash SUB-enter=1P SUB-do=1PL work

    (SLQZ; Munro 2005:16)

    '... one time we went and found work in Culver City, we were supposed to go and work in a car wash'

This same phenomenon can be seen in the TMZ examples below, with the "placenames" 'place' (90a) and 'heaven' (90b).

90. a. N-u'uh da pastoor **lugaar=qui** (TMZ; Nav:19)
    NEU-be PL shepherd place=that
    'There were shepherds in that place'

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b. B-dìi'ny loh Dyooz **zhaybààa'** (TMZ; Nav:39)
PERF-ask from God heaven
'Blessings from God in heaven'

Munro also shows that "with non-placename locations... the data vary in terms of whether a preposition is allowed or not, often from speaker to speaker. For example, consider the following 'restaurant' examples:" (Munro 2005:7)

91. a. R-uhny=ëng zèèi'ny (*làa'any) **rrestaura'aann**. (SLQZ; Munro 2005:ex28)
HAB-do=3PROX work (*in) restaurant
'He works at a restaurant'

b. Làad=ih tu g-uuny zèèi'ny **làa'any** **rrestaura'aann?**
side=DIST who IRR-do work in restaurant
(SLQZ; Munro 2005:ex29)
'On that side [in Mexico] who's going to work in a restaurant?'

(92) and (93) are examples from TMZ that show the use of prepositions with "non-placename locations". Although the paradigm is not complete, these may correspond to (91b) above.

92. Nah-zhih rèe' g-ùuly=ni' **làa'any lahahzh** **Dabi'd** (TMZ; Nav:21)
now-day this PERF-be_born=3REV in hometown David
'Today he was born in David's hometown'

93. B-dìi'ny loh Dyooz zhaybààa'
PERF-ask from God heaven

tèe' ch-u'uh pa'z=nèe gahll-na-za'c
COMP IRR-be peace=and NOM-ADJ-good

pahr da bìinny **loh** **gax:lyuh**! (TMZ; Nav:39)
for PL person on world

'Blessings from God in heaven such that there will be peace and goodness for the people on earth!'

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CHAPTER 2

Component Part Prepositions: Morphosyntax

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2. Component Part Prepositions: Morphosyntax

In this chapter I examine the morphosyntax of component part terms used in expressing location in Tlacolula Valley Zapotec (TVZ). I argue that component part locatives are prepositions in TVZ and provide syntactic diagnostics to support my conclusion.

The use of body and component part terms to express location is an areal feature of Meso-American languages (Campbell, Kaufman, and Smith Stark 1986) and has been specifically documented for Otomanguean in general (Kaufman 1974), and for Zapotecan (e.g. MacLaury 1989; Munro in press; Munro and Lopez, et al. 1999; Lillehaugen 2003; Jensen de López 2002) and Mixtecan (e.g. Hollenbach 1995; Brugman and Macaulay 1986; Macaulay 1996) in particular.

The following example shows the same word being used as a referential body part (1a) and in a locative expression (1b) in TVZ.

1. a. R-zabyùu'b **ni'ih** Jwaany. (TMZ)
   HAB-hurt foot John
   'John's foot hurts'

   b. Narèe' n-u'=a' **ni'ih** me'es. (TMZ)
   1SG.FP NEU-be=1SG under table
   'I am under the table'

I will use the term "component part locative" as a cover term to refer to words for body and component parts used in locative expressions. (While most of the Meso-American component part locatives are body part terms, other languages use primarily component part terms. For this reason, I am using the broader term "component part locative" since it covers locatives based both on body part terms and other component part terms.) The category of component part locative is not specific as to the syntactic category of the

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component part term. I will use the term "component part preposition" to refer to a word related to a component part (either synchronically or diachronically) that functions syntactically as a preposition and the term "relational noun" to refer to a component part locative that functions as a noun in the syntax. In this chapter I present arguments that the component part locatives in TVZ have been grammaticized as prepositions.

(2) – (4) below are a few more examples from TMZ where the same word is used to refer to a component part (in the examples labeled (a)) and in a locative construction (in the ones labeled (b)). The component part term in each sentence is in bold.

2. a. R-ahc **làa'any**=a'. (TMZ)
   HAB-hurt stomach=1SG
   'My stomach hurts'

   b. Narèe' zòob=a' **làa'any** co'ch. (TMZ)
   1SG.FP NEU.sit=1SG in car
   'I am sitting in the car'

3. a. R-ahcnah **loh** Li'eb. (TMZ)
   HAB-hurt face Felipe
   'Felipe's face hurts'

   b. Narèe' zòob=a' **loh** me'es. (TMZ)
   1SG.FP NEU.sit=1SG on table
   'I am sitting on the table'

4. a. R-ahc **cwe'eh** Jwaany. (TMZ)
   HAB-hurt side John
   'John's side hurts'

   b. Narèe' zòob=a' **cwe'eh** Jwaany. (TMZ)
   1SG.FP NEU.sit=1SG beside John
   'I am sitting beside John'

The most common component terms used in locative constructions such as these are presented in Table 1 below, along with their locative meanings, which have been simplified for this table. The locative meanings of the words differ not only from

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language variety to language variety, but in a few instances from speaker to speaker within the same variety. For some SLQZ speakers, *cwe'eh* cannot be used as a human body part. For more discussion of this, see §2.2.

TVZ	body or component part meaning	locative meaning	reference for SLQZ
cwe'eh	'side'*	'beside'	(ML:95)
dehts	'back'	'behind'	(ML:104)
guë'ëhcy / gue'ehcy (SLQZ)	'head'	'on'	(ML:123)
làa'any	'stomach'	'in'	(ML:142)
loh	'face'	'on; in front of'	(ML:156)
nnaàa'	'hand'	'on (a branch)'	(ML:192)
ni'ih	'foot'	'under'	(ML:181)
ru'uh	'mouth'	'at the edge of; on'	(ML:303)
têë'ix / tèe'ix (SLQZ)	'chest'	'beside'	(ML:343)
zh:àa'	'bottom'	'behind'; 'under'	(ML:383)
zh:àa'cw	'upper arm'	'on (a branch)'	(ML:383)
zh:àà'n	'bottom'	'behind'; 'under'	(ML:384)

*For most SLQZ speakers, it is not clear whether *cwe'eh* 'side' can be used as a human body part or a component part of an inanimate (e.g. a box).

Table 1. TVZ component part locatives and their meanings

In this chapter I argue that TVZ component locatives are not so different from English prepositions like ***beside*** and ***inside*** which contain overt body part words. (In the case of some component part locatives (e.g. *cwe'eh* 'beside') it may even be apt to compare them to English complex prepositions such as ***before*** and ***behind*** which contain antiquated body and component part words.) I will give evidence that classifying component part locatives as prepositions provides for the simplest account of their syntactic distribution. I contend that although these words historically developed from the component part terms, synchronically they are syntactically distinct.

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Below I first present perspectives on the categorial status of component part locatives in various Zapotec language varieties as background (§2.1). I then show that most, but not all component part locatives are related in form to a synchronic component part (§2.2) and that not all component part locatives in one variety function as locatives in other varieties (§2.3).

I then argue that component part locatives in TVZ are prepositions by providing evidence from adjunction (§2.4), categorical selection (§2.5), coordination (§2.6), and modification (§2.7). I shows that the class of component part prepositions in TVZ is synchronically closed (§2.8), and that recognizing component part prepositions as such provides a structural account for certain types of ambiguity (§2.9).

I discuss the issues related to the exact syntactic realization of component part prepositions in modern TVZ (§2.10) and in CVZ (§2.11). Finally, in §2.12 I demonstrate the co-occurrence of component part terms with other lexical items, including nouns and verbs.

2.1. The debate over lexical categorization

There seems to be no general agreement as to the categorial status of component part locatives in Zapotec and conclusions as to their status range all over the board: some researchers feel they are nouns even in their locative use and that their locative meanings are derived through synchronic metaphorical extension (e.g. MacLaury 1989, Jensen de López 2002); others feel they are emergent prepositions, but not synchronic prepositions (e.g. Sonnenschein 2004a, Beam de Azcona in progress), and yet others feel they are prepositions (e.g. Munro and Lopez, et al. 1999, Munro in press, Lillehaugen 2003).

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While it is possible that component part locatives may be grammaticized to different extents in different varieties of Zapotec, it is nonetheless useful to consider the classification of component part locatives in other varieties, and especially to examine the arguments used to make this classification. I will present the three main points of view below.

In a paper which explains in great detail the metaphorical system employed in the use of body parts as locatives, MacLaury (1989) says of Ayoquesco Zapotec:

> Zapotec does not use body-part terms as prepositions, nor even as markers of goal, path, and source... **[the] body-part locatives are not prepositions**, because there is no justification for setting them apart from their primary classification as nouns. Unlike English prepositions, they are identical in form to the nouns applied to body organs, their use in syntax is optional, they only add specificity to other locative expressions, they do not complicate syntax, they do not denote direction, and they do not mark grammatical relations as do case markers.
>
> MacLaury 1989:120; bold added

While MacLaury's comment is forceful, it occurs (partially in a footnote) in a paper which describes the system of metaphor employed in the use of body part terms. Thus, the focus of his paper is not to justify his assertion regarding the syntactic status of these words, and in fact he says no more about this question.

Jensen de López states of the TVZ variety, San Marcos Tlapazola Zapotec:

> Where English employs prepositions, Zapotec relies... on human body part nouns in referring to the spatial relationship between a trajectory and a landmark object. **Zapotec body-part spatial terms are nouns or noun-derived items** which are identical to the nouns used for referring to human body parts... The grammatical and semantic systems of the SMT Zapotec B[ody] P[art] terms are grammatically and semantically very different from that of Indo-European prepositions.
>
> Jensen de López 2002:123; bold added

But again, the categorial status of the component part locatives is not the focus of her paper.

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Others feel that the component part locatives are developing into prepositions in the language they study, but would not classify them as prepositions synchronically. Sonnenschein says of San Bartolomé Zoogocho Zapotec:

> In conclusion, I have found that, while they **[body part locatives] are definitely a separate lexical class from garden variety nouns, the lexical class I have been calling body part locatives and will now call relational nouns are also distinct from prepositions in the language**. That they share adverbial morphosyntax is unimportant. I consider the semantic and cross-linguistic generalizations to have shown a nascent lexical class, and one which fits in its own well defined point on the noun-preposition continuum, and shares many qualities with non-body part, non prepositional locatives. Comparison both within the Zapotec language family and outside the family leads me to call these terms 'relational nouns', being careful to keep in mind that they form a chain, as described in Heine et al. and **are definitely being grammaticalized on their way towards being prepositions, but have not yet gotten there**.
>
> Sonnenschein 2004a:314, bold added

Beam de Azcona says something similar of Coatlán-Loxicha Zapotec (CLZ), although her arguments for the non-prepositional status of body part locatives are primarily based on the meaning of the body part locatives, and not their syntactic behavior. As I will show in Chapter 4, such argumentation is problematic (cf. Lillehaugen and Munro 2006):

> Many body part words in CLZ translate into English and Spanish with prepositions. When used in this way they are not reduced or otherwise phonologically altered... The would-be prepositional phrases appear no different than inalienably possessed noun phrases in terms of their phrase structure. In terms of the larger sentence to which such phrases belong there are semantic and syntactic differences which occur on a continuum.
>
> Beam de Azcona in progress:197

> ...[R]elational nouns in CLZ act in a variety of ways which translate into European languages with prepositions. **In some constructions relational nouns have become so highly grammaticalized that we can regard them as prepositions synchronically but in the majority of cases examined so far body part words can still be regarded as nouns, though they are slowly coming to function more like prepositions**. I regard all relational nouns covered here in §3.3 (including §3.3.1) as *emergent* prepositions. However, these words lie along a continuum and some words have emerged farther than others towards their

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> possible future status as non-nominal prepositions. Words with body part core meanings are more saliently nominal. Relational nouns which do not have a synchronic body part meaning tend to be more grammaticalized as prepositions, though a nominal analysis is still possible in many cases.
>
> Beam de Azcona in progress: 204

However, not all linguists who work on Zapotec feel that the component part locatives are nouns. Many researchers have analyzed component part locatives in their languages as prepositions. Munro and Lopez, et al. say the following about SLQZ prepositions:

> There are two classes of Zapotec prepositions. **Many basic prepositional ideas are expressed with body part words** (e.g., *lohoh* "face" > "in" ["on"], *gue'ehcy* "head" > "on", *cwe'eh* "side" > "beside", *dehts* "back" > "behind"); the prepositional object is expressed either with a possessive pronominal agreement clitic or with an overt noun following the preposition. **Such prepositions** (which are sometimes difficult to distinguish syntactically from the corresponding body part words) are identified in the Dictionary as "prep.". The second class of Zapotec prepositions, all borrowed from Spanish (e.g. *cëhnn* "with", *pahr* "for") and identified in the Dictionary as "Sp. prep.", express their objects similarly to verbal objects (with a following pronoun or overt nominal). Both types of prepositional phrases, rather similarly to English prepositional phrases, generally do not need to be licensed in any special way by the verb of their clause.
>
> Munro and Lopez, et al. 1999:24, bold added

Munro also points out that homophony with body part words is not enough to justify classifying body part locatives as nouns:

> The notion that the body part locative and relational words are not "true prepositions" probably reflects an idea that the "preposition" classification is inappropriate for words that have such an obvious nominal use and source, recalling MacLaury's statement that "unlike English prepositions, they are identical in form to the nouns applied to body organs". But many languages have cases of homophony (and indeed semantic and historical relationship) between words of different lexical categories. The English word *down*, for example, can be used not only as a preposition (as in *down the street*), but also as a verb *(He's going to down the beer*), a noun *(fourth down*), and an adverb *(The plane went down*), all of which are related; this does not interfere with classifying their parts of speech differently... but (as Lillehaugen suggests) there are certainly English

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> prepositions, such as *behind* and *inside*, that have the same form as body part words.
>
> Munro 2006:330

Stubblefield and Stubblefield also appear to classify their component part locatives as prepositions in Mitla Zapotec:

> There are two classes of prepositions: those which are indeed prepositions, and nouns which can be used additionally as prepositions. Some nouns which refer to parts of the body and which always appear with a possessor are used with an extended meaning as prepositions, in order to express a locative relationship[1]
>
> Stubblefield and Stubblefield 1991:244

2.2. Component part locatives and their related referential component parts

In this section I show the relation between the TVZ component part locatives and the related referential component part terms. In most cases, each component part locative corresponds directly to a word for a body part, these will be discussed more in §2.2.3. However, there are two locatives whose relation to a synchronic body part is unclear: *cwe'eh* 'side' (§2.2.1) and *zh:àa'* 'buttocks' (§2.2.2).

In Table 2 I list the relevant body part words in question for four Central Zapotec speech varieties (three of which are TVZ speech varieties). The forms that appear with a * are those that are not grammatical as referential body parts, and those that appear with a % have an unclear status. The data in the TMZ column were obtained by eliciting the body part terms in a non-locative frame that directly referred to the body part, namely "My ___ hurts." The SLQZ data were obtained both from the dictionary (Munro and

[1] This is my translation of their Spanish: "Hay dos clases de preposiciones: las que en sí son preposiciones y los sustantivos usados adicionalmente como preposiciones... Algunos sustantivos que se refieren a las partes del cuerpo y que siempre se presentan con poseedor se usan con un

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Lopez, et al. 1999) and from Munro's fieldwork and my fieldwork, with the assistance of Munro. The SJGZ data were obtained through assistance of Olivia Martínez. The Mitla Zapotec (MZ) data are from the dictionary (Stubblefield and Stubblefield 1991). As I did not have access to a speaker of MZ, I list the forms in Table 2 if Stubblefield and Stubblefield (1991) specifically say they are obligatorily possessed body parts. Recall that body part nouns in TVZ languages are inalienably possessed, i.e. they require a possessor. If the possessor is pronominal, it will be expressed with a bound pronominal clitic corresponding to the person and number of the possessor. I present the forms in Table 2 without possessors for clarity, but the forms were all elicited with possessors (cf. (9)).

body part gloss	**Central Zapotec**			
	TVZ			**MZ**
	TMZ	**SLQZ**	**SJGZ**	
'side'	cwe'eh	***cwe'eh** (95)	***cwe'eh**	cüa' (16)
'back'	dehts	dehts (104)	dets	dejtz (18)
'head'	guë'ëhcy	gue'ehcy	quià	yejc (130)
'stomach'	làa'any	làa'any (142)	làa'any	—
'face'	loh	lohoh (156)	lo	loj (40)
'foot'	ni'ih	ni'ih (181)	ni'i	ni' (48)
'hand'	nnaàa'	nnaàa'	nnaàa'	naa (49)
'mouth'	ru'uh	ru'uh (303)	ru'u	ro' (83)
'chest'	têë'ix	tèe'ix	tëë'x	tiejxh 'body' (119)
'nose'	zhi'ih	zhi'ih	zhi'i	xi' (121)
'buttocks'	**%zh:àa'**	zh:àa' (383)	zhàa'	xhajn (123)
'buttocks'	zh:ààa'n	zh:ààa'n (384)	zh:ààa'n	—
'upper arm'	zh:ùu'cw	zh:ààa'cw	zh:ùuc	xhajcw (123)

The number following the SLQZ word indicates the page in Munro and Lopez, et al. 1999; the number following the MZ word indicates the page in Stubblefield and Stubblefield 1991. The SJGZ data were provided by Martínez (p.c.). "—" mark cells in which no cognate could be found.

Table 2. possessed body parts in three Central Zapotec language varieties

significado más amplio como preposiciones, para expresar una relación de ubicación." (Stubblefield and Stubblefield 1991:244)

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Table 2 summarized the relationship of the component part locatives to referential body part words. Most component part locatives are related to a synchronic body part word. However, there are two exceptions to this. These will be discussed first in the following sections. The relation of component part locatives to referential body part words is relevant to the questions of the syntactic status, of the calculation of the meanings of component part locatives, of whether the metaphor involved is synchronic or was a historical process, and of the stage of grammaticalization.

2.2.1. *Cwe'eh* 'side'

Note that *cwe'eh* 'side' does not seem to be a component part word in SJGZ and for some speakers of SLQZ, evidenced by the fact that some speakers cannot say *cwi'a'* to mean 'my side', although this means 'beside me'. Speakers of SLQZ seem to vary as to what extent *cwe'eh* can be a component part word. Some speakers allow this as a human body part. Other disallow it, though they may allow it as a component part of inanimates under the right circumstances (Munro p.c.).

In TMZ, however, my consultant uses the word to refer to a human body part:

5. R-ahc cwe'=a'. (TMZ; 5:58)
   HAB-hurt side=1SG
   'My side hurts'

There is also evidence that in Santo Domingo Albarradas Zapotec, a language variety closely related to the TVZ language group, the cognate to *cwe'eh* cannot be used as a human body part (Adam, in prep.). It may be that the use of *cwe'eh* as a human body part in TMZ is innovative (Munro p.c.). It seems then that for many TVZ language varieties

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there is no human body part or inanimate component part term *cwe'eh*. As will be discussed more in §3.3, this component part locative cannot necessarily function by naming a part of the Ground, since for many speakers there is no possible referential noun *cwe'eh*.

2.2.2. *Zh:àa'* 'buttocks'

Zh:àa' 'buttocks' seems to be a special type of component part in TVZ. Munro and Lopez, et al. (1999) explain that in SLQZ, *zh:àa'* is a body part with a very specific meaning, which has complex restrictions on the type of possessor in that it "is almost never used without a n[ominal] (non-pron[ominal]) pssr. [possessor]" (Munro and Lopez in prep.:375). The dictionary entry below gives three component part meanings, which are in bold: 'bottom, buttocks'; 'handle (on a knife)'; and 'trunk (of a car)'.

> **zh:àa'** 1. **bottom, buttocks** {pssd. only; *A bu'uhdy zubga'ah gue'ehcy zh:àa' zhìi'mmy* "The chicken is sitting on the bottom of the (overturned) basket"}; 2. at the bottom of, on the bottom of (prep.) {*zh:àa' ca'j* "at the bottom of the box"; *O's nu'uh zh:àa' zhìi'mmy* "The (toy) bear is on the bottom of the basket; 3. under (prep.) {*Jwaany zugwa'ah zh:àa' gyahg cabèez tèèi'dy nnyi'sgyihah* "John is standing under the tree waiting for the rain to stop"}; 4. on top of (something upside down) (prep.) {*A bu'uhdy zubga'ah zh:àa' zhìi'mmy* "The chicken is sitting on the (overturned) basket)}; 5. **handle** (on a knife, for example){pssd. only; *zh:àa' bchiilly* "knife handle"}; 6. **trunk** (of a car) {pssd. only; *Bxèe'llya' zh:àa' ca'rr* "I opened the trunk of the car"}
>
> ...
>
> §§ Although *zh:àa'* and *zh:ààa'n* both mean "bottom, buttocks", the use of *zh:àa'* is more restricted. This word is almost never used without a n[ominal] (non-pron[ominal]) pssr. [possessor], and may suggest a dirty bottom {*zh:àa' mnìi'iny* "kid's bottom"; *zh:àa' banguual* "old person's bottom (that someone in a nursing home might have to clean up)"}; *zh:ààa'n* is a more general term.
>
> Munro and Lopez in prep.:375; Spanish omitted; bold and italics added

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The data that I have for the use of *zh:àa'* in TMZ also suggest that pronominal possessors are not grammatical (6a), although pronominal possessors of *zh:àà a'n* are fine (6b), and non-pronominal possessors of *zh:àa'* seem to be acceptable (6c).

6. a. *R-ahc **zh:aà**=a'. (TMZ; 5:27, 5:73)
   HAB-hurt buttocks=1SG
   bad with any meaning; e.g. cannot mean 'My buttocks hurt'

   b. R-ahc **zh:àà a'n**=a'. (TMZ; 5:73)
   HAB-hurt buttocks=1SG
   'My buttocks hurt'

   c. R-ahc **zh:àa'** Jwaany. (TMZ; 5:73)
   HAB-hurt buttocks John
   'John's buttocks hurt'

I am not sure of the nature of the restricted meaning of *zh:àa'* in TMZ. On the one hand, my consultant said that (6c) and (7) meant exactly the same thing. On the other hand, with all the discussion of *zhàa'* he volunteered the sentence in (8), offering (in English) the translation given, where *zh:àa'* may mean something different that 'buttocks'.

7. R-ahc **zh:àà a'n** Jwaany. (TMZ; 5:73)
   HAB-hurt buttocks John
   'John's buttocks hurt'

8. R-nii'b **zh:àa'** biinny. (TMZ; 5:27)
   HAB-move buttocks person
   speaker translated as "Shake your booty"; appears to literally mean 'A person's buttocks move', but I am not sure if this is a complete sentence and it seems unlikely that it is an imperative, since the habitual aspect would be quite unexpected for an imperative

The translation of *zh:àa'* as 'booty' in (8), supports the note in the SLQZ dictionary, that *zh:àa'* is not a neutral or general term for 'buttocks'. Further evidence of this can be seen below in the SLQZ translation of "The Hokey Pokey" (Munro p.c.), presented below in the simplified orthography of *Cali Chiu* (Munro, Lillehaugen, and Lopez, in prep.),

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which under represents certain phonemic contrasts including tone and phonation. In this song, the best way to refer to 'your rear end' is with *xcaderu*, which looks related to the Spanish *cadera* 'hip' (Munro p.c.). Using *zh:àa'* or *zh:ààa'n* in this song would not be appropriate (Munro p.c.).

Bzeby xcaderu nez loo,	Put your rear end in front of you,
Bzeby xcaderu nez detsu,	Put your rear end in back of you,
Bzeby xcaderu nez loo,	Put your rear end in front of you,
Beinysesi axta ganu.	Shake it until you get tired.

from *Hoke-Poke* 'The Hokey-Pokey', Munro p.c.

While more work can be done on this morpheme, its behavior in terms of the type of possessor is enough to warrant being cautious about simply be lumped together with the more canonical component part terms, presented in §2.2.3.

2.2.3. The remaining component part terms

The sentences provided in (9) are given as evidence that the remaining component part locatives are related to synchronic body parts in TMZ. This frame helps confirm this status, since simply asking a speaker what a word means in isolation may provide results that are hard to interpret. For example, some speakers of SLQZ will translate *cwe'eh* as 'side' when asked what it means, and yet find sentences such as *Rahc cwi'a'* 'My side hurts' ungrammatical. For this reason, I provide the data below to show that in TMZ *dehts* (9a), *guë'ëhcy* (9b), *làa'any (9c), loh* (9d), *ni'ih* (9e), *nnaàa'* (9f), *ru'uh* (9g), têë'ix (9h), *zhi'ih* (9i), *zh:ààan* (9j), *and zh:ùu'cw* (9k) can all be clearly referential body parts.

9. a. R-ahc de'ts=a'. (TMZ; 5:58)
   HAB-hurt back=1SG
   'My back hurts'

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b. R-ahc guë'ëcy=a'. (TMZ; 5:58)
HAB-hurt head=1SG
'My head hurts'

c. R-ahc làa'any=a'. (TMZ; 5:58)
HAB-hurt stomach=1SG
'My stomach hurts'

d. R-ahc luù=a'. (TMZ; 5:58)
HAB-hurt face=1SG
'My face hurts'

e. R-ahc ni'=a'. (TMZ; 5:58)
HAB-hurt foot=1SG
'My foot hurts'

f. R-ahc nnaà=a'. (TMZ; 5:58)
HAB-hurt hand=1SG
'My hand hurts'

g. R-ahc ru'=a'. (TMZ; 5:58)
HAB-hurt mouth=1SG
'My mouth hurts'

h. R-ahc têë'ix=a'. (TMZ; 5:58)
HAB-hurt torso=1SG
'My side (ribs) hurts'

i. R-ahc zhi'=a'. (TMZ)
HAB-hurt nose=1SG
'My nose hurts'

j. R-ahc zh:àa'n=a'. (TMZ; 5:58)
HAB-hurt buttocks=1SG
'My buttocks hurt'

k. R-ahc zh:ùu'cw=a'. (TMZ; 5:58)
HAB-hurt arm=1SG
'My upper arm hurts'

2.3. Component part locatives in Valley Zapotec

In Table 3, I summarize which component part terms can be used in locative constructions in the four Central Zapotec varieties considered above. The component part

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term appears in bold and the cell appears shaded if that term is used in locative constructions in that speech variety, and appears in plain type in an un-shaded cell if I have no evidence that it can be used in a locative construction in that speech variety. If a cell contains "—", I was unable to find the relevant data, i.e. I could not find a cognate word in the MZ dictionary.

component part gloss	Central Zapotec			
	TVZ			
	TMZ	SLQZ	SJGZ	MZ
'side'	**cwe'eh**	**cwe'eh** (95)	**cwe'eh**	**cüa'** (16)
'back'	**dehts**	**dehts** (104)	**dehts**	**dejtz** (18)
'head'	**guë'ëhcy**	**gue'ehcy** (123)	**quia**	**yejc** (130)
'face'	**loh**	**loh** (156)	**lo**	**loj** (40)
'foot'	**ni'ih**	**ni'ih** (181)	**ni'i**	**ni'** (48)
'mouth'	**ru'uh**	**ru'uh** (303)	**ru'u**	**ro'** (83)
'buttocks'	**zh:àa'**	**zh:àa'** (383)	**zh:àa'**	**xhajn** (123)
'stomach'	**làa'any**	**làa'any** (142)	**làa'any**	—
'chest'	**têë'ix**	**tèe'ix**	**tëë'x**	tiejxh 'body' (119)
'buttocks'	**zh:ààa'n**	**zh:ààa'n** (384)	**zh:àa'n**	—
'hand'	**nnaàa'**	**nnaàa'**	nnaàa'	naa (49)
'upper arm'	**zh:ùu'cw**	**zh:àa'cw**	zh:ùuc	xhajcw (123)
'nose'	**zhi'ih**	zhi'ih	zhi'i	xi' (121)

The number following the SLQZ word indicates the page in Munro and Lopez, et al. 1999; the number following the MZ word indicates the page in Stubblefield and Stubblefield (1991). The SJGZ data were provided by Martínez (p.c.). "—" mark cells in which no cognate could be found.

Table 3. Central Zapotec component part locatives

All of the component part terms above the dark line in Table 3 (i.e. *zh:àa'* 'buttocks' and above) seem to be used in locative constructions in all four of the Central Zapotec varieties presented. For those above the dotted line (i.e. *zh:ààa'n* 'buttocks' and above) I have evidence that they are used in locative constructions in TVZ, but not in MZ. For those below the dotted line, there is variance within the TVZ varieties as to whether the word can be used in a locative construction.

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2.4. Adjunction

Evidence can be taken from adjunction that component part locatives are not synchronic nouns. Consider intransitive verbs, which by definition do not take complements (excluding perhaps cognate objects, e.g. 'I sneezed a loud sneeze'). As can be seen below, intransitive verbs require no complement (10a). Some types of phrases are allowed as adjuncts, such as *làa'any yu'uh* (10b), but others are not, such as *yu'uh* in (10c).

10. a. Cay-ùu'll=na'ah. (TMZ)
PROG-sing=3DST
'He is singing'

b. Cay-ùu'll=na'ah **làa'any** **yu'uh**. (TMZ)
PROG-sing=3DST in house
'He is singing in the house'

c. *Cay-ùu'll=na'ah **yu'uh**. (TMZ)
PROG-sing=3DST house
bad with any meaning; e.g. cannot mean 'He is singing at / by the house'

The difference in grammaticality between (10b) and (10c) suggests that *làa'any yu'uh* 'in the house' and *yu'uh* 'house' are not of the same syntactic category. *Làa'any yu'uh* 'in the house' can function as an adjunct in the sentence while the noun phrase *yu'uh* 'house' cannot, even though one might expect that *yu'uh* 'house' could semantically function as a location for the singing. Put another way, the word *làa'any* 'in' in (10b) seems to license the presence of *yu'uh* 'house'.

Furthermore, example (10b) above clearly shows that it is not the case that component part locatives "only add specificity to other locative expressions" (MacLaury 1989). There is no other morpheme that locates the Figure in reference to the house in (10b) beside *làa'any* 'in'. Consider the following intransitive sentences as well:

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11. a. N-iga'ah-ye'ihsy=na'ah cwe'eh yu'uh. (TMZ)
NEU-lie-sleep=3DST beside house
'He is sleeping beside the house'

b. N-iga'ah-ye'ihsy=na'ah làa'any yu'uh. (TMZ)
NEU-lie-sleep=3DST in house
'He is sleeping in the house.'

c. N-iga'ah-ye'ihsy=na'ah dehts yu'uh. (TMZ)
NEU-lie-sleep=3DST behind house
'He is sleeping behind the house.'

In (11) above, again the only morphemes that locate the Figure in relation to the Ground are the component part locatives.

2.5. Categorial Selection

Another piece of syntactic evidence that the component part locatives are prepositions comes from the categorial selection (c-selection) of verbs. The ability of verbs to require the complement they select to be of a certain grammatical category is referred to as c-selection. A particular issue with component part locative phrases in TVZ languages is that they are always phonetically ambiguous with (at least potential) possessed noun phrases, since the object of the preposition follows the preposition (12a) and the possessor of the body part also follows it (12b).

12. a. Prepositional Phrase

ni'ih	**me'es**	
under	table	'under the table'
P	NP	

b. Possessed Noun Phrase

ni'ih	**me'es**	
foot	table	'the table's foot'
NP	NP	
possessed	possessor	

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Consider (13a), below, where the verb *zùub* 'sit' c-selects a complement, which I've put in bold. Note that *zùub* 'sit' requires such a complement, and is not intransitive, as its English gloss may suggest (13b). What is the syntactic category of this complement? Following MacLaury's (1989) assumptions about the status of component part locatives, one could claim that the entire phrase is a noun phrase, 'the table's foot'. However, if this category is nominal, then this verb ought to be able to c-select other noun phrases as complements, but, as shown in (13c), this is not possible. Perhaps the verb has some way to specify that its complement must be a possessed noun. Although this seems unlikely,[2] it is also easy to show that this type of selection won't work, because then other possessed nouns should also occur as complements, and as we can see in (13d), this is not possible.

13. a. Bèe'cw zùub **ni'ih** **me'es**. (SLQZ)
dog NEU.sit under table
'The dog is sitting under the table'

b. *Bèe'cw zùub. (SLQZ)
dog NEU.sit
bad with any meaning; e.g. cannot mean 'The dog is sitting'

c. *Bèe'cw zùub **me'es**. (SLQZ)
dog NEU.sit table
bad with any meaning; e.g. cannot mean 'The dog is sitting by / at the table'

---

[2] Thanks to Bernard Comrie for suggesting the following example of a verb that seems to select for a possessed noun. In English, the verb *envy* in its ditransitive form seems to require that the indirect object be possessed (and be possessed by the direct object). Indeed, a quick Google search of the string "envy him his" produces a myriad of results, while "envy him the" produces results of several (limited) types, including the one presented in (c), but apparently lacking any of the type in (b). Similar facts seem to hold for English *begrudge* (d) – (f).

a. I envy him his car.
b. *I envy him the car.
c. I envy him the car he bought.
d. I begrudge him his success.
e. *I begrudge him the success.
f. I begrudge him the success he has enjoyed.

However, as was pointed out by Carson Schütze, it may be that something other than possession is at play in this cases, as evidenced by the following examples:

g. I envy him every success.
h. I begrudge him every success.

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d. *Bèe'cw zùub **x:-me'es=a'**. (SLQZ)
dog NEU.sit POSS-table=1SG
bad with any meaning; e.g. cannot mean 'The dog is sitting by / at my table'

It is not the case, then, that these verbs select for nouns in general (13c) or for possessed nouns (13d).

Now consider the examples below, where we see that in addition to component part locative phrases, positional verbs may select for complements that are locative demonstrative adverbs (14a), and non-component part prepositional phrases (14b).

14. a. Bèe'cw zùub **ri'cy**. (SLQZ)
dog NEU.sit there
'The dog is sitting there'

b. Bèe'cw zùub **tráhsdeh me'es**. (SLQZ)
dog NEU.sit behind table
'The dog is sitting behind the table'

So far, then, we have seen that positional verbs c-select for prepositional phrases (whether a component part preposition or a borrowed preposition) or demonstrative adverbs (which can be seen as pro-forms for prepositional phrases.) In further support of this, consider the example in (15) which shows that it is not the case that a phrase beginning with *any* component part word will satisfy the selectional restrictions of the verb. *Dyahg* 'ear' is a body part word, but it is not a component part locative.

15. *Bèe'cw zùub **dyahg me'es**. (SLQZ)
dog NEU.sit ear table
bad with any meaning; e.g. cannot mean 'The dog is sitting by the table's ear'

The patterns presented in (13) – (15) seem to pose a critical problem for the analysis of component part locatives as synchronic nouns. If one were to maintain this analysis, one would have to specify that only phrases beginning with a closed set of nouns can

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occur as complements of positional verbs such as *zùub* 'sit', which would be stipulative and miss an obvious generalization: the component part locatives function differently from other body and component part words in the syntax. Component part locatives form a syntactic category in TVZ, which patterns in many ways with other prepositions in the language (e.g. positional verbs select for locational phrases, which can be demonstrative adverbs, any type of locational prepositional phrase, and other special adverbial nominals such as place names (cf. Munro 2005 and §1.4.5) and therefore should be syntactically classified as a type of preposition.

2.6. Coordination

The widely assumed principle of categorical harmony states that only like constituents can be coordinated. Below I give evidence that component part locative phrases can be coordinated with both native non-component part prepositional phrases (16a) and borrowed prepositional phrases (16b), thus suggesting that they are of the same syntactic category. These coordination facts provide yet more support the analysis of component part locatives as prepositions.

16. a. Bèe'ecw n-u'uh **ni'ih** **me'es**=nèe **gahx:** **gyizhi'iilly**. (TMZ; 5:69)
dog NEU-be under table=and near chair
'The dog is lying under the table and near the chair'

b. Bèe'ecw b-ihahb **ru'uh** **venta'n**=nèe **a'st** **loh yuhuh**. (TMZ; 5:69)
dog PERF-fall_out at_edge_ofwindow=and onto on ground
'The dog fell out of the window and on to the ground'

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2.7. Modification

When component part locatives are used in locational constructions in TVZ languages, they cannot be modified in the ways that nouns can: they cannot take the plural marker, or be modified by quantifiers, numbers, or adjectives. In this way, component part locatives can be described as appearing in a "decategorialized" form (cf. Hopper and Thompson 1984, Heine et al. 1991). Heine et al. present an example from Ewe (Niger-Congo) to demonstrate decategorialization; the word *ná* can be seen meaning 'give' (17a) and 'for' (17b). When *ná* means 'for' "it no longer accepts verbal inflections such as tense, aspect, or negation markers" (Heine et al. 1991: 2).

17. a. me-**ná** ga kofí (Ewe, Heine et al. 1991, ex 1)[3]
1SG-give money Kofi
'I gave Kofi money'

b. me-wɔ dɔ' vévié **ná** dodókpɔ́ lá (Ewe, Heine et al. 1991, ex 3)
1SG-do work hard give exam def.det
'I worked hard for the exam.'

The behavior of TVZ component part prepositions is very much parallel to this. In the following sections I present data and argue that TVZ component part prepositions cannot take the plural marker (§2.7.1), cannot be preceded by quantifiers (§2.7.2); cannot be preceded by numbers (§2.7.3); and cannot be modified by adjectives (§2.7.4).

[3] Some of the abbreviations in the glosses from the Heine et al. data have been adjusted to correspond to the abbreviations used in this dissertation.

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2.7.1. Plural

In TMZ, the plural marker *da* precedes the noun which it modifies, as can be seen in (18). A noun may sometimes be interpreted as plural without being marked with *da*, but marking a noun with *da* requires that it have a plural interpretation.

18. Me'eu **da** **me'es**. (TMZ)
    dirty PL table
    'The tables are dirty'

The plural marker can precede a component part term when that word is functioning as a noun, as in (19). Here *loh me'es* is the noun phrase 'tabletop'.

19. Me'eu **da** **loh** **me'es**. (TMZ)
    dirty PL face table
    'The tabletops are dirty'

It is also possible that the component part preposition *loh* 'on' take a noun phrase complement that begins with the plural marker *da* (20).

20. B-zùu=a' da ba's **loh** **da** **me'es.** (TMZ)
    PERF-put=1SG PL cup on PL table
    'I put the cups on the tables'

However, it is impossible to use the plural marker to modify a component part term when it is functioning as a preposition. Consider (21) below. One might imagine that this sentence could be grammatical if *loh* were the noun 'face' here. Via metaphor the sentence could mean something like 'I put the cups at / by the faces of the tables'. However, this sentence is ungrammatical. Specifically, the ungrammaticality lies in the fact that the plural marker *da* cannot modify the word *loh*, because in this sentence, *loh* 'on' must be a preposition.

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21. *B-zùu=a' da ba's **da loh** **me'es.** (TMZ)

PERF-put=1SG PL cup PL on table

bad with any meaning; e.g. cannot mean 'I put the cups on the tables'

2.7.2. Quantifiers

Quantifiers precede the nouns which they modify, as seen in (22) below.

22. **Cantidaa** **gyizhi'iilly** nàa na-gàa'ah. (TMZ)
many chair COP ADJ-green
'Many chairs are green'

Quantifiers may modify component part terms when they function as nouns as in (23a), and may modify the complement of a component part prepositions as in (23b).

23. a. **Cantidaa** **dehts** **gyizhi'iilly** nàa na-gàa'ah. (TMZ)
many back chair COP ADJ-green
'Many of the chair backs are green'

b. Da bèe'ecw zòob **dehts** **cantidaa** **gyizhi'iilly**. (TMZ)
PL dog NEU.sit behind many chair
'There are dogs sitting behind many chairs.'

Component part prepositions, however, cannot be modified by quantifiers (24).[4]

---

[4] The example (a) below may be a counter example to my claim, where *raa* 'all' appears directly before and appears to modify *làa'any* 'in'. *Raa* is also used later in the sentence to modify another locational phrase. I'm not sure of syntactic or semantic function in either clause, so for now I will simply mention it here as something that remains to be explained.

a. chih b-dii'lly mii'iny làa' zh:àa'at
when PERF-look_for child LÀA' toad

raa **làa'any** x:ahb=nii'; raa nehz=tèe' (TMZ; Zhat:14)
all in POSS.clothes=3ANAP all way=INTSV

'Then the child looked for the toad, all in his clothes, everywhere'

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24. *Da bèe'ecw zòob **cantidaa** **dehts** **guezhi'iilly**. (TMZ)
PL dog NEU.sit many behind chair
bad with any meaning; e.g. cannot mean 'There are dogs sitting behind many chairs'

2.7.3. Numbers

Like quantifiers, numbers precede the nouns which they modify in TVZ, as can be seen in (25) below. In (25a), the number is modifying a simple noun 'table'; in (25b), it is modifying the possessed noun phrase 'tabletops', which begins with the component part term *loh* 'face'; in (25c,d), the number is modifying the nominal complement of the preposition.

25. a. B-zìi'=a' **chòonn** **me'es**. (TMZ)
PERF-buy=1SG three table
'I bought three tables'

b. B-syàa=a' **chòonn** **loh** **me'es**. (TMZ)
PERF-clean=1SG three face table
'I cleaned three table tops'

c. B-zuù=a' ba's **loh** **chòonn** **me'es.** (TMZ)
PERF-stand=1SG cup on three table
'I put cups on three tables'

d. Chi'c=ru' w-nàa' mìi'iny **loh** **tyo'p** **zh:àa'at** (TMZ; Zhat:73)
then=anymore PERF-see child to two toad
'Then the child saw two toads'

Component part prepositions cannot be modified by numbers, however, as is demonstrated in (26) below.

26. *B-zuù=a' ba's **chòonn** **loh** **me'es**. (TMZ)
PERF-stand=1SG cup three on table
bad with any meaning, e.g. cannot mean 'I stood cups on three tables'

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2.7.4. Adjectives

Adjectives follow the nouns they modify in TVZ, as demonstrated in (27), where the adjectives modify a simple noun (27a), a possessed component part noun (27b), and a noun that is the complement of a component part preposition (27c).

27. a. B-tìia=a' **gyahg** **chuu'll**. (TMZ)
PERF-paint=1SG tree pretty
'I painted (e.g. a picture of) a beautiful tree'

b. B-tìia=a' **guë'ëhcy** **chuu'll** **gyahg**. (TMZ)
PERF-paint=1SG top pretty tree
'I painted (e.g. a picture of) the beautiful top of the tree'

c. Ma'any-i'ih zòob **guë'ëhcy** **gyahg** **chuu'll**. (TMZ)
animal-DIM NEU.sit on tree pretty
'The bird is sitting on the beautiful tree'

Component part prepositions, unlike component part nouns, cannot be modified by adjectives, as seen in (28).

28. *Ma'any-i'ih zòob **guë'ëhcy** **chuu'll** **gyahg**. (TMZ)
animal-DIM NEU.sit on pretty tree
bad with any meaning; e.g. cannot mean 'The bird is sitting at / by the beautiful top of the tree')

Why are modified component part locatives ungrammatical? If one analyzes the component part locatives as syntactic nouns, these results are surprising. However, if component part locatives are analyzed as syntactic prepositions, the ungrammaticality of component part prepositions modified by adjectives, numbers, quantifiers, and the plural marker becomes expected, as prepositions in the language cannot be modified in this way. Next I will explicitly compare the predictions made by a component part locative as noun analysis and a component part locative as preposition analysis.

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Below I present two different analyses of a sentence with a component part locative. In hypothesis one (H1) the component part locative is analyzed (and glossed) as a noun (29a). In hypothesis two (H2) the component part locative is analyzed (and glossed) as a preposition (29b). I will show that the facts just presented about the types of modification allowed for component part terms argue in favor of H2, and are incompatible with an analysis of component part locatives as nouns (H1). (Note that in presenting H1, an analysis where component part locatives are nouns, we are also required to accept that positional verbs may take a noun phrase complement, which I have already shown is not true (§1.4 and §2.5). I mark this by including the locative gloss 'AT' as part of the meaning of the positional verbs in all the H1 sentences. In the end, there will be many reasons why H1 is not valid, but for the purpose of this demonstration I wish to focus on the one at hand (modification) and thereby set the others (such as c-selectional properties of positional verbs) aside for a moment.

29. a.	Bèe'ecw	n-u'uh	**ni'ih**	**me'es.** (H1; CPL = N)
	dog	NEU-be_AT	foot	table
	'The dog is at / by the table's foot' > 'The dog is under the table' via metaphor			
b.	Bèe'ecw	n-u'uh	**ni'ih**	**me'es.** (H2; CPL = P)
	dog	NEU-be	under	table
	'The dog is under the table'			

Below, the possessor of the component part term is modified with an adjective in (30a) and the noun phrase object of the component part preposition is modified with an adjective in (30b). If a grammar allows noun phrase complements of positional verbs, then these different hypotheses make no different predictions regarding the grammaticality of constructions such as these.

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30. a. Bèe'ecw n-u'uh **ni'ih** **me'es** **na-gaàa'ts**. (H1; CPL = N)
dog NEU-be_AT foot table ADJ-yellow
'The dog is at / by the yellow table's foot' > 'The dog is under the yellow table' via metaphor

b. Bèe'ecw n-u'uh **ni'ih** **me'es** **na-gaàa'ts**. (H2; CPL = P)
dog NEU-be under table ADJ-yellow
'The dog is under the yellow table'

For cases in which the component part term is a noun modified by an adjective, both hypotheses predict the same results, since in both cases, the component part would be treated as a noun. This is shown below in (31).

31. a. **Ni'ih** **na-gaàa'ts** **me'es** gwùu'ch. (H1; CPL = N)
foot ADJ-yellow table PERF.break
'The yellow leg of the table broke'

b. **Ni'ih** **na-gaàa'ts** **me'es** gwùu'ch. (H2; CPL = P)
foot ADJ-yellow table PERF.break
'The yellow leg of the table broke'

Below, the component part terms are being modified by an adjective (32). Here, the different hypotheses make crucially different predictions. Under the analysis that component part locatives are nouns, the ungrammaticality of (32a) is unaccounted for. Why can't this noun be modified by an adjective? We saw in (31a) that this same string is grammatical. On the other hand, if the component part locatives are prepositions, the ungrammaticality of (32b) is accounted for and predicted, under the assumption that adjectives can modify only nouns in TVZ, not prepositions. (32b) would require 'yellow' to modify 'under', apparently meaning something like 'The dog is yellow-under the table', but this type of modification is not possible: adjectives cannot modify prepositions.

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32. a. *Bèe'ecw n-u'uh **ni'ih** **na-gaàa'ts** **me'es.** (H1; CPL=N, predicted as √)
dog NEU-be_AT foot ADJ-yellow table
bad with any meaning; e.g. even given an appropriate semantic context, such as Figure 1 cannot mean 'The dog is at / by the table's yellow foot' (> 'The dog is under the table that has a yellow leg' via metaphor)

b. *Bèe'ecw n-u'uh **ni'ih** **na-gaàa'ts** **me'es.** (H2; CPL=P)
dog NEU-be under ADJ-yellow table
bad with any reading, e.g. even given an appropriate semantic context, such as Figure 1 cannot mean 'The dog is at / by the yellow leg of the table'; 'The dog is under the table with a yellow leg'.

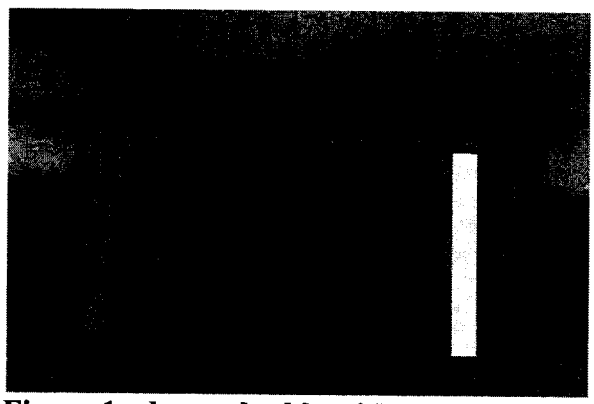

Figure 1. dog and table with one yellow leg

Component part locatives in TVZ behave very differently from nouns: they cannot be modified by the plural marker, quantifiers, numbers, or adjectives. I have shown that modified component part terms are not grammatical as component part locatives, because TVZ component part locatives are prepositions and component part terms modified by adjectives, numbers, quantifiers, or the plural marker are necessarily nouns. The data presented here provide support for my claim that component part locatives, though identical in form to component part nouns and historically derived from them, are not synchronically nouns.

It would be nice to also be able to provide evidence that there are ways that prepositions can be modified in TMZ that are not allowed for nouns, e.g. perhaps certain

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types of adverbs such as *straight through the door*, *completely in the hole*, *right on the shelf*, or *almost over the wall*. Unfortunately, so far I have not found any adverbs that only modify prepositions. Some adverbial type words such as the clitic =*ihzy* 'only' can modify prepositions, but can also modify nouns, among other things. The distribution of such morphemes, then, is not a useful diagnostic on its own, since I am looking for ways to test the syntactic difference between prepositions and nouns.

2.8. Component part prepositions as a synchronically closed class

Not all possessed component part can be used in locative constructions, even if they can be used metaphorically to refer to a part of a person, animal, or inanimate item. For example, in (33a) below, *guihche'ehcy* 'hair' can be used to referentially, but in (33b) we see that it cannot be used as a locative:

33. a. **X:-quihche'ehcy=a'** me'eu. (TMZ; 5:78)
POSS-hair=1SG dirty
'My hair is dirty'

b. *Yuhzh n-u'uh **x:-quihche'ehcy=a'**. (TMZ; 5:78)
sand NEU-be POSS-hair=1SG
bad with any meaning; e.g. cannot mean 'Sand is in my hair'

Thus, in TVZ, component part prepositions comprise a closed class of words and other component parts cannot be used as prepositions, even playfully. (34) provides a further example of this, with the component part *ca'ch* 'horns'. These can be used referentially to refer to the deer's antlers (34a), but cannot be used as a component part locative (34c). Instead, if the deer's horns are to be used as a location, it must be proceeded by a component part preposition, such as *làa'any* in (34b).

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34. a. X:-**ca'ch** **bzêiny** gwùu'ch. (TMZ; 5:78)
POSS-horn deer PERF.break
'The deer's antlers broke'

b. Chi'c b-iahahb mìi'iny **làa'any** **x:-ca'ch** **bzêiny**. (TMZ; Zhat:52)
then PERF-fall child in POSS-horn deer
'Then the child fell into the deer's antlers'

c. *Chi'c b-iahahb mìi'iny **x:-ca'ch** **bzêiny**. (TMZ; 5:78)
then PERF-fall child POSS-horn deer
bad with any meaning; e.g. cannot mean 'Then the child fell into the deer's antlers'

2.9. Explanation for ambiguous sentences

Recognizing that component part prepositions are syntactically distinct from component part nouns in TVZ also provides explanatory power. Consider sentence (35a) below, which is ambiguous between 'He is painting (while) inside the church' and 'He is painting the inside of the church (e.g. the inside walls and the ceiling of the church itself)'. The difference in meaning comes from a difference in syntactic structure. The first meaning corresponds to the structure in which *làa'any ydòòo'* is a noun phrase complement of the verb, as in (35b). The verb 'paint' is optionally transitive and the item that is being painted can be left unexpressed as in (35c) below. The second meaning in (35a) can be explained by viewing *làa'any ydòòo'* as a prepositional phrase adjunct, as illustrated in (35d). So, although the sentences (35b) and (35d) are string identical, they are structurally distinct, giving rise to the difference in meaning.

35. a. Ca-tìaa'=na'ah làa'any ydòòo'. (TMZ)
'He is painting the inside of the church' or 'He is painting (while) in the church'

b. Ca-tìaa'=na'ah [$_{NP}$ làa'any ydòòo'] (TMZ)
PROG-paint=3DST stomach church
'He is painting the inside of the church' (lit. 'He is painting the church's stomach')

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c. Ca-tìaa'=na'ah. (TMZ)
PROG-paint=3DST
'He is painting'

d. Ca-tìaa'=na'ah [PP làa'any ydòòo'] (TMZ)
PROG-paint=3DST in church
'He is painting (while) in the church'

If one were to analyze component part prepositions as synchronic nouns, one would have to say something additional in order to account for the meaning difference between these sentences, if one wished to derive the semantics from the syntactic structure. By recognizing the structural difference between these two types of sentences, the different semantics is easily accounted for.

2.10. The syntactic realization of component part prepositions

The exact syntactic realization of TVZ component part prepositions remains an open question. Below I will present several possibilities and discuss the types of data I might need to evaluate these hypotheses. There are two main distinctions to discuss: the first relates to the nature of the prepositional head and the second relates to the type or level of prepositional head involved.

As for the nature of the prepositional head, the data I have presented in this section clearly argue for an analysis of component part locative phrases as prepositional phrases. However, there could be (at least) two possible realizations of this: the head of the phrase could be the component part locative, as in (36a), or it could be a null prepositional head, as in (36b).

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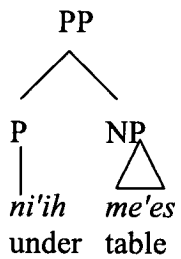
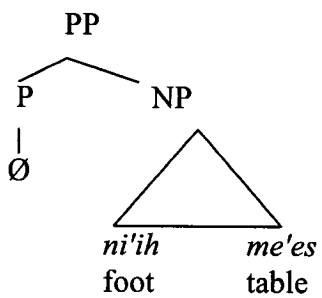
36. a. component part preposition as prepositional head



b. component part locative as nominal complement of null prepositional head



I believe some of the data presented in this section could be used in evaluating these hypotheses. In the case of (36b), the analysis would require that the null prepositional head select for a possessed noun phrase beginning with one of the closed class of component part locatives. This brings up many of the same issues discussed regarding verbal c-selection in §2.5.

In addition, under the null-prepositional head analysis, the TVZ component part locatives would be nominal complements perhaps akin to *front* in English *in front of*. If this were the case, it may be possible to find evidence of the nominal status of the component part locative. In §2.5 I showed the component part locatives may not be modified as nouns can, but this may not be strong enough to rule out this possibility.

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It may seem as though semantics may help in this determination, but given the data I present in Chapter 4, I feel that meaning and semantics cannot be used to determine the syntactic category of a component part locative.

An additional open question has to do with the type of prepositional head involved. Recent work by Koopman (1997) gives evidence from Dutch that what we might think of as a "PP" actually contains a large architecture of other phrases. For prepositional phrases which represent paths, there are two additional projections above CP_{PLACE} (not represented in Figure 2) the highest being Deg_{PATH}, which selects for a PathP, which in turn selects for a CP_{PLACE}, the structure of which is shown below in Figure 2.

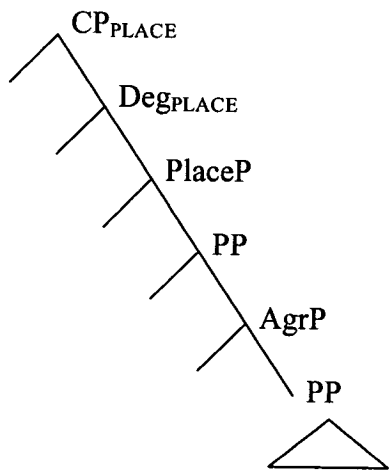

Figure 2. the structure of a "prepositional phrase" (based on Koopman 1997, ex 107)

The tests Koopman (1997) uses in Dutch to argue for such a structure are, not surprisingly, not necessarily replicable in TVZ. However, I may be able to find some relevant data in future work to evaluate this structure for TVZ.

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2.11. The syntax of CVZ component part locatives

At this point I do not have enough evidence to make a strong conclusion about the syntactic category of component part locatives in CVZ. While there is evidence that component parts were used as locatives in CVZ, there is no direct evidence that they were prepositions at the time. Neither was there any direct evidence that they were nouns. For this reason, I gloss all CVZ component part locatives with their referential component part meaning in the examples.

I've been collecting evidence on their syntactic behavior and at this point can offer a few descriptive observations. Unsurprisingly component part locative phrases can be coordinated with each other (37a). This is not helpful in determining the syntactic category, though, since we would expect that any like categories (i.e. both prepositions phrases and noun phrases) could be coordinated with each other. Perhaps eventually more useful is that the objects of component part locatives can be coordinated with each other (37b).

37. a. [**lao** yobi don domingo Ramirez] ... chela [**lao** naa sebast
face same Don Domingo Ramirez ... and face 1SG Sebastian

lopez Escu°s xiteni=ni] bi-eni.lao sebastian lopez (CVZ; Te618b;3)
Lopez scribe of=3 PERF-appear Sebastian Lopez

'[before the same Don Domingo Ramirez] ... and [before me, Sebastian Lopez, his scribe], Sebastian Lopez appeared'

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b. **lao** [yobi don Miguel lopez gu^{or}] chela
face same don Miguel Lopez governor and

[Juan de Alvarado e matia lopez alls ordinarios por
Juan de Alvarado and Matias Lopez alcaldes ordinarios for

su magestad] bi-enilaa Julian lopez (CVZ; Te626-5;3)
his majesty PERF-appear Julian lopez

'before [the same Don Miguel Lopez, governor], and [Juan de Alvarado and Matias Lopez, alcaldes ordinaries for his majesty], appeared Julian Lopez'

A final observation is that component part locatives can appear with the clitic *=ca* 'also' (38). However, we don't yet know enough about this clitic to know whether we can use it as a diagnostic for syntactic status.

38. chela **lao**=ca s^{or} do J^{o} perez g^{r} (CVZ; Te590;10)
and face=also señor don Juan Perez governor
'and also before Juan Perez, governor'

It seems possible to me that evidence using syntactic structures such as coordination or placement of clitics may eventually shed light on the syntactic status of component part locatives in CVZ. Without negative evidence, however, argumentation will be difficult.

2.12. Co-occurrence, lexicalization, and incorporation of *loh*

Component part terms can be found co-occurring with other words in TVZ, including verbs (§2.12.1), nouns (§2.12.2), adjectives, adverbs, and prepositions (§2.12.3). While *loh* 'face' is not the only component part term that functions in this way, it occurs very frequently in such lexicalized environments. In the following sections I give examples of *loh* co-occurring with or being incorporated into various other types of words. A precise analysis of the status of *loh* in these words is for future research. Finally, in §2.12.4, I address the question of once such putative co-occurrence of *loh*, namely in the word for

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'first', and argue that there is not enough evidence in modern TVZ to support concluding that *loh* is part of the word for 'first'.

2.12.1. Verbs

In SLQZ there are many verbs that appear to have the word *loh* 'face' incorporated into them. Here I am only considering instances where *loh* functions morphologically as part of the verb. There are also many instances where *loh* co-occurs with a verb as a separate word. For discussion of these instances, see §3.8.

The verbs presented in Table 4 share the feature that the verbs with *loh* all correspond to verbs without *loh* and the presence of *loh* adds the meaning of 'face' or 'head', although some of the meanings are more compositionally opaque than others.

SLQZ verb with *loh*	**definition**	**related to***	**definition**
rbèe'loh (223)	sticks his head out	rbèe'eh (223)	1. takes out, pulls out, kicks out; takes off…
rgui'xloh (252)	appears in, shows his face in (a place)	rguìi'x (253)	lays (a long obj.) down, puts (a long obj.) down
rguìinyloh (253)	hits his face against	rguìiny (252)	2. hits, beats up; punishes

Numbers in parenthesis are references to page numbers in Munro and Lopez, et al. 1999.
*Based on cross-reference to these words in Munro and Lopez, et al. 1999.

Table 4. SLQZ verbs containing *loh*, with meaning 'head' or 'face'

There is evidence that a word meaning 'appear' in CVZ also contained *loh*. In the examples in (39) the form *lao* appears in both verbs meaning 'appear'. In addition, the locative *lao* occurs before the individuals the subject is appearing before. That is to say, in this construction there is both a *lao* in the verb 'appear' and a *lao* apparently meaning 'before'.

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39. a. **lao** yobi don domingo Ramirez…
face same Don Domingo Ramirez…

chela **lao** naa sebast lopez
and face 1SG Sebastian Lopez

Escu°s xiteni=ni bi-eni.**lao** sebastian lopez (CVZ; Te618b;3)
scribe of=3 PERF-appear Sebastian Lopez

'before the same Don Domingo Ramirez … and before me, Sebastian Lopez, his scribe, Sebastian Lopez appeared'

b. baltasar Hernãdez … ti-ene.**lao**
Baltasar Hernandez … HAB-appear

lao yobi=to señores governador alcaldes (CVZ; Te589a;4)
face same=2PL señores governor alcaldes

'Baltasar Hernandez… appears before you lords: the governor and the alcaldes'

However, elsewhere the verb 'appear' occurs with *laa* instead of *lao* (or any other orthographic variant if *loh*) (40a). This particular instance seems to correspond to the Córdova dictionary entry (40b).

40. a. **lao** yobi don Miguel
face same don Miguel

lopez gu^{or} chela Juan de ordinari e matia lopez alls
Lopez governor and Juan de Alvarado and Matias Lopez alcaldes

ordinaries por su magestad bi-eni.**laa** Julian lopez (CVZ; Te626-5;3)
ordinaries for his majesty PERF-appear Julian lopez

'before the same Don Miguel Lopez, governor, and Juan de Alvarado and Matias Lopez, alcaldes ordinaries for his majesty, appeared Julian Lopez'

b. t-ieni.**la** (CVZ; Córdova 1589b: 301v)
HAB-appear
'appears'

Table 5 shows some additional SLQZ verbs containing *loh*.

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SLQZ verb with *loh*	definition	related to*	definition
rcahloh (227)	gets sharpened	rcah (226)	1. bangs, explodes; 2. is on the tree (of fruit); 3. climbs (a tree); 4. rings (of a bell); 5. gets put on (someone's feet) (of footgear); 6. gets written; get spelled
rculoh (229)	takes care of, watches over (of a shepherd, for example)	--	--
rti'uhlohoh (284)	gets ashamed, gets embarrassed	x:tu'uh (364)	shame

Numbers in parenthesis are references to page numbers in Munro and Lopez, et al. 1999.
*Based on cross-reference to these words in Munro and Lopez, et al. 1999.

Table 5. SLQZ verbs containing *loh*, with meaning 'head' or 'face'

The effect of *loh* of the valency of the verb is not consistent, as shown in Table 6. The first three verbs decrease their valency when *loh* is added. With the third and fourth verbs, it is less clear. The fifth verb has the same valency with or without *loh* and the last verb has increased valency with *loh*.

SLQZ verb with *loh*	valency	related to*	valency
rbèe'loh (223)	intransitive	rbèe'eh (223)	transitive
ràannloh (217)	intransitive	ràann (217)	transitive
rcwàa'tsloh (231)	intransitive	rcwàa'ts (231)	transitive
rcahloh (227)	intransitive	rcah (226)	intransitive / transitive
rti'uhlohoh (284)	intransitive	x:tu'uh (364)	(noun)
rgui'xloh (252)	transitive	rguìi'x (253)	transitive
rguìinyloh (253)	transitive	rguìiny (252)	intransitive

Numbers in parenthesis are references to page numbers in Munro and Lopez, et al. 1999. *Based on cross-reference to these words in Munro and Lopez, et al. 1999.

Table 6. valency and SLQZ verbs containing *loh*

Munro (p.c.) has found that some verbs that end in *loh* 'face' undergo different phonological changes when inflected than other verbs also ending in *loh* 'face'. Future

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work using data such as these may shed like on the status of *loh* within these verbs and perhaps the different phonological behavior will be shown to correspond to some different level of incorporation of *loh*.

2.12.2. Nouns

There are several nouns in SLQZ (and other TVZ languages) that begin with *loh*, some of which are presented in Table 7.

loh bcùùu'	altar (in a church)
loh ca'i	street
loh guee'ihzh	town, village, pueblo
loh gyìi'ah	market, plaza, town square
loh ndèe'	courtyard
loh nyààa'	field, land
loh pyeeiny	altar (in a home)
loh zhihah	field
loh zhya'an	altar (in a home)
lohcwah	forehead
lohguìi'x	pasture
lohlyeht	squash greens and flowers
lohnih	fiesta

Table 7. SLQZ nouns with *loh* (data from Munro and Lopez, et al. 1999)

There is evidence from CVZ that some of these forms were used in Colonial times. In the following example we what appears to be a cognate to *lohguìi'x* 'pasture' (cf. (42a)).

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41. ya c-oni=to cica mani ya qui-chaga-xihui
NEG IRR-do=2PL thus animal NEG IRR-meet-sinfully

leçaa=to **loo** tanni=la **loo** guiixi=la (CVZ; Doc-6;3)
spouse=2PL face mountain=and face pasture=and

'You shouldn't do as the as animals (do), you should not sinfully meet (i.e. fornicate with) your spouse in the mountains and / or in the pasture'

We have no examples of *loh nyààa'* or *loh zhihah* 'field' in our CVZ documents, but other words for 'field' and 'land' in the dictionary (Córdova 1578b) appear with what may be *loh* at the beginning.

42. a. ***láoquíxi*** 'field, in general' (CVZ; Córdova 1578b:69v)
b. ***láche***, ***làache*** 'field, or plowed land' (CVZ; Córdova 1578b:69v)
c. *yòo* 'land, in general' (CVZ; Córdova 1578b:401v)
d. ***layòo*** 'land' (CVZ; Córdova 1578b:401v)

I found one instance of 'market' in the Colonial documents, and it appeared without *loh* (43a), although the dictionary entry gives forms both with and without *loh* (43b).

43. a. che=to **queya** quille=to xilla=la quicha=la (CVZ; Doc-4;2)
IRR.go=2PL market IRR.look_for=2PL cotton=and wool=and
'You are to go to the market, you are to look for cotton and wool'

b. *quíya*, ***lòoquija*** 'market' (CVZ; Cordova 1578b:265v)

There are Colonial examples of 'pueblo' occurring both with (44) and without (45) *loh*. It may be relevant that (44b) and (44c) appear as part of compounds which mean 'people of this town' or 'natives of this town'.

44. a. tuatinij **gueche** San Bartolome Saabeechee
here pueblo San Bartolome Saabeechee

Jurisdicion **guechee** Loolaha (CVZ; Co721-12)
jurisdiction town Oaxaca

'Here, in this pueblo San Bartolome Saabeechee (in) the jurisdiction of the town of Oaxaca'

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b. gui-ayeni gui-ra beni **gueche** rini
IRR-understand IRR-all person town this

xi-ticha=ya (CVZ; Te616-1;3)
POSS-word=1SG

'All the people of this town should understand my words'

c. quetao ju° lopez beñigualachi **quechi**
late Juan Lopez native pueblo

sant sebastian (CVZ; Te618b;5)
San Sebastian

'the late Juan Lopez, native **of the pueblo** of San Sebastian'

45. a. **lao** **gueche** zetoba pvincia Lolaha (CVZ; Te589a;1)
face pueblo Zetoba province Oaxaca
'In the pueblo of Zetoba, province of Oaxaca'

b. **Lao** **quechi** cetoba Corona Real
face pueblo Cetoba crown royal

desta nueba Espâña (CVZ; Te618b;1)
of_this new Spain

'In the pueblo of Cetoba, [of the] Royal Crown of this New Spain'

c. naha garbiel luis ni na-ca=ya beni gualachi Tuarijni
1SG Gabriel Luis REL NEU-be=1SG person native here

lo **guecha** San Sebastian Zetuba na-gaba=ya
face pueblo San Sebastian Zetuba NEU-be.counted=1SG

lo barrio Quiaqueza (CVZ; Te610-1;6)
face barrio Quiaqueza

'I, Gabriel Luis, who is a native of here, of the pueblo of San Sebastian Zetuba, and count myself in the barrio Quiequeza'

Every instance of *bcùùu'* 'altar' in the Colonial documents co-occurs with *loh* 'face', e.g. (46), although (47) suggests that this might indeed be co-occurrence and not incorporation, since a quantifier intervenes between *loh* and *bcùùu'*.

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46. chela ti-ni=a lani yoho-tao **lao** **becogo** san ju°
and HAB-say=1SG stomach house-big face altar Saint Juan

ruacani cabeceras giu-gachi pela-lati=a (CVZ; Te626-1;26)
here cabecera IRR-be_buried flesh-meat=1SG

'and I say [that] in the church, in front of / at the altar of Saint John here in the cabecera my body will by buried'

47. toby=ga tomines r-oni=ja gona
one=each tomines HAB-do=1SG offering

lao too-tobi=ga **beecoogo** (CVZ; Co721-2;9)
face one-one=each altar

'I make an offering of one real to each altar'

In modern TVZ these nouns are never used with an extra locative *loh* as described in the SLQZ dictionary. We have no evidence that this was possible in CVZ either.

> Many n[ouns] that refer to locations begin with *loh* or can be used with or without initial *loh* (usage varies considerably between speakers). Sometimes (though not always) the form with *loh* has a more specifically locational reference than the form without *loh* {*Zagrùu nàa' bcùùu'* "The altar is pretty"; *Zagrùu nàa loh bcùùu'* "The altar is pretty, What's on the altar is pretty"}. Sometimes *loh* can never be dropped from these nouns. Sometimes *loh* drops only in the plural {*loh nyààa'* "field"; *ra nyààa'*, *ra loh nyààa'* "fields"} or in certain other forms. An extra locative *loh* preposition is never used with these words, which confirms the idea that they do ultimately refer to a location.
>
> Munro and Lopez, et al. 1999:154; Spanish omitted, italics added

In addition to the nouns presented above, there are place names that begin with *loh* in SLQZ, for example:

48. a. ***Loh*** *Gu'uhzhy Ygwìa* 'La Ciénega Zimatlán' (SLQZ; ML:155)
b. ***Loh*** *Gyiahr Zihny* (name of a place near San Lucas) (SLQZ; ML:155)
c. ***Loh*** *Gyu'uhzh* (name of a place) (SLQZ; ML:155)
d. ***Loh*** *Rra'i* (name of a place) (SLQZ; ML:155)

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2.12.3. Adjectives, adverbs, and prepositions

There are adjectives in SLQZ that contain *loh*. All of these seem related in meaning to 'face' or 'eyes'.

> **loh po'op** big-cheeked, with big cheeks (adj.) {... *mnìi'iny loh po'op* "child with big cheeks"}
> ...
> **lohar bi'ich** blue-eyed, green-eyed {... *bùunny lohar bi'ich* "green-eyed person"}...
> **lohar bi'ich-bi'ichta'** very blue-eyed, very green-eyed {... *bùunny lohar bi'ich-bi'ichta' mnnaàa' lohni'* "I saw the very green-eyed person"}...
> **lohar ngwahd** crosseyed {... *lia lohar ngwahd* "crosseyed girl"} ...
> ...
> **lohca'ài** nearly blind {attr. only; *bùunny lohca'ài* "nearly blind person"} ...
> Munro and Lopez, et al. 1999:155-156; Spanish omitted, italics added

The adverb *lohbih*, which contains *loh* and *bihih* 'air' is identified as a adverb in the SLQZ dictionary.

> **lohbih** in the air (not moving) (adv.) {*Lohbih zèi'byih* "It's hanging in the air"} > bihih
> Munro and Lopez, et al. 1999:155; Spanish omitted, italics added

Finally, *loh x:cahll* seems to be a complex preposition containing *loh*.

> **loh x:cahll** through, because of {used with following adj[ective] plus p[o]ss[esso]r; *Loh x:cahll milàagr Dyooz bìe'd Cria'st loh gax:lyuh* "Through God's miraculousness Christ came to earth"; *Loh x:cahll nto'onnëng gunyi'tyëng x:mu'ullyëng* "Through his stupidity he went and lost his money"}
> Munro and Lopez, in prep.:130; Spanish omitted, italics added

2.12.4. Is *loh* part of 'first'?

MacLaury (1989) suggests that the word for 'first' also contains 'face'.[5]

> Regarding body-part terms, Ayoquesco Zapotec comes closest to Trique usage with *gālō* 'first, which combines the symbolic syllable of 'down', *ga*, with 'face',

[5] Thanks to Joe Benton for pointing MacLaury's etymology out to me.

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lō. Anything that is first is lowest, as items are piled or as they were numbered by [the] pre-Columbian notation of ascending bars and dots.

footnote in MacLaury 1989: 151-152

Indeed the both the Colonial forms (49) – (50) and the modern forms (51) seem to have 'face' in them at first glance.

49. *quelàogáa* 'primero o primeramente o principalmente' (CVZ; Cordova 1578b:327v)

50. a.

ya	go-calachi=ni	ni-ozeñelao=ni	que.**lao**=ga
NEG	PERF-want=3	NEU-reveal=3	first=CL

chela	go-cazilachi=ni	go-tete=ni	tichapea (CVZ; Te590;11)
and	PERF-do_purposely=3	PERF-violate=3	command

'He did not want to reveal (them) at first but he purposely transgressed the order'

b.

qui.**lao**=gaa	r-ogago	aya	xitini=a
first= CL	HAB-give	anima	of=1SG

dios	xi-bejuana=ya (CVZ; Te618a-1;12)
God	POSS-lord=1SG

'First, I[6] offer my soul to God my Lord'

c.

zica	be-togoticha	alldes	ni	r-enaa	lao	auto
thus	PERF-judge	alcaldes	REL	HAB-say	face	ruling

ni	que.**lao** (CVZ; Te590;38)
REL	first

'thus the alcaldes have judged, what [it] says in the first ruling'

However, MacLaury's etymology seems problematic for modern TVZ forms. While SLQZ 'first' might appear to contain 'face' (51a), it does not obviously contain 'down' (51b). Munro (p.c.) suggests that the *y* in *yloh* is the irrealis aspect prefix.

51. a. *yloh* 'first' (SLQZ; ML:367)

b. *gue'et* 'down' (SLQZ; ML:124)

Thus, I feel the etymology of TVZ 'first' is unresolved at this point.

---

[6] The absence of a first person subject here appears to be an instance of the covert subject construction (Avelino et al. 2004).

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CHAPTER 3

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3. Component Part Prepositions: Meaning and Use

This chapter presents a description and analysis of the meaning and use of component part prepositions in Tlacolula Valley Zapotec. In §3.1 I present a preliminary description of the meaning of locative component part prepositions. In §3.2, I define inherent and relative component parts, which will provide an important foundation for the rest of the chapter. In the following three sections, I then address other aspects relevant to the semantic behavior of these prepositions: the relationship between the prepositions and the search domain (§3.3), frames of reference (§3.4), and Viewpoint (§3.5). Then, in light of these semantic characteristics, I return to the characterization of the meaning of the locative component part prepositions in §3.6.

In §3.7 I discuss the use of component part terms in directional constructions and in §3.8, I describe and analyze the non-locative meanings of *loh* 'face'.

In §3.9, I present data on child language acquisition of component part terms in TVZ and finally, in §3.10, I propose a path of semantic change and syntactic reanalysis to account for the patterns presented throughout this chapter.

Throughout these sections I provide data from TVZ, both narrative data and elicited data, and from Colonial Valley Zapotec.

3.1. The locative meaning of component part prepositions, preliminary

In this section, I provide examples (where possible, textual) of the locative uses of the component part prepositions, along with the SLQZ dictionary (Munro and Lopez, et al.

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1999) entries of these words in order to give the reader a feel for the range of meanings they have.

The description of the modern meaning of these words is supplemented by examples of their use in Colonial Valley Zapotec. As discussed in §1.1.5, the orthographic conventions used in the Colonial documents are not consistent. What we believe is one word is often spelled many different ways. For example, cognates to the modern TVZ *loh* 'face' appear in our CVZ documents n a number of different ways, including *lloo*, *lo*, *lao*, and *loo*. It is not clear in general how CVZ spelling corresponds with CVZ pronunciation. When referring in general to the CVZ cognates of any TVZ word I will just use the modern form, e.g. in this case *loh*. And when referring to a specific instantiation in a document, I will use the CVZ spelling used in that instance. Finally, when glossing the CVZ, I will gloss the component part locatives with their basic component part meaning; e.g. *loh* as 'face'. I intend this gloss to be non-committal as to the syntactic category of CVZ *loh*, which remains an open question, as discussed in §2.11. I include examples of both referential and locative meanings in the Colonial Valley Zapotec. The lack of referential, locative, or both types of meaning means that I have not yet found such a token in my corpus.

I intentionally include no directional or non-locative examples in this section, as these are discussed in §3.7 and §3.8 respectively. This section is meant as a starting point for the discussion of the meaning of these terms, which are presented below in alphabetical order. In §3.6 I present a revised analysis of the meanings of each term in light of the discussion presented in the intervening sections.

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3.1.1. *Cwe'eh* 'beside'

In the following sections I outline the use of *cwe'eh* as a locative in modern TVZ (§3.1.1.1) and Colonial Valley Zapotec (§3.1.1.2).

3.1.1.1. Locative *cwe'eh* in modern TVZ

Cwe'eh, related to the (sometimes) component 'side' (cf. §2.2.1), in its locative sense is usually translated into English as 'beside' (1a) or 'at the side of' (1b), although there are times where these might not seem like natural English, as in (1b).

1. a. Bèe'ecw ni-ga'ah **cwe'eh** gyiah. (TMZ; Zhat:51)
   dog NEU-lie beside rock
   'The dog was lying beside the rock'

   b. ...y-dzhìe'll=tuu' to'ohby bdòo' do'oo'by zhuh
   IRR-find=2INF.PL one baby NEU.wrapped_up loincloth
   ni-ga'ah **cwe'eh** peseebr (TMZ; Luc:33)
   NEU-lie beside stable
   'You will find a baby wrapped in a loincloth, lying at the side of a stable'

In the SLQZ dictionary (Munro and Lopez in prep.) the meaning of "in front of (an inan[imate] obj[ect] without a clearly defined back and front)" is also given (94), as seen in the full dictionary definition below.

> **cwe'eh** 1. **beside, at the side of** (prep.) {*Beed sugwa' cwe'eh Lia Zh:ùaan* "Pedro is standing beside Juana"; *Zùub mnìi'iny cwe'eh caj* "The boy is sitting beside the box", *cwe'eh yu'* "at the side of the house"}; 2. **in front of (an inan[imate] obj[ect] without a clearly defined back and front)** (prep.) {*cwe'eh ca'j* "in front of the box"}; 3. side (of an inan[imate] obj[ect]) {*cwe'eh yu'uh* "the side of the house"; *Btàa'inyta' cwe'eh x:ca'rr Gye'eihlly chih gweh Gye'eihlly cho'c* "The side of Mike's car was pounded out after Mike had an accident"; *Rzh:èeby te'ihby ca'rr cwe'eh sa'ni'* "One car scraped against the side of another (like it)"}; 4. side (of anim[ate])
> ... §§ Many speakers do not agree that *cwe'eh* can mean "side" of an animate being (4). Some accept this meaning, however.
> Munro and Lopez in prep.: 94; Spanish omitted; italics and some bold added

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3.1.1.2. Locative *cwe'eh* in CVZ

Cwe'eh also appears in the Colonial documents, usually spelled as *cue*. It is not entirely clear from the definition in Córdova's dictionary if *cue* was used as a body or component part in the Colonial era; it is defined as "lado derecho or siniestro [right or left side]" (Córdova 1578b:238v), and it is not included in the list of body parts in the grammar (Córdova 1578a:199-201). Given that there is variation among modern TVZ languages and among speakers as to whether *cwe'eh* 'side' can be used as a body or component part (§2.2.1), it will be interesting to continue to pursue its status in the Colonial documents as we continue this research. In the documents we see apparent locative uses of *cue*, as in (2) below were it is used to delimit a plot of land, referring to the east side, the west side, and the side toward Oaxaca City.

2. pi-chaga pisa **cue** ri-llani gobicha **cue**
   PERF-join marker side HAB-rises sun side

   cue r-ina lolaa pi-chaga pisaa Mateo de la cruz
   side HAB-look Oaxaca PERF-join marker Mateo de la Cruz

   chela **cue** ri-ase gobicha pi-chaga pisa Migel Sanches (CVZ; Oc715; 23)
   and side HAB-set sun PERF-join marker Miguel Sanchez

   '[The land] adjoins[1] the marker on the side [where] the sun rises, [and on] the side [that] faces Oaxaca, it adjoins the marker of Mateo de la Cruz, and [on] the side the sun sets it adjoins the marker of Miguel Sanchez'

[1] Although the Zapotec verb appears in the perfective aspect I have translated the verb using an English present tense. Throughout the CVZ documents, we see verbs used to describe the location of land in the perfective aspect. I don't know why this should be the case. Perhaps the perfective aspect is due to the fact that the land was walked out and measured before the writing of these documents, and that that action, is in fact completed. If this is the case, perhaps a more faithful translation would be "(At the time of the measuring) [the land] adjoined the marker on the side [where] the sun rises…'. However, since it is presumable the case that at the time of the writing of these documents, these locational facts were still true, the use of perfective aspect is still not wholly clear.

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3.1.2. *Dehts* 'behind'

In its locative sense *dehts* (related to the component part 'back'), is usually translated as 'behind' (3).

3.	**Dehts**	mu'syc	a	nàall	mardo'mm
	behind	band	already	NEU.hang	mayordomo
	cohnn	raa=te'	x:-piu'uz=ni'ih (TMZ; Mardom:35)		
	with	all=INTSV	POSS-guest=3ANAP		

'Behind the band the mayordomo follows with all his guests'

In addition to these meanings, Munro and Lopez (in prep.) show that in SLQZ *dehts* can also mean "at the bottom of" (106) and "under" (106), as shown in the dictionary entry below.

> **dehts** 1. back (poss.) {*de'tsa'* "my back"}; 2. back, back side, back part; reverse side (poss.) {*Ua's nyàa dehts gyèe'ts* "The back (side) of the paper is clean"; *Bcwaàa' coloory dehts yu'uh* "I painted the back of the house"}; 3. **behind, in back of; on the other side of, on the far side of; on the back of (something without a well-defined front and back); at the bottom of; under** (prep.) {*Rro'd nàa'tga' dehts yu'uh* "Rodrigo is lying behind the house"; *dehts ca'j* "behind the box, on the other side of the box, at the bottom of the box, under the box"; *Gweh dehts wrra'ahlly* "Go on the other side of the fence"; *Xì càa dehts ca'rt?* "What is on the back of the card?"; *A'anng zugwa'ah dehts camyuuny* "He's standing on the far side of the truck"; *Dehts zhyàa'p zùub mnìi'iny nguìu'* "The boy is sitting behind the girl"; *Gucye'eht dehts yu'uh* "Go play in back of the house"; *Cacwaàa' coloory me'es dehts yu'uh* "I'm painting the table in back of the house"}; ...
>
> Munro and Lopez in prep.: 106; Spanish omitted; italics and some bold added

3.1.3. *Guë'ëhcy* 'on'

The locative meanings of *guë'ëhcy* in TVZ are described in 3.1.3.1. The use of *guë'ëhcy* in CVZ is described in §3.1.3.2.

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3.1.3.1. Locative *guë'ëhcy* in modern TVZ

Guë'ëhcy, related to the component part 'head', is often used to mean 'on top of' or 'at the top of', as in (4a) and (4b), though it can mean 'on' in a more general sense as well, as in (4c).

4. a. Zùub lo'ory guë'ëhcy gyahg. (SLQZ: ML in prep.: 85)

Zùub	lo'ory	**guë'ëhcy**	gyahg
NEU.sit	parrot	on	tree

'The parrot is sitting at the top of the tree'

b. Chi'c b-yèe'py mìi'iny **guë'ëhcy** to'ohby gyiah. (TMZ; Zhat:50)

then	PERF-go_up	child	on	one	rock

'Then the child went up on a rock'

c. Bzàa'llëng demasyaadtèe' zee'ihdy gue'ehcy ca'lld. (SLQZ; ML in prep.:85)

B-zàa'll=ëng	demasyaad=tèe'	zee'ihdy	**gue'ehcy**	ca'lld.
PERF-drop=3PROX	too_much=INTSV	salt	on	soup

'He put very much too much salt on [i.e., in] the broth'

The revised dictionary entry for *gue'ehcy* in SLQZ can be found below.

gue'ehcy, gë'ëhcy 1. head, top; 2. **on, on top of,** onto, **on the top of, at the top of** (prep.) {*gue'ehcy cammyuuny* "on top of the car; *Zùub lo'ory gë'ëhcy gyahg* "The parrot is sitting at the top of the tree; *Zùub mnìi'iny gue'ehcy ca'j* "The boy is sitting on top of the box; *Bzàa'llëng demasyaadtèe' zee'ihdy gue'ehcy ca'lld* "He put very much too much salt on [i.e., in] the broth; *A bu'uhdy zubga'ah gue'ehcy zh:àa' zhìi'mmy* "The chicken is sitting on the bottom of the (overturned) basket"; *A gyihzha'ah bga'ah gue'ehcy yu'uh* "Grass has grown on tops of the house"}; 3. hood (of a car) {pssd. only; *Bxèe'llya' gue'ehcy ca'rr* "I opened the hood of the car"}; 4. head, short side (of a rectangular table) {*Mnnàa'az gue'ehcy me'es chòo'nn-nèennëng la'nyu'uh* "Take the head of the table and we'll take it into the house"}
§§ *Gue'ehcy* means "hair" in many expressions, including some of the idioms listed below.
§§ *Gue'ehcy*, *lohoh*, and *pu'ann* can all mean "on, on top of". *Pu'ann* has the special sense of "at the very top of", while *lohoh* can mean "around the top of". *Gue'ehcy* is most neutral....

Munro and Lopez, in prep.: 85; Spanish omitted; italics and some bold added

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3.1.3.2. Referential and locative *guë'ëhcy* in CZV

Guë'ëhcy appears in the Colonial documents most commonly as *queque*, which is defined by Córdova as "cabeça generalmente [head, in general]" (1578b: 63). I found no instances of *queque* 'head' being used to refer to a human head in the documents. The referential uses in the documents seem to be metaphorical extensions from the body part, as in both (5a) and (5b), where 'head' is used to refer to the head of a town, perhaps a larger political organizational unit.[2] In (5b) a shorter form, *que*, is used instead of *queque*. *Que* may be another form for 'head' or there may have been some haplology occurring in this case, because of the phonetic similarity of the following syllable.

5. a. ny lao queche santo donmi[go] xiteni **queque** queche Huizo (CVZ; Hu643;1)
   here in town Santo Domingo of head town Huizo
   'Here in the town of Santo Domingo belonging to the head of the town of Huizo'

   b. don Pedro de Rojas alcalde ordinario lao **que** queche Huizo (CVZ; Hu642;5)
   don Pedro de Rojas alcalde ordinario in head town Huizo
   'Don Pedro de Rojas, alcalde ordinario of the head of the town Huizo'

In (6) *guë'ëhcy* is used as a locative, locating a particular field within a larger piece of land.

6. se-tobi cueelayoo ni-tete **quique** layoo xiteni
   DEF-one planted_field NEU-go_across head land of

   Don Juan peres (CVZ; Te610-2;8)
   Don Juan Perez

   'another planted field crosses the top of the land of Don Juan Perez'

[2] Kevin Terraciano (p.c.) has suggested that the expression *que(que) queche* might be analyzed as 'the head town', referring to the *cabecera*. He notes that Nahuatl and Mixtec developed similar terminology involving the words for head and town to refer to the new colonial designation of a *cabecera*. However, this would require a structure in which the modifier precedes the head, which is unusual for head initial languages.

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3.1.4. *Làa'any* 'in'

In §3.1.4.1 I present the locative meanings of *làa'any* in modern TVZ and in §3.1.4.2 I present the locative meanings of *làa'any* in Colonial Valley Zapotec.

3.1.4.1. Locative *làa'any* in modern TVZ

Làa'any, related to the component part term 'stomach', is used to mean containment 'in' in the sense of contained within, as can be seen in (7a) and (7b).

7. a. N-u'uh guë'ëhcy bèe'ecw **làa'any** bo't bi'edr. (TMZ; Zhat:22)
   NEU-be head dog in jar glass
   'The dog's head was in the glass jar'

   b. **Làa'any** barra'annc n-u'uh nnyi'his. (TMZ; Zhat:63)
   in pond NEU-be water
   'In the pond there was water'

In a few cases, *làa'any* seems better translated with English 'under', as in (8). However, given that *làa'any* cannot mean 'under' in general, I suggest that this is because the space delineated by the legs of the table is enough to count as containment in TMZ (though not in English).

8. Bèe'ecw zuu **làa'any** me'es. (TMZ)
   dog NEU.stand in table
   'The dog is standing under the table (lit. in the table)'

Metaphorical containment may also be expressed by *làa'any* as in (9), where the event is expressed as having happened within a certain time frame, apparently using a metaphor of time as a container (cf. Lakoff 1987; Lakoff and Johnson 1980), as far as I can tell much as in the English, although I have not pursued the details of this metaphor.

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9. B-èe'iny=nìi' aconteseer **làa'any** da zhih-cy (TMZ; Luc:1)
PERF-do=3PROX tell in PL day-that
It was told in those days

In addition to these meanings, Munro and Lopez, et al. (1999) report a non-containment meaning of 'in' in SLQZ (10a). I tested this use in TMZ as well, by asking my consultant to translate the English sentence *He sang with a microphone*. I purposely avoided saying *in a microphone* in English, since I did not want to prime him with *in*. He volunteered (10b) and accepted (10c). (The fact that he accepted and repeated, but did not volunteer (10c) is indicated with the preceding "√".)[3]

10. a. B-ìi'lly=ëng **làa'any** gyìie'b. (SLQZ; ML in prep.: 119)
PERF-sing=3PROX in metal
'He sang into a microphone'

b. B-ìi'lly=ba' làa'any gyìie'b (TMZ; 5:78)
PERF-sing=3RESP in metal
'He sang with a microphone' / 'He sang into a microphone'

c. √ B-ìi'lly=ba' cohnn gyìie'b (TMZ; 5:78)
PERF-sing=3RESP with metal
'He sang with a microphone' / 'He sang into a microphone'

d. *B-ìi'lly=ba' loh gyìie'b (TMZ; 5:78)
PERF-sing=3RESP on metal
'He sang with a microphone' / 'He sang into a microphone'

---

[3] It seems tempting to explain (10a) as a calque. However, I don't think there is enough evidence to make that conclusion yet. When I asked my consultant why we use *làa'any* in (10b) he said it was because "in Spanish it is *cantó en las vocinas, pero en dialecto no hay "en"*". I'm sure I don't completely understand all of what he meant to convey to me, but notice that he does give as part of the explanation for using *làa'any* the fact that *en* is used in Spanish, which again might support the theory that this meaning is a calque. However, I did not elicit this in Spanish. We were speaking in English and I purposely used the word "with", not "in". Additionally, the Spanish preposition *en* can be translated in Zapotec (and English) in many ways, depending on the situation, including "in" and "on". (Note that *loh* 'on' was judged ungrammatical in (10d).)
The English sentence *He sang into the microphone* might also be a source of a calque for *làa'any*, since my consultant also speaks English, but this seems much less likely. However, I did avoid this sentence to elicit the translation, to prevent any priming. It may be relevant that my consultant did not use English 'in' as his explanation for the use of *làa'any* in (10b).

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I have no other modern examples of non-containment uses of *làa'any*; however, I do have two Colonial examples, which are discussed below in §3.1.4.2; (15).

The SLQZ dictionary entry for *làa'iny*, i.e. *làa'any* (revised spelling) is quoted below. All locative meanings have been bolded.

> **làa'iny** 1. stomach {pssd.; *làa'inya'* "my stomach}; 2. inside (n.) {*làa'iny ru'uh* "the inside of the mouth"}; 3. **inside, in, into** (prep.) {*làa'iny ca'j* "inside the box"; *Rcyi'ang làa'iny sei'ty* "She cooks it in oil"; *Bìi'llyëng làa'iny gyìie'b* "He sang into a microphone, He sang with a microphone"; *Mnnàa'az gue'ehcy me'es chòo'nn-nèennëng la'nyu'uh* "Take the head of the table and we'll take it into the house"}; 4. **under** (prep.) {*Zuu bèe'cw làa'iny me'es* "The dog is lying under the table"}; 5. sex organs {pssd.}; 6. waist; middle{pssd.; *Chih gàannùu' loh Li'eb aazhyi' li'ìi'by sinnydoor làa'inyëng* "When you see Felipe a ciñedor will be tied around his middle"} ...
> §§ Not all speakers accept *làa'iny* 4.
> Munro and Lopez, in prep.:119; Spanish omitted; italics and some bold added

3.1.4.2. Locative *làa'any* in CVZ

Làa'any is also found in the Colonial documents as a locative, most commonly spelled as *lani* or *lanij*. The most common locative meaning attested is 'in', as seen in (11).

11. a.

alanij	toby=ga	tomines	r-oni=ja	gona	lao	too-tobi=ga
item	one=each	tomines	HAB-do=1SG	offering	face	one-one=each

beecoogo	nij	n-aso=nij	**lani**	yochotoo	gueche (CVZ; Co721-2;9)
altar	REL	NEU-stand=3	stomach	church	town

'Also I make an offering of one real to each altar which is in the town church'

b.

quij-raa	looa	xteni=ya	de	liensoo	nij
IRR-all	picture	of=1SG	of	linen	REL

n-oo=nij	**lanij**	yocho-lijchi=ya (CVZ; Co721-5;5)
NEU-be=3	stomach	house-POSS_house=1SG

'all my pictures on linen that are in my house'

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c. ti-elilaachij guela-na-banij selij
HAB-believe NMLZ-NEU-live eternal

lanij guehuij quijebaa (CVZ; Co721-1;22)
in palace sky

'I believe in eternal life in the palace of the sky (heaven).'

Perhaps not surprisingly, presence in a document also seems to count as containment in CVZ, as indicated in by the use of *lani* in (12).

12. a. **lanni** quichii escriptura de benta (CVZ; Oc740;5)
in paper bill of sale
'in the bill of sale'

b. firma xiteni=tonoo **lani** testamento niri (CVZ; Oc686-2;7)
signature of=1PL in will this
'our signatures in this will'

The example in (13) presents an interesting use of *lani*. Here it seems to be used meaning 'in (the possession of)'. The Spanish translation of this section reads "ytten beinte pesos que me deve Pasqual pere [and twenty pesos that Pascual Peres owes me]". Thus, while it seems unlikely that the twenty pesos are physically inside of Pascual Peres it could be that they pesos are in Pascual Peres's house, and the Zapotec is employing metonymy by referring to Pascual Peres when meaning his house. Or it may be the case that the phrase *lanij Pascual Peres* actually meant 'in Pascual Peres's house' at that time (it does not seem to have that meaning now), and that the component part locative *lanij* was perhaps similar to the French preposition *chez* in this regard (cf. Longobardi 2001).

13. alarij gaalee pesos nij n-oo **lanij** Pascual Peres (CVZ; Co721-5)
and twenty pesos REL NEU-be in Pascual Peres
'along with twenty pesos that are in (the possession of) Pascual Peres'

Lani occurs in a complex expression *laane-yo*, which apparently literally means 'in the house,' but is used simply to mean 'in.' The use of this word in modern SLQZ is

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restricted to inside buildings: "*la'nyu'uh* … inside, in… used only before certain nouns referring to buildings, such as *liihahz* 'house' and *scweel* 'school'" (Munro and Lopez, et al. 1999: 146). In the Colonial example below, it is used to express 'in the month of October'.

14. Ana co-xopa gobicha r-izaa chiy **laane-yo** beo octubre
now PERF-six sun HAB-fall day stomach-house month October
(CVZ; Hu643:1)
'Today, the sixth day in the month of October'

As mentioned above in §3.1.4.1, there is a Colonial example of the use of *làa'any* in a context where it may not have a meaning of 'in' in the sense of containment. There are two such examples where *làa'any* is used to express "on" in "on the cross" (15); these examples are almost identical, and are both from the same pueblo, but are separated in time by 28 years.

15. a. Bejuanna=na Jeesucristo xini dios
lord=1PL Jesus.Christ child god

ni co-ti=ni **lani** crus (CVZ; Ti683;2)
REL PERF-die=3 stomach cross

'our lord Jesus Christ, child of God who died on the cross'

b. Bejuana=na Jesuchristo xini-lij dios ni co-ti=ni
lord=1PL Jesus.Christ child-true God REL PERF-die=3

lani yaga cruz na-yona (CVZ; Ti711c;2)
stomach wood cross NEU-sacred

'our lord Jesus Christ, the true child of God, who died **on** the sacred wooden cross'

Expressing "on the cross" with *làa'any* is no longer possible in modern Tlacolula Valley Zapotec (16b), (16d). Instead, *loh* is used (16a), (16c).

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16. a. Crie'st guhty loh cru'sy (SLQZ; 5:87 (Munro p.c.))
Christ PERF.die on cross
'Christ died on the cross'

b. *Crie'st guhty làa'any cru'sy (SLQZ; 5:87)
Christ PERF.die jn cross

c. *Jesus* guhty loh cru's (TMZ; 3:230)
Jesus PERF.die on cross
'Jesus died on the cross'

d. **Jesus* guhty làa'any cru's (TMZ; 3:230)
Jesus PERF.die in cross

It is possible that somehow bring on the cross counted as "containment" in some sense for Colonial Valley Zapotec speakers, in which case it might not be that *làa'any* had a different meaning in CVZ, but that what changed in this instance is what qualifies as "containment".

3.1.5. *Loh* 'in front of; on'

The locative meanings of *loh* in modern TVZ are presented in §3.1.5.1, and both the referential and locative meanings of *loh* in CVZ are presented in some depth in §3.1.5.2.

3.1.5.1. Locative *loh* in modern TVZ

Loh, related to the component part 'face', has three locative meanings: 'in front of', 'on' and 'above'. It also has many non-locative meanings, which are discussed in §3.8. An example of *loh* meaning 'in front of' can be seen in (17).

17. Zuugwa'ah mìi'iny loh ca'rr. (TMZ; 2a:181)
NEU.stand child in_front_of car
'The child is standing in front of the car'

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Loh can have both a meaning of "gravitational 'on'" and "adhesional 'on'". I use "gravitational 'on'" to describe situations where the Ground is providing support to the Figure through gravity. Note that in English we could say *the tablecloth is on the table* and in a sense, it is also true that the table is under the table cloth. For gravitational 'on', then, we have the pattern that the Figure is on the Ground and the Ground is under the Figure. This contrasts with adhesional 'on', as we'll see below. Examples of *loh* with a gravitational 'on' sense can be seen in (18a) and (18b).

18. a. X:a=nìi'i n-u'uh **loh** guix:lyuh? (TMZ; Deluvia:12)
how=3PROX NEU-be on earth
'How is it on the earth?'

b. **Loh** me'es bèe'b manteel. (TMZ; 2b:121 re B:29)
on table NEU.be_high tablecloth
'The tablecloth is on the table', as in Figure 1

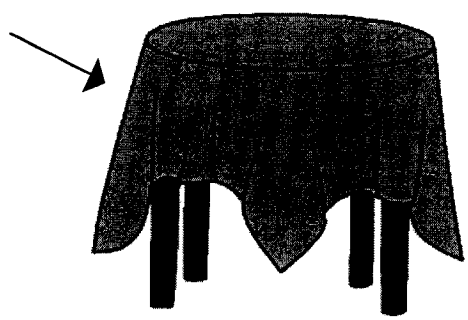

Figure 1. tablecloth and table (Bowerman n.d.:29)

Zapotec also uses *loh* to describe some cases of adhesional 'on' (19). In these cases the Figure is in contact with the Ground, but the support comes from some type of adhesion, such as glue or possibly screws in the case of the telephone and the wall in Figure 2, and not from gravity. Also note here that while in English we could say *the*

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telephone is on the wall there is no sense in which the wall is under the telephone. So unlike gravitational 'on', with adhesional 'on' while the Figure is on the Ground, the Ground is not under the Figure.

19. a. **Loh** pareed càa teléfon. (TMZ; 2b:120 re B:25)
on wall NEU.hang telephone
'The telephone is hanging on the wall', as in Figure 2

b. **Loh** stampi càa guë'ëhcy=da=b. (TMZ; 2b:121 re B:28)
on stamp NEU.hang head=PL=3RESP
'Their heads (faces) are on stamps', as in Figure 3

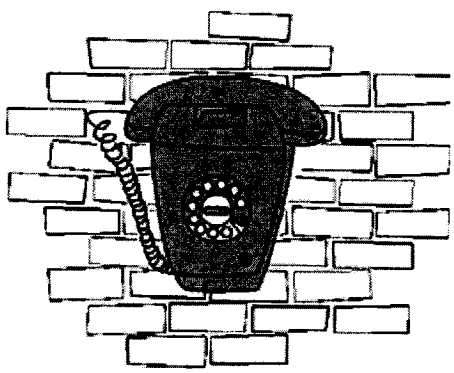

Figure 2. telephone and wall
(Bowerman n.d.:25)

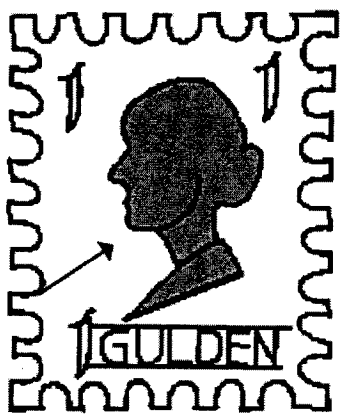

Figure 3. face and stamp
(Bowerman n.d.:28)

Finally, *loh* can mean 'above' or 'over' as in (20) which was volunteered by my consultant as a way to describe Figure 4.

20. Fo'c nàall **loh** me'es. (TMZ; 5:168 re B:13)
lamp NEU.hang above table
'The lamp is above the table'

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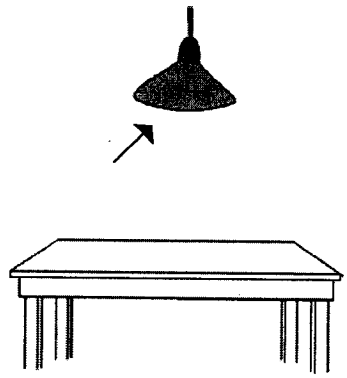

Figure 4. lamp and table (Bowerman n.d.:13)

Out of context, a sentence may be ambiguous between these multiple locative meanings, as shown in the example from SLQZ (21) where *loh* can be interpreted as either 'in front of' or 'on'.

21. Zùub mnìi'iny **loh** ca'j. (SLQZ; ML in prep.:131)
NEU.sit child in_front_of/on box
'The boy is sitting in front of the box' / 'The boy is sitting on top of the box'

Below is the dictionary entry for *lohoh* in SLQZ (Munro and Lopez in prep.). In addition to the meanings I have already discussed, this entry provides examples of *lohoh* translated as 'in' and 'inside', as meanings (5) and (8). The first example given in (5) and all the examples in (8) do not seem locational, so I discuss these in §3.8.

The second example in (5) does seem locational. *Loh* usually cannot mean in, especially in any sense of containment. Perhaps this sentence is an example of one of the uses of the adhesional 'on' meaning of *loh*, which is best translated into English as 'in'.

lohoh 1. face{pssd.}; 2. **in front of** (prep.) {*loh yu'uh* "in front of the house"; *Zùub mnìi'iny loh ca'j* "The boy is sitting in front of the box"; *Dye'baza' x:niaa gu'cëng chih byahb x:casoonnëng loh ra bùunny zyèiny* "He really was red when his pants fell down in front of those people"}; 3. to, toward (prep.); 4. **on, on top of, at the top of** (prep.) {*Zùub mnìi'iny loh ca'j* "The boy is sitting on top of the box"; *Lye'i bèe'b loh ni'ih mnìi'iny* "The key is on the boy's foot"}; 5. in, inside (prep.) {*Bìe'nyënn gaan te'ihby rràady loh rrie'f* "We won a radio in the raffle"; *Rgwi'a' ua's zagrùu nàa re'nn loh fo't* "I saw that it was very pretty

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here in the pictures"}; ... 8. in, during (prep.) {*loh sete'nntayseeis* "in seventy-six, in 1976"; *A'anng cayàann tye'nn que'ity tu ygwi'ih loh x:cyèe'ts sa'ni' loh prweeb* "He is observing to see that no one looks at the others' papers during the test"}; ...
§§ *Gue'ehcy*, *lohoh*, and *pu'ann* can all mean "on, on top of". *Pu'ann* has the special sense of "at the very top of", while *lohoh* can mean "around the top of". *Gue'ehcy* is most neutral.
... §§ *Lohoh* is pronounced in the phr. form *loh* in almost all syntactic contexts.
§§ *Lohoh* 2 is usually interpreted as meaning "in front of " when the obj. has an obvious front side; otherwise, it means "on top of ".
§§ *Lohoh* 2 is never used to express a location with a noun that begins with *loh*. See note at *loh*.

Munro and Lopez in prep.:131; Spanish omitted; italics and some bold added

3.1.5.2. Referential and locative *loh* in CVZ

Loh occurs very frequently in the Colonial documents, spelled as *lloo, lao*, *lo*, and *loo*. *Loh* occurs three times more often than any other component part term in these texts (Lillehaugen 2003). It also seems to have the broadest range of meaning, including the referential (3.1.5.2.1) and locative meanings (3.1.5.2.2) presented here and the non-locative meanings presented in §3.8.

3.1.5.2.1. Referential *loh* in CVZ

Córdova defines *láo* as "cara o rostro de animal [face (of a person) or face of an animal]" (1578a: 72) (22a). We have seen one example in the Colonial documents of *loh* referring to an physical body part, namely as part of the compound for 'eye' in (22b). The referential body part meaning seems to be the basic meaning for the word, and the thus these are examples of *loh* deriving meaning through direct reference.

22. a. láo (CVZ; Córdova 1578b:72)
'face [of a person] or face of an animal'

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b. cani tebela c-ana pizaa-**loo**=to (CVZ; Doc-2;19)
but if IRR-see bean[4]-face=2PL
'but if your **eyes** see'

In addition, there is an example of *loh* meaning 'face' in a more complex phrase (23). Here the component part meaning of 'face' derived through direct reference, but the meaning of the phrase as a whole is derived through metaphor.

23. tobi **loo** tobi lachi c-àca=to (CVZ; Doc-4;19)
one face one heart IRR-be=2PL
'you are to be of one face, one heart (i.e. you are to be in agreement)'

(24) shows *loh* being used to refer to a component parts of an inanimate, namely a house. This meaning is derived through metaphor, by projecting human or animal body parts onto inanimates.

24. huanee tiopa yocho tobij n-ohuij **lao**=nij nesaa loolaha chela
and two house one NEU-look face=3 way Oaxaca and

see-toobij n-ohuij **lao**=nij nesena late r-asi goobijcha
DEF-one NEU-look face=3 way place HAB-go_into sun

(CVZ; Co721-2;13)

'and two houses: one, its face looks toward Oaxaca and the other one, its face looks toward the place where the sun goes in (west)'[5]

A further type of metaphor is used in the meaning of *loh* in the examples in (25).

25. a. ri-guixelee-naalii=a **lao** **pizaa** (CVZ; Ti642;14)
HAB-declare-truly=1SG face border_marker
'I truly declare the boundaries'

---

[4] Thanks to Natalie Operstein, p.c. for suggesting the identity of this morpheme to me.
[5] Another possible interpretation of this passage involves incorporation of *lao* into the verb (a). This is perhaps supported by Córdova's entry: *tòhuilàoa* 'arrostrar a hazer algo [to face (something) to do something]' (1578b:40).
a. huanee tiopa yocho tobij n-ohuij-**lao**=nij nesaa loolaha ... (CVZ; Co721-2;13)
and two house one NEU-look-face=3 way Oaxaca
'and two houses: one, faces toward Oaxaca...'

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b. tuarij n-aca **lao** **pizaa** (CVZ; Ti642;21)
here NEU-be face border_marker
'here is the boundary'

This meaning can be accounted for through a "projecting space" metaphor (Hollenbach 1995). First, through metaphorical assignment of anthropomorphic component parts, the flat sides of the boundary marker become *lao pizaa* 'face of the border marker'. Then, the area projecting from that space comes to be referred to by the same name via metonymy. Thus, the lines projecting from the face of the border markers (e.g. one such line is indicated with a white arrow in Figure 5) are the boundaries.

Figure 5. boundary marker near San Lucas Quiaviní[6]

Another meaning of CVZ *loh* is "aspect, facet" (26). This meaning could be derived though metaphor in the following way: the original meaning of *loh* is face, which could come to mean a physical surface that you interact with (as we know *loh me'es* means 'table top'). This meaning of a physical surface one interacts with could come to mean a more abstract thing one interacts with, thus an "aspect" or "facet" of something.

[6] Photography by Pamela Munro.

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26. a. cache **loo** sacramento n-aca quela-hue-chaga-naa
seven face sacrament NEU-be NMLZ-NMLZ-be_joined_with-hand

ni la matrimonio (CVZ; Doc-1;7)
REL be_named matrimony

'The seventh aspect of the sacrament is marriage, which is called *matrimonio*'

b. ni r-ogozete xini=ni quela-còhue quela-hue-zaa=la
REL HAB-teach child=3 NMLZ-drunkard NMLZ-NMLZ-idolatry=and

chela ce-chacuee **loo** xi-china bezeloo. (CVZ; Doc-2;17)
and DEF-some face POSS-work devil

'who teach their children drunkenness, idolatry and other aspects of the work of the devil'

c. qui-taa **loo** ni na-quiña qui-nnici-chahui xini=ni (CVZ; Doc-3;25)
IRR-all face REL NEU-necessary IRR-grow-well child=3
'all the aspects of that which is necessary for their children to develop well'

d. qui-topa=ni c-òni=ni tobi-xe=ni qui-raa **loo** china (CVZ; Doc-3;22)
IRR-two=3 IRR-do=3 one-together=3 IRR-all face work
'the two of them can do together all aspects of the work (or all types of work)'

The final non-locative meaning attested in the documents is that of "type" (27a). This meaning is derived through overlapping pragmatic appropriateness with the meaning of "aspect", as in (26d). While this is not a meaning of *loh* in modern TVZ; it is in modern Coatecas Atlas Zapotec (27b).

27. a. c-òni=ni ce-chacuee **loo** china leçaa chiña nitij (CVZ; Doc-3;13)
IRR-do=3 DEF-some face work similar work this
'he should do other types of work similar to this (type of) work'

b. Coatecas Atlas Zapotec (Benton, in prep.)
Ni-zhi'b xa' rë n-ak **lo** xlë, lo tu mes.[7]
HAB-put 3h all S-be face fruit face one table
'They put all kinds of fruit on a table'

[7] The following additional abbreviations are used here: 3h, third person human; S, stative aspect.

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3.1.5.2.2. Locative *loh* in CVZ

The Colonial documents also show *loh* used to mean 'in front of; before' (28). This meaning can be derived through projecting space metaphor: the basic meaning of *loh* is 'face'; and if a Figure is located in the area of space projecting from a Ground's face, then the Figure is 'in front of' or 'before' the Ground.

28. a. **lao**=tonoo justicia aldes (CVZ; Oc686-2;6)
before=1PL justice alcaldes
'before us, the justice-alcaldes'

b. c-oni-laya=ni lato **loo** becogo (CVZ; Doc-6;11)
IRR-say-prayer=3 2PL face altar
'he will say a prayer for you in front of the altar'

c. **lao** naa[8] Dn Miguel de los angeles esriuano (CVZ; Te589a;22)
face 1SG Don Miguel de los Angeles scribe
'Before me, Don Miguel de Los Angeles, scribe'

d. **lao**=to ti-llaa xi-quionnaa Juan Peo (CVZ; Te568;6)
face=1PL HAB-be_broken POSS-land Juan Peo
'before us, the land of Juan Peo is divided'

e. **lao** qui-ona testigo chela chona beni-gola oficiales (CVZ; Oc715;11)
face IRR-three witness and three person-old official
'before the three witnesses and three elder officials'

As in modern TVZ, CVZ *loh* can meen 'on' (29). This meaning can be derived from the basic meaning of 'face' in the following way: first there is a metaphorical assignment of the body part face to inanimates, such as 'land' (29a) or a table, as in the modern *loh me'es* 'table top'. Then the projecting space metaphor can be used to locate a Figure in the area of space projecting from the Ground's 'face'. When the flat surface which has

[8] Those familiar with Zapotec syntax may be surprised by the presence of an independent pronoun following a body part. However, throughout the CVZ documents, the independent form of the pronoun is used as an object of *loh* in cases where the pronoun is followed by an appositive, as here.

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metaphorically been named 'face' is on top, as in the case of the land or the table, then this projecting space metaphor yields the locative meaning of 'on'.

29. a. xoonoo xaana tobaa ny n-oo **laoo** layoo (CVZ; Co721-5;16)
eight plant maguey REL NEU-be face land
'eight maguey plants that are on the land'

b. niacanij co-lo firma xitene=a **lao** quichi nitij (CVZ; Zi565;20)
thus PERF-put signature of=1SG face paper this
'Thus I have put my signature on this paper'[9]

c. chela chona tezena azote **lao** picota (CVZ; Ti642;32)
and three dozen flogging face whipping_post
'and three dozen lashes on / at the whipping post'

There are some cases when CVZ *loh* seems best translated with English 'in' (30). While the English "on her will" certainly would be an akward translation of (30a), this use of *loh* is almost identical to the use in (29b), and it seems consistent with the meaning described there. This use of *loh* is also possible in modern TMZ, as indicated in (30b).

30. a. coo-napea Maria de la Cruz **laoo** testamento xtenij=nij (CVZ; Co721-6;1-2)
PERF-order Maria de la Cruz on will of=3
'Maria de la Cruz mandated in her will'

b. B-cwaà=a' **loh** x:-testame'ent=a'... (TMZ; 5:149)
PERF-throw-1SG on POSS-will=1SG
'I wrote in my will...'

While 'on the mountains' and 'on the field' might sound like an odd translations in (31a), *làa'any* seems to be used for indicating a containment 'in' (§3.1.4), which doesn't seem to be what is indicated here. Note that *loh* is grammatical in modern TVZ in a similar construction (31b). In fact *làa'any* would only be used if the grass was very tall

[9] The lack of an overt subject in this sentence is an instance of the covert subject construction, as described in Avelino et al. (2004).

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(31c). However, it is probably more likely that CVZ *loo guiixi* is cognate to modern *lohguìi'x* 'pasture' which is one of the nouns discussed in §2.12 that co-occurs with *loh*.

I am not sure if *loh* can be used to say 'on the mountains' in modern TMZ, as a similar, but not identical sentence in (31d) is ungrammatical. It could be that (31a) may be an example of the broader locative use of *loh* in CVZ, which I discuss in §3.8.

31. a. ya c-oni=to cica mani ya qui-chaga-xihui
NEG IRR-do=2PL thus animal NEG IRR-meet-sinfully

leçaa=to **loo** tanni=la **loo** guiixi=la (CVZ; Doc-6;3)
spouse=2PL face mountain=and face pasture=and

'You shouldn't do as the as animals (do), you should not sinfully meet (i.e. fornicate with) your spouse in the mountains and/or in the pasture'

b. Da mìi'iny=i'ih ca-gyi'iht loh gyihzhya'ah. (TMZ; 5:149)
PL child=DIM PROG-play on grass
'The children are playing on the grass'

c. Da mìi'iny=i'ih ca-gyi'iht làa'any gyihzhya'ah. (TMZ; 5:149)
PL child=DIM PROG-play in grass
'The children are playing in the grass'; can be used if the grass is taller than the children

d. Jwaany r-bèèe'z loh mo'ont. (TMZ; 5:150)
John HAB-live on mountain
bad with any meaning; e.g. cannot mean 'John lives on the mountain'

e. Jwaany r-bèèe'z làa'any mo'ont. (TMZ; 5:150)
John HAB-live in mountain
'John lives on / in the mountain'

3.1.6. *Nnaàa'* 'at the hand of'

The component part preposition *nnaàa'*, which is related to the body part 'hand', has a very limited meaning of 'at the hand of' or 'on the hand of', as illustrated in (32). ('Hand' in Zapotec does not correspond exactly with 'hand' in English. In Zapotec 'hand' extends all the way from the fingertips to the elbow.)

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32. Fruat n-u'uh **nnaàa'** mnààa'. (SLQZ; CC:L20)
fruit NEU-is in_hand_of woman
'The fruit is in the woman's hands'

This locational meaning is documented for SLQZ in the dictionary (Munro and Lopez in prep.) Note that there is a bit of metaphorical extension in meaning (6): when *nnaàa'* is used with a tree, it means 'on the branch of'. (Branch in SLQZ is *nnaàa' gyahg*, where *gyahg* means 'tree'.)

> **nnaàa'** 1. hand; arm (of a person) {pssd.}; 2. front paw, front foot, front leg, foreleg, forepaw (of a four-legged animal); leg (of an insect or any creature with more than four legs) {pssd.; *nnaàa' bèe'cw* "the dog's front leg"; *nnaàa' x:matargàa'as* "the millipede's leg"}; 3. arm (of a chair) {pssd.}; 4. sleeve (of a garment){pssd.; *nnaàa' cotoony* "the sleeve of the shirt"}; 5. branch (of a tree){pssd.; *Guhch nnaàa' gyahg* "The branch of the tree broke"}; 6. **on the branch of (a tree)** (prep.) {*A lo'ory zu'bga'ah nnaàa' gyahg rèe'* "There's a parrot sitting on the branch of this tree"}
> ... §§ *Nnaàa'* refers generally to the whole arm and hand, though perhaps more specifically to the forearm (some speakers use *baar nnaàa'* "forearm"). *Zh:àa'cw* means "upper arm".
> Munro and Lopez in prep.:31; Spanish omitted; italics and some bold added

For further discussion of the meaning of this preposition in terms of frames of references see §3.6.1.

3.1.7. *Ni'ih* 'under'

In the following sections I describe the locative use of *ni'ih* in modern TVZ (§3.1.7.1) and the use of *ni'ih* in CVZ (§3.1.7.2).

3.1.7.1. Locative *ni'ih* in modern TVZ

Ni'ih, which means 'foot' or 'leg' as a noun, most commonly means 'under' as a locative (33).

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33. Bra'au n-u'uh ni'ih zhìi'mmy. (TMZ; 3:126)
lizard NEU-is under basket
'The lizard is under the basket'

It can also mean 'at the foot of' as in (34a). (34b) provides another example which is much easier to translate into English: here *ni'ih* can to mean 'at the bottom of' a document.

34. a. Zhi'et zuu ni'ih yu'uh. (TMZ; 3:299)
cat NEU.stand at_foot_of house
'The cat is standing at the base of the house'[10]

b. Na'rèe' g-ùuny=a' fi'rmm ni'ih gyìe'ts. (TMZ; 2a:275)
1SG.FP IRR-do=1SG signature at_foot_of paper
'I will sign at the bottom of the paper'

The SLQZ dictionary entry for *ni'ih* is below:

ni'ih 1. foot; leg (of a person, bird, or piece of furniture) {*tu ni'ih*? "whose foot?"; *ni' bùunny* "a person's foot"; *ni' me'es* "the leg of the table"}; 2. back paw, hind paw, back leg, hind leg (of a four-legged animal) {*ni' bèe'cw* "the dog's back legs"}; 3. handle (on a knife, for example) {*ni' bchiilly* "knife handle"}; 4. hem, bottom edge (of clothing); lower part {*ni' cotoony* "hem of a shirt"; *Ryuhnny guèèe'b ni' yu'uh* "Acahual gets fastened to the lower part of the house"}; 5. **under** (prep.) {*ni' yu'uh* "under the house"; *Zàa'ng ni'ih gyahg* "He walks under the trees"}

...

§§ *Ni'ih* refers to the whole leg and foot, and perhaps more specifically to the lower leg and foot. *Cùùu'dy* means "thigh".

Munro and Lopez, in prep.:18; Spanish omitted; italics and some bold added

3.1.7.2. Referential *ni'ih* in CVZ

Córdova defines *ni* as "pie o mano de animal quadrupede [foot or forefoot of a four-legged animal]" (1578b:314) and its appearance as a noun in the document is a

[10] This sentence is felicitous as long as the cat is on the ground, outside the house, fairly near the house (it can be touching the house, but it cannot be very far away from the house), and not under the house.

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metaphorical extension of the body part meaning, as in (35) below, where *ni* refers to the foot of the will.

35. quijchij testamento=ni **ni**=ni
paper will=3 foot=3

huane ro-chiua testigos laa=ni (CVZ; Za719-3;23)
and HAB-sign witnesses name=3

'The foot of his will and the witnesses sign their names.'

3.1.8. *Ru'uh* 'at the edge of'

I describe the locative meaning of modern TVZ *ru'uh* in §3.1.8.1, and in §3.1.8.2 I describe the use of *ru'uh* in CVZ.

3.1.8.1. Locative *ru'uh* in modern TVZ

The most common locative meaning of *ru'uh* (related to 'mouth') is 'on the edge of', as in (36).

36. **Ru'uh** me'es zùub ta's. (SLQZ; ML in prep.:32)
at_mouth_of table NEU.sit cup
'The cup is on the edge of the table'

It can also mean 'on', in the gravitational on sense as in (37b), and in the adhesional on sense in particular contexts, perhaps only on a window, as in (37a).

37. a. "*Alba's Antiquities*" nàa le'tr nih càa **ru'uh** bentaan
Alba's Antiquities COP letter REL NEU.hang at_mouth_of window

cuahnn Ingle's (SLQZ; CC:141)
with English

'"Alba's Antiquities" were the words that were on the window in English'

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b. Gyahg dêêi'dy **ru'uh** zhìi'mmy. (TMZ; 4:110)
stick NEU.go_across at_edge_of basket
'The stick is on the basket (positioned across it)'; re PosB:43, shown in Figure 6

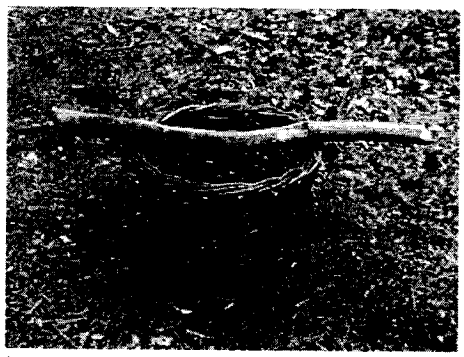

Figure 6. stick and basket (PosB:43)

Ru'uh can also mean 'in front of (a building)', as in the examples in (38).

38. a. Cay-uhny ra bùunny co'oll **ru'uh** dye'ennd (SLQZ; ML in prep.:32)
PROG-do PL person line at_mouth_of store
'People are in line in front of the store'

b. X:-tyo'p gusliiery cay-a'p
DEF-two guards PROG-supervise

ru'uh liehz gyìie'b. (TMZ; Bed:4)
at_mouth_of POSS.house metal

'Another two guards were standing guard in front of the prison'

The entry for *ru'uh* from Munro and Lopez, et al. (1999) is provided below.

ru'uh 1. mouth, opening; edge {pssd. only; *ru'a'* "my mouth"; *ru' ca'j* "the opening of the box"; *ru' me'es* "the edge of the table"}; ... 4. **inside, in** (prep.); 5. **in front of** (prep.) {*Cayuhny ra bùunny co'oll ru' dye'ennd* "People are in line in front of the store"}; 6. out of (prep.) {*Bcwàà'a' li'ebr ru' bentaan* "I threw the book out of the window"}; 7. **at the edge of, on the edge of** (prep.) {*Ru' guèu' zugwa'a' chih bdêêi'dy Gye'eihlly* "I was standing at the edge of the river when Mike went by"; *Ru' me'es zùub ta's* "The cup is on the edge of the table"; *Nadòo'ta' ra bèe'cw rizanèe'ng nehz ru' pla'i* "First she would walk with the dogs on (the edge of) the beach"} ...
Munro and Lopez, et al. 1999:303; Spanish omitted; italics and some bold added

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3.1.8.2. Referential and locative *ru'uh* in CVZ

Ru'uh is also found in the Colonial Valley Zapotec materials. It appears commonly as *rua*, which is defined by Córdova as "boca generalmente [mouth, in general]" (1578b: 56v), but all of the nominal uses of *rua* 'mouth' in the documents are metaphorical extensions, as in (39a) and (39b) where *rua* is used to refer to the horizon—the edge of the land.

39. a. cheela n-aachagaa bysaa Bisente de mendossa
and NEU-meets border_marker[11] Vincente de Mendosa

nesena **ruaa** r-ijazij goobychaa (CVZ; Co721-2;22)
toward mouth HAB-go_into sun

'and [the lot of land] meets the border marker of Vincente de Mendosa toward the edge the sun goes into (the west)'

b. naa-chaga bijsaa layoo solar xtenij guetao sebastian
NEU-meet border_marker land *solar* of deceased Sebastian

bisente nesenaa **rua** r-ijlanee gobycha cheela... neesee
Vicente way mouth HAB-emerge sun and way

rua r-iasij govijcha na-chaga vijsaa pedro gomes
mouth HAB-go_into sun NEU-meets border_marker Pedro Gomez

(CVZ; Co721-3;4-8)

'[The lot of land] meets the border marker of the solar of the late Sebastian Vicente on the east and toward the west [it] meets the border marker of Pedro Gomez.'

CVZ *ru'uh* seems to have the locative meaning 'on the edge of' (40).

[11] We believe the border markers referred to in the Colonial documents are probably very similar to border markers that can still be seen today in some parts of Oaxaca. These border markers are usually made of stones and can range from a smaller small pile of stones or one large stone, to a large, possibly ornate tower of stones and mortar. An example of one can be seen in Figure 5, on page 150.

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40. a.	tobi	cuelayo		na	**rua**
	one	planted_field		COP	mouth
	nesa	xana	yaga	quichi (CVZ; Tl675b;21)	
	way	buttocks	tree	thorn	

'one field [that] is on the edge of the road under the carob (?) tree'

b.	**rua**	nesa	r-isa	bene	Santiago (CVZ; Oc740;19-20)
	mouth	way	HAB-walk	people	Santiago

'([land] that is) on the edge of the road that the people of Santiago walk on'

3.1.9. *Têë'ix* 'beside; on the side of'

Têë'ix is not a very common locative. It seems to mean 'on the side of' meaning in contact with the side of something, as in (41).

41. Chi'c	làa'any	guêêë'dy	nih	nàa	**têë'ix**	gyahg
then	in	hole	REL	COP	on_side_of	tree

b-rìia'	to'ohby	da'amm (TMZ; Zhat:40)
PERF-leave	one	owl

'Then from the hole which is on the side of the tree an owl came out'

This same meaning is given in the dictionary entry for SLQZ, as seen below.

> **tèe'ix, têë'ix** 1. trunk, chest, side {pssd. only; *tèi'x bua'rr* "the donkey's side"; *Bcwàa'ng gyìi'u tèi'x yu'uh* "He stuccoed the side of the house"}; 2. **on the side of** (prep.) {*A gyizha'ah bga'ah tèi'x yu'uh* "Grass has grown on the side of the house"}
>
> Munro and Lopez, in prep.:320; Spanish omitted; italics and some bold added

3.1.10. *Zh:àa'* 'behind; under'

The component part preposition *zh:àa'* is related to the limited component part *zh:àa'* 'buttocks' (cf. §2.2.2). As a locative it can mean 'behind' (42a), 'under' (42b), and 'at the base of' (42c).

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42. a. Zhyàa'ap zuu **zh:àa'** cammyoony. (TMZ; 2a:127)
girl NEU.stand behind truck
'The girl is standing behind the truck'

b. Bdòo' zòob **zh:àa'** me'es. (TMZ; 2a; 266)
baby NEU.sit under table
'The baby is sitting under the table'

c. Zhi'et n-atga'ah **zh:àa'** gyahg. (TMZ; 3:159)
cat NEU-lie at_base_of tree
'The cat is lying at the base of the tree'

English translations are not a good way to understand the meaning of this prepositions, which is something more like 'at the buttocks of'. The entry in the SLQZ dictionary (Munro and Lopez in prep.) gives further examples of these locative meanings, in addition to the locative meaning "on top of (something upside down)", which can also be described as 'at the buttocks of'.

> **zh:àa'** 1. bottom, buttocks {pssd. only; *A bu'uhdy zubga'ah gue'ehcy zh:àa' zhìi'mmy* "The chicken is sitting on the bottom of the (overturned) basket"}; 2. **at the bottom of, on the bottom of (prep.)** {*zh:àa' ca'j* "at the bottom of the box"; *O's nu'uh zh:àa' zhìi'mmy* "The (toy) bear is on the bottom of the basket"}; 3. **under** (prep.) {*Jwaany zugwa'ah zh:àa' gyahg cabèez tèèi'dy nnyi'sgyihah* "John is standing under the tree waiting for the rain to stop"}; 4. **on top of (something upside down)** (prep.) {*A bu'uhdy zubga'ah zh:àa' zhìi'mmy* "The chicken is sitting on the (overturned) basket"}; 5. handle (on a knife, for example){pssd. only; *zh:àa' bchiilly* "knife handle"}; 6. trunk (of a car){pssd. only; *Bxèe'llya' zh:àa' ca'rr* "I opened the trunk of the car"}
>
> ...
>
> §§ Although *zh:àa'* and *zh:ààa'n* both mean "bottom, buttocks", the use of *zh:àa'* is more restricted. This word is almost never used without a n[oun] (non-pron[ominal]) pssr. [possessor], and may suggest a dirty bottom {*zh:àa' mnìi'iny* "kid's bottom"; *zh:àa' banguual* "old person's bottom (that someone in a nursing home might have to clean up)"}; *zh:ààa'n* is a more general term.
>
> Munro and Lopez, in prep.:375; Spanish omitted; italics and some bold added

3.1.11. *Zh:ààa'n* 'behind; under'

The locative uses of *zh:ààa'n* in modern TVZ are described in §3.1.11.1 and in CVZ in §3.1.11.2.

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3.1.11.1. Locative *zh:àà a'n* in modern TVZ

Like *zh:àa'*, the component part preposition *zh:àà a'n* (related to 'buttocks) is often translated as 'behind' (43a) or 'under' (43b), and is perhaps best understood as meaning 'at the buttocks of'.

43. a. Zh:àà a'n co'ch zuu bèe'ecw. (TMZ; 2a:61)
behind car NEU.stand dog
'The dog is standing behind the car'

b. Da bra'auh n-u'uh zh:àà a'n zhìi'my. (TMZ; 3:126)
PL lizard NEU-be under basket
'The lizards are under the basket'

The SLQZ dictionary entry (Munro and Lopez in prep.) provides two additional meanings: (3) "against the side of" and (4) "on top of (something upside down)". I will explain (4) as being part of the meaning 'at the buttocks of'. The meaning shown in (3) may potentially also be explained this way.

> **zh:àà a'n** 1. bottom, buttocks, rear end {pssd. only; *zh:àa'nùu'* "your bottom"}; 2. **under** (prep.) {*zh:àa'n yu'uh* "under the house"; *zh:àa'n yahg* "under the tree"}; 3. **against the side of** (prep.) {*zh:àa'n yu'uh* "against the side of the house"}; 4. **on top of (something upside down)** (prep.)...
> Munro and Lopez in prep.:377; Spanish omitted; italics and some bold added

3.1.11.2. Locative *zh:àà a'n* in CVZ

The only locational example of *xana* that I have seen in the Colonial documents means 'under' (44).

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44. tobi	cuelayo	na	rua	
one	planted_field	COP	mouth	
nesa	**xana**	yaga	quichi (CVZ; Tl675b;21)	
way	buttocks	tree	thorn	

'one field [that] is on the edge of the road under the carob (?) tree'

3.1.12. *Zh:ùu'cw* 'at the upper arm of'

As with *nnaàa'*, the component part preposition *zh:ùu'cw* (TMZ) (or *zh:àa'cw* in SLQZ) has a very limited meaning: 'at the upper arm of'. This locative is related to the referential noun meaning 'upper arm'. The entry from the SLQZ dictionary (Munro and Lopez in prep.) attests to this meaning in SLQZ, and its locative use with a tree as a Ground in definition (4).

> **zh:àa'cw** 1. upper arm {pssd. only; *zh:àa'cwa'* "my upper arm"}; 2. upper part of the front leg (of a four-legged animal); 3. branch (of a tree) {*zh:àa'cw gyahg* "the branch of the tree"; *Guhch nnaàa' gyahg* "The branch of the tree broke"}; 4. **on the branch of (a tree)** (prep.) {*A lo'ory zu'bga'ah zh:àa'cw gyahg rèe'* "There's a parrot sitting on the branch of this tree"}...
> Munro and Lopez in prep.:376; Spanish omitted; italics and some bold added

3.2. Inherent and relative component parts

Throughout this dissertation, I use the term "component part" to mean a word that is either a body part term (such as English *head, foot, stomach*) and / or a term for a component part of an inanimate object (such as *top, underside*). It is important to be able to discuss precisely how referential component parts are assigned and named, because the meaning of referential component parts may contribute to the meaning of component part locatives, and the meanings of referential component parts and component part locatives may interact in complex ways. It is essential, then, to carefully distinguish the different

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uses and meanings of component part terms. For example, in TVZ words for component parts can refer to parts of an item (45a); refer to areas of space[12] (projecting from parts of an item; cf. Hollenbach 1995) (45b); or assert locative relationships between two items (45c).

45. a. **Cwe'eh** co'ch me'eu. (TMZ)
side car dirty
'The side of the car is dirty'

b. **Cwe'eh** co'ch me'eu. (TMZ)
side car dirty
'(The area) beside the car is dirty'

c. Zòob=a' **cwe'eh** co'ch. (TMZ)
NEU.sit=1SG beside car
'I'm sitting beside the car'

While in some cases the function of a particular component part is clear, in many cases it may not be. In order to understand how and why the component part locatives mean what they do, it is important to understand and isolate their referential meanings. When establishing the status and meaning of referential component parts, it is essential to

---

[12] This characteristic is not limited to component part prepositions. Native non-component part prepositions (a, b, c) and borrowed prepositions (d) can be used to refer to areas of projecting space. (The verb 'be' is used to express 'hurt', as seen in these examples.)

a. R-ahc gahx: zh:ihby=a'. (TMZ)
HAB-be near knee=1s
'(The area) near my knee hurts'

b. Gahx: me'es me'eu. (TMZ)
near table dirty
'(The area) near the table is dirty'

c. #Gahx: me'es n-coiby. (TMZ)
near table ADJ-new
this sentence doesn't make sense: 'The area near the table is new'

d. Enfre'ennd pelo't nàa n-ca'ai. (TMZ)
in_front_of ball COP ADJ-dark
'(The area) in front of the ball is dark'

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present them in non-locative sentences, ideally in an unambiguously nominal syntactic frame, in order to avoid circularity. There may be various language specific ways to do this. In TVZ the following seem to be clear nominal syntactic frames: if the word is proceded by a quantifier (cf. §2.7.2), number (cf. §2.7.3), or plural marker (cf. §2.7.1); modified by an adjective (cf. §2.7.4), or in the object position of a transitive verb subcategorized for an NP complement, as in (48).

In investigating the meaning of component parts, it is useful to distinguish between what I call *inherent* and *relative component parts.* I define these terms below. In any language, the status of a particular component part as inherent or relative is empirically discoverable and linguistically testable by accessing the (non-locative) referential meaning of a component part term and testing its use in referring to a component part of an item under rotation, as described below.

An inherent component part refers to a specific subpart of an object, based on features of the object itself, such as its geography or asymmetrical features, but importantly not based on the object's current orientation in space. My term inherent component part does not coincide exactly with Levinson's (e.g. 2003) term "inherent features". For discussion of this, see §3.2.1.

A relative component part, on the other hand, is assigned to an object based on the way it is located in space and in relation to its observers. Relative component parts can be seen, in a way, as temporary names for sub-parts of an object based on factors exterior to the object itself.

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One can get an initial sense of the distinction by considering the English examples in (46). In (46a) *top* in an inherent component part. The same physical part of the jewelry box could be referred to with the expression *top of the jewelry box* in (46a) regardless of the orientation of the jewelry box. Even if the jewelry box were upside down (46a) would be felicitous to describe the then bottom-most part. *Top of the ball* (46b) works quite differently, however. This is a relative component part in English (as in most—maybe all languages, because of the real world, physical structure of a ball). Its real world referent must be calculated based on the ball's current orientation in space.

46. a. The **top** of the jewelry box is cracked (top = inherent component part)
    b. The **top** of the ball is dark. (top = relative component part)

This same distinction is found in TVZ. In (47a) *guë'ëhcy* 'head' is an inherent component part. Regardless of the orientation of a person, his head is always referred to as *guë'ëhcy bìiny* 'the person's head'. Thus, when referring to people, *guë'ëhcy* 'head' is an inherent component part. The fact that the person's head is referred to as *guë'ëhcy* 'head' has to do with the person's structure, and not the orientation of the person, or the perspective of the observer. However, when referring to a ball in TVZ, *guë'ëhcy* 'head' is a relative component part (47a). Unlike a person, a ball has no inherent *guë'ëhcy* 'head'. At any point in time, a ball can be assigned a *guë'ëhcy* 'head', namely the part that is topmost given (most likely) the perspective of the viewer. (Although other factors can be used to calculate relative component parts, this perspective of the viewer is the most common.)

47. a. **guë'ëhcy** bìiny (TMZ) (*guë'ëhcy* 'head' = inherent component part)
    head person
    'the person's head'

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b. **guë'ëhcy** pelo't (TMZ) (*guë'ëhcy* 'head' = relative component part)
head ball
'the top of the ball'

Suppose I am holding the ball in my arms and I wash only the part that is dark. If I set the ball down so that it is oriented as shown in Figure 7, then (48) is felicitous (as denoted by "√ Figure 7" in (48)). If instead I set the ball down so that it is oriented as shown in Figure 8, then (48) is not felicitous (as denoted by "#Figure 8" in (48)), regardless of the orientation of the ball when it was in my arms.

48. B-dìi'by=a' **guë'ëhcy** pelo't.[13]
PERF-wash=1SG head ball
'I washed the top of the ball'; if I washed the dark part of the ball in √ Figure 7; #Figure 8

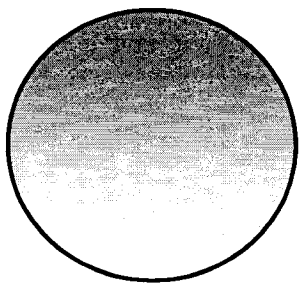

Figure 7. top of the ball is dark

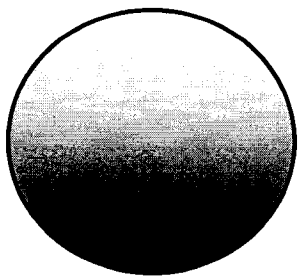

Figure 8. top of the ball is light

This should not be too surprising to English speakers, as the possible interpretations of *guë'ëhcy pelo't* 'top of the ball' coincide in this way with English *top of the ball.* Of

[13] This sentence provides a nominal syntactic frame, i.e. the verb *rdìi'by* 'wash' is subcategorized to take an NP complement. The verb cannot be intransitive (a) and cannot take a PP argument (b):

a. *B-dìi'by=a'. (TMZ)
PERF-wash=1s
bad with any meaning; e.g. not 'I washed (something)'; or 'I washed (myself)'

b. *B-dìi'by=a' enfre'ennd pelo't. (TMZ)
PERF-wash=1s in_front_of ball
bad with any meaning; e.g. not 'I washed (the area) in front of the ball'

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course, this also seems to make sense from a more physical perspective, in that a ball is symmetrical and thus has no distinguishing inherent features that are available to use in assigning an inherent *guë'ëhcy* 'head'. However, it is important to note that I have defined inherent and relative component parts as linguistic concepts. In order to examine how location is expressed linguistically, concepts such as inherent and relative component parts should also be investigated through linguistic evidence. This may often coincide with what we think makes sense, given how things are in the real world, but since there is cross-linguistic and language internal variation in how inherent and relative component parts are assigned, there may also be cases where the linguistic evidence may seen to contradict our "intuitions". So while in many cases the distinction between inherent and relative component part may seem to be obvious, in fact this is a language specific distinction. The TVZ cases discussed above happened to coincide with English, but in other cases Zapotec is divergent from English, as I'll show in §3.2.2 and which will become particularly relevant in §3.3.

3.2.1. Comparison with other terminology

My terms inherent and relative component part do not correspond directly with other terms used to discuss similar ideas in the literature on language and space. Specifically my term *inherent component part* does not align with Levinson's (2003) *inherent features*. While I feel it is unfortunate to muddy the waters by not using existing terminology, I present and define my new terminology here because I feel that the existing terminology is inadequate for my purposes in describing and analyzing component part locatives. In this section I will present the terms used by Levinson (2003)

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that overlap with my terms "inherent component part" and "relative component part" and explain how they relate to the terminology I use in this dissertation.

At first it may seem that Levinson's (2003) term "inherent features" coincides with my term "inherent component part".

> Informally, this [the intrinsic] frame of reference involves an object-centred coordinate system, where the coordinates are determined by the **'inherent features', sidedness or facets of the object to be used as the ground or relatum**.
>
> Levinson 2003:41; bold added

Levinson continues the passage above by stating that the term "inherent" may be a bit of a misnomer, since languages differ in how these parts are assigned. As far as languages and cultures differ in which part of an object to call the face, or back, or side, I agree with him. I use the term inherent, however, to refer to the component part's relation to the object within that system. So within any linguistic system (and along with whatever mechanisms are used to assign the inherent component parts, some of which Levinson discusses below) these component parts are inherent to their object. This "inherency" is linguistically testable, as described above, i.e. in order to qualify as an inherent component part, that part should be so named regardless of the object's current orientation (or motion, etc.) in space.

> The phrase 'inherent features', though widely used in the literature, is misleading: such facets have to be conceptually assigned according to some algorithm, or learned on a case-by-case basis, or more often a combination of these. The procedure varies fundamentally across languages, for example in English it is largely functional, so that the *front* of a TV is the side we attend to, while the *front* of a car is the facet that canonically lies in the direction of motion etc. But in some languages, it is much more closely based on shape, as in Tzeltal, where a volumetric analysis ... is required, and function and canonical orientation is largely irrelevant (Levinson 1994).
>
> Levinson 2003:41

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The real point at which my term inherent component part differs from Levinson's intrinsic features is illustrated below. In this passage he is expanding on the idea presented in the previous passage: that features (component parts) of an item are assigned to items in culturally specific ways—and the methods for making this assignment may be quite varied, including the canonical use of the item, how we culturally relate to the item, or direction of motion.

> As we have seen, in the intrinsic frame of reference the figure object is located with respect to what are often called ***intrinsic* or *inherent* features of the ground object**. The locutions are bad, because **often nothing is 'inherent', and everything is culturally imposed and assigned**, in the isolation and designation of these features. Consider, for example, the phrases ***in front of the TV***, *in front of the steps*, *in front of the church*, ***in front of the ship***, *in the front of the book* etc (in the relevant non-relative or 'non deictic' sense). **Clearly the notion 'front' of an object is not an inherent property**: **in the case of the TV it is based on canonical viewing position**, in the case of the steps on the direction they are ascended (rather than descended), in the case of the church the west end regardless of the ordinary entrance, in the case of the book the first few pages, **and in the case of the ship the direction of canonical movement**.
>
> Levinson 2003:76; bold added

I have two main concerns with Levinson's description of "intrinsic or inherent features" as presented here. One major concern is that all of the examples he gives here are locative. Of course, he is discussing the intrinsic frame of reference, which is calculated based on intrinsic or inherent features, and the intrinsic frame of reference does have to do with locating items. However, before we can talk about how intrinsic features can be used to locate items in the intrinsic frame of reference, we need to know what intrinsic features are, and no such examples are given. We should be looking first at examples of (referential) intrinsic features such as "the front of the TV" and "the front of the ship", preferably in clearly referential (and nominal) frames.

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My second concern is that Levinson gives no testable criterion for determining whether a feature of an item is an intrinsic feature. Would the *front* of a ball in motion be considered an intrinsic feature in this system? Let me take two of his (English) examples and show how I would classify these in my system: *the front of the TV* and *the front of a ship*.

In English, *front* can be an inherent component part of a television, namely the screen. Consider (49). If the screen is dirty and it is facing the speaker, of course (49a) is acceptable; and if the screen is cracked and it is facing the speaker, (49b) is acceptable. However, if the screen is not facing the speaker, e.g. if the TV is upside down because it is in the process of being moved, (49a) and (49b) could both still be acceptable. This qualifies *front* as an inherent component part of the TV, since it is defined based on the structure of the TV, and not in terms of its orientation in space or the perspective of the viewers.

49. a. The front of the TV is dirty.
    b. The front of the TV is cracked.

It is also possible to assign a relative component part *front* to a TV in English. Although judgments from English speakers vary, many speakers judge (50) grammatical. In this case, *front* is defined by the TV's current orientation is space. Namely the side that is facing away from the wall, which we know is not the screen. However, in order to get a relative component part reading for *front* with a TV, it works best to set up a scenario where the TV either isn't working or is being used for some other purpose (or both). Thus, I think English allows both an inherent and relative component part front for

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a TV, but the default reading is inherent, and in order to get the relative reading extra pragmatic information is required.

50. The television is broken, so we've been using it as a shelf in the corner, with the screen facing down to protect it. My son got into some stickers yesterday and decorated the TV, and now *the front of the TV is quite colorful*!

In determining what type of component part in involved in *the front of the ship* example, I've changed "ship" to "boat" in order to better illustrate my point. If the boat in question is symmetrical along the side-to-side axis (i.e. the front and the back are the same), for example a simple canoe, then *front* cannot be an inherent component part. Consider a symmetrical canoe, of which one half is painted red and the other half is painted blue (the halves being divided along the relevant side-to-side axis). In examining the boat out of the water and not in motion, with the red part facing the speaker one could say (52). But if the boat was then rotated 180 degrees, (52) would be infelicitous. With a symmetrical boat, it cannot be the structure of the boat that is determining the assignment of *front*. It must always be its current orientation in space, direction of motion, or some other external factor. Thus, a symmetrical boat has no inherent component part front. It only has a relative component part front.

51. The front of the boat is red.

With an asymmetrical boat, however, it's quite a different story. The structure of the boat itself can assign an inherent front. Consider a boat that has a figure of a mermaid at the bow. Here, even if the boat is not in motion, the part with the mermaid can be referred to as the front. Thus, the asymmetry of the item itself allows the assignment of an inherent component part *front* in this case.

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52. The front of the boat looks like a mermaid.

Levinson also describes how component parts of objects can be identified using a box-like armature. Let us call such parts "generalized component parts". I will save the discussion of the armature and generalized component part until the introduction of frames of reference in §3.4.3.

Levinson's (2003) terminology		**potential instances of referential component parts**		**my terminology**
intrinsic / inherent features (component parts)		the front of an asymmetrical ship		inherent component part
		the front of a moving symmetrical ship		relative component part

Table 1. comparison of terminology for component parts, preliminary
(see Table 5 for final version)

3.2.2. Inherent component parts and metaphor in TVZ

In Zapotec, many inanimate items have inherent component parts which are assigned via metaphor. In the following two sections I present the inherent component parts of a car (§3.2.2.1) and a house (§3.2.2.2) in order to give the reader a feeling of how human body parts are metaphorically projected onto inanimates. The assignment of inherent component parts to inanimates will also be relevant for the discussion of types of Grounds and frames of reference in §3.4.2.3.

3.2.2.1. Inherent component parts of a car

A car in TVZ has inherent component parts that correspond to most (but not all) human body parts. Some common inherent component parts of a car are labeled in Figure 9. One noticeable gap is *ni'ih ca'rr* 'the foot of the car' which one might think could refer to

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the wheels of a car, or perhaps even the underbelly of the car. But in TMZ there is no such part of a car called *ni'ih ca'rr*.

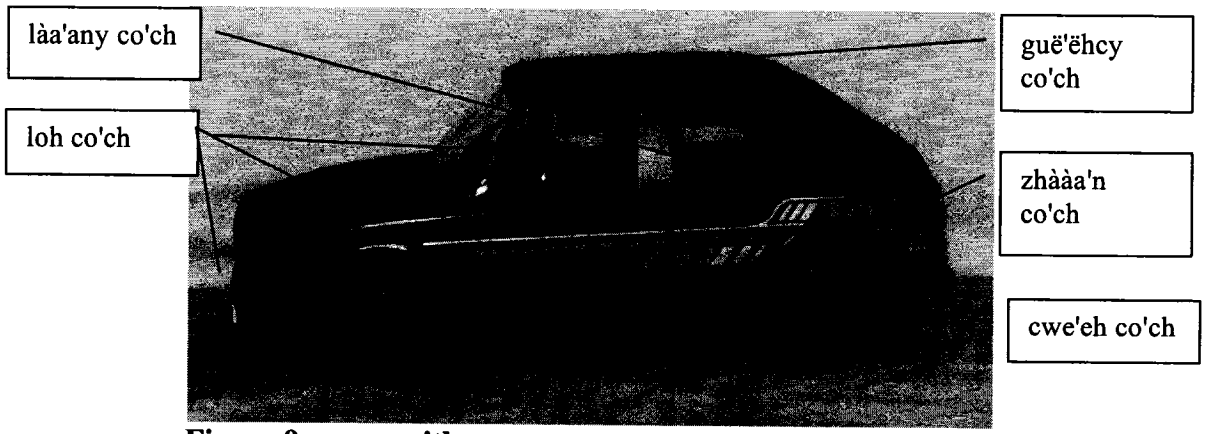

Figure 9. a car with some component parts labeled in TMZ

All the parts labeled in Figure 9 were identified as "inherent component parts" using the methodology described in the previous section. For example, the following paradigm shows that *guë'ëhcy* 'head' in an inherent part of the car. The part of the car that is referred to as *guë'ëhcy ca'rr* is always the same part—the roof, which is circled in Figure 10. This assignment depends on the structure of the car, not the orientation of the car. As can be seen below, it cannot be the case that *guë'ëhcy ca'rr* means something like 'the topmost part of the car', because if the car is in a non-canonical orientation (Figure 11), the topmost part cannot be referred to as *guë'ëhcy ca'rr* (53). Thus, a car has an inherent *guë'ëhcy* 'head' and cannot be assigned a relative *guë'ëhcy* 'head'.

53. **Guë'ëhcy ca'rr** me'eu. (TMZ)
head car dirty
'The roof of the car is dirty'; referring to the circled area √ Figure 10; # Figure 11

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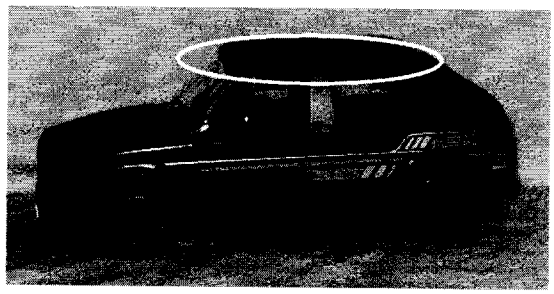

Figure 10. the top of the car

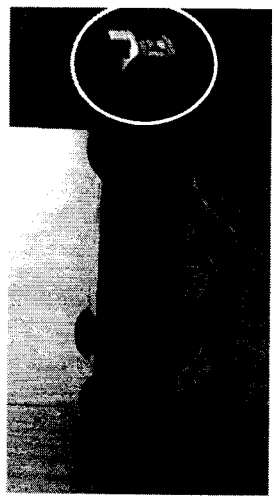

Figure 11. the topmost part of the car

3.2.2.2. Inherent component parts of a house

A house functions as a unique type of Ground in locative constructions, and interacts with component part prepositions in interesting ways. Before discussing the semantics of a house as a Ground, it is important to understand the geography and composition of a house in TVZ. Note that in TVZ the word *yu'uh* can refer to either an individual room or the entire house complex, as explained for SLQZ below.

> **yu'uh, gyu'uh** home (non-pssd.); room (with its own outside door); house: esp., European-style house; building... §§ Traditional homes in San Lucas Quiaviní include a number of adobe structures with common walls, each called a *yu'uh*, each with its own exterior door (but no connecting interior doorways). The whole home may be someone's *liihahz* (e.g. as *liahz Gye'eihlly* "Mike's house"), but is generally not called a *yu'uh*.
>
> Munro and Lopez, et al. 1999:369; Spanish omitted, italics added

Figure 12 shows a picture of a more modern house in Tlacolula. Although the rooms are no longer built of adobe, the overall layout of the house is the same as that described in the dictionary entry above: each room has one door that leads to outside. There are no interior hallways or doors. As is also common in my experience, the main living room of

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the house in the picture is the covered area that opens onto the main courtyard of the house.

Figure 12. the interior of a *yu'uh* 'house complex' in Tlacolula

Figure 13 is a picture of a model of a one room house, with some parts labeled in TMZ.

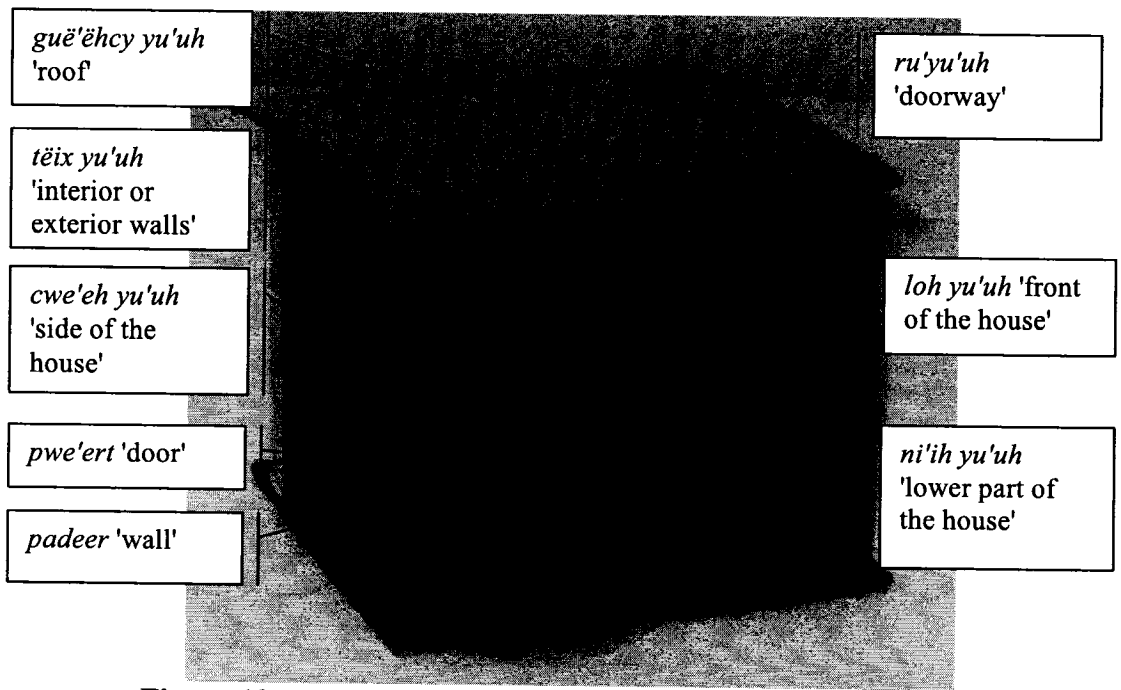

Figure 13. a house with some component parts labeled in TMZ

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The following sentences are intended to show the referential status of some of the component parts of a house: *pwe'ert* 'door' (54a); *guë'ëhcy yu'uh* 'roof' (54b); *làa'any guë'ëhcy yu'uh* 'ceiling' (54c); and *têë'ix yu'uh* 'wall' (54d).

54. a. Wb-tìi=a' **pwe'ert** asu'l. (TMZ)
PERF-paint=1SG door blue
'I painted the door blue'

b. Xniia wb-tìi=a' **guë'ëhcy** **yu'uh**. (TMZ)
red PERF-paint=1SG head house
'I painted the roof red'

c. **Làa'any** **guë'ëhcy** **yu'uh** wb-tìi=a' nquiets. (TMZ)
stomach head house PERF-paint=1SG white
'I painted the ceiling white'

d. Wb-tìi=a' **têë'ix** **yu'uh** asu'l. (TMZ)
PERF-paint=1SG trunk house blue
'I painted the walls (interior or exterior) blue'

All of these component parts of the house are inherent component parts.

3.3. Component part prepositions and the search domain

One might assume that, since component part locatives (such as the TVZ component part prepositions) are related to referential component parts, their meaning as locatives will be related to those component parts as well. One way this is phrased in the literature is in terms of the "search domain". There is often an implicit assumption that all languages with component part locative work as described for Tzeltal below: that the component part locative names a part of the Ground which is then used to define or narrow a search domain.

> It is cross-linguistically common for locative terms employing the intrinsic frame of reference to derive historically from body part terms (Svorou, 1994; Heine, 1997)... In many languages, however, the body-part-based intrinsic system is

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> extremely complex, requiring regular linguistically driven visual analysis of the axial geometry as well as the major and minor protrusions of inanimate objects so that the relative appropriateness of different body part terms can be computed instantly on the basis of these inherent properties, i.e., independent of the object's orientation or the speaker's viewpoint. Perhaps the best-studied language of this type is Tzeltal (Levinson, 1994), in which even a G[round] as seemingly nondescript as a stone may be assigned a "face," a "nose," an "ear," a "back," a "belly," or any of about fifteen other quasimetaphorical body parts in order to specify that F[igure] is located within a **search domain** projected from one of these facets—e.g., an *s-jol* "head" is a protrusion that can be found at one end of the major axis of G[round] and that has a gently curved, circular outline with only minor concavities on either side.
>
> Kemmerer in press:11; bold added

In the following sections I examine the potential use of the notion of "search domain" for the locative system in TVZ, and conclude that the TVZ system is significantly different from that described for Tzeltal above, and further that component part locative systems, therefore, differ in their use of search domains.

3.3.1. Semantically infelicitous component part constructions

Recall that the head initial characteristic of TMZ means that every component part prepositional phrase is, out of context, ambiguous with a potential possessed noun phrase, as in (55).

55. a. ni'ih me'es (TMZ)
    under table
    'under the table'

    b. ni'ih me'es (TMZ)
    foot table
    'the leg of the table'

In this section I give evidence that not every component part prepositional phrase corresponds to an actual possessed noun phrase. This evidence argues against the

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assumption that component part locatives necessarily function by naming a component part of the Ground, and thus defining a search domain.

For example. although *ni'ih* 'under' is used in the locative expression in (56a), there is no referent *ni'ih ca'rr* 'the car's foot' (56b), although this is syntactically well formed (hence the # indicating semantic infelicity despite syntactic well-formedness). The speaker I consulted rejected the possibility that the wheels or tires might be called *ni'ih ca'rr* 'the car's feet'; I was told that the tires are not *ni'ih ca'rr* 'the car's feet' (56b), but are *ya'annt* 'tires' (56c) or *rrueed* 'wheels' (56d). I also found it very interesting that when I asked my consultant to translate *ni'ih ca'rr* out of context he said "abajo del coche [under the car]". It is my experience that out of context component part words are translated with their referential meaning. Perhaps this is further evidence that in fact there is no physical referent *ni'ih ca'rr*.

56. a. N-u'uh bèe'ell **ni'ih** **ca'rr**. (TMZ; 5:151)
NEU-be snake under car
'The snake is under the car'

b. **ni'ih** **ca'rr** (TMZ; 5:150)
foot car
cannot mean 'the car's foot', 'wheel', or 'tire'; can only mean 'under the car'

c. ya'annt (TMZ; 5:150)
'tire'

d. rrueed (TMZ; 5:150)
'wheel'

In this case, *ni'ih* 'under' cannot be functioning by identifying a component part of the Ground, since the car has no part that can be referred to as *ni'ih ca'rr* 'the car's feet'.

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3.3.2. Mismatch between location of Figure and component part of Ground

In this section, I show that even if the Ground has a component part that could be referred to with the component part term used in the locative construction, the Figure does not have to be located on or in an area of space projecting from that component part on the Ground in order to use that term. In other words, the locative meaning of the component part preposition does not necessarily relate to the referential component part meaning, and the component part preposition does not necessarily function by identifying a component part of the Ground, thereby defining a search domain. The data presented here further support the grammaticalization of the meanings of component part prepositions in TVZ and show that their meanings cannot be derived through synchronic metaphor.

For example, in (57a) below *quiah ca'rr* 'the head of the car' refers to the hood of the car in SJGZ. However, the Figure (in this case, a snake) does not need to be located on the hood of the car in order to use *quiah* 'on' in a locative construction. Example (57b) shows the use of *quiah* 'on' in the case where the car is upside-down and a snake is on top of the upside-down car (Figure 14). In this example, we see that the locative expression *quiah* 'on' can refer to relationships between the snake and the car where the snake is not on the hood, even though the hood is the referent of the noun phrase *quiah ca'rr* 'the head of the car'.

57. a. **quiah ca'rr** (SJGZ)
head car
'the car's head' (the hood of the car)

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b. N-u'uh bèe'elld **quiah** **ca'rr.** (SJGZ)
NEU-be snake on car
'The snake is on the car'; √ Figure 14

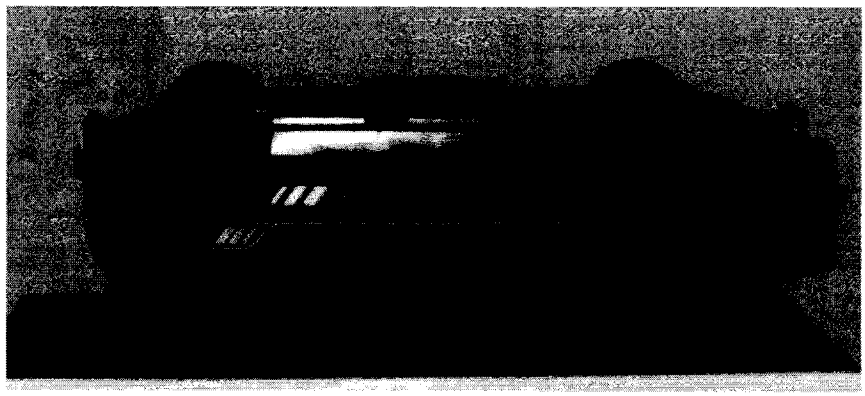

Figure 14. snake and upside-down car

Given the scenario in Figure 14, if one tried to use *quiah ca'rr* to narrow the search domain by locating the *quiah ca'rr* 'the car's head (i.e. the hood)', one would not find the snake!

Consider the example below from TMZ, which refers to the situation presented in Figure 15, in which a child is seated leaning against one of the legs of a table, but is not under the table. A leg of the table can be referred to as 'a foot of the table' (58a). Although the child is sitting against the *ni'ih me'es* 'leg of the table', (58b), which uses the prepositional phrase *ni'ih me'es*, is ungrammatical when used to describe this relationship. This is because although as a noun *ni'ih* means 'foot', as a preposition it means 'under', and the child is not under the table in this scenario, although she is sitting against the table's leg. Both sentences (58c) and (58d) could be used to describe this situation, and the preposition used in both of these sentences is *cwe'eh* 'beside,' either in (58c) as 'beside the table's leg' or in (58d) as 'beside the table.'

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58. a. ni'ih me'es (TMZ)
foot table
'the leg of a table'

b. Mìi'iny zòob ni'ih me'es. (TMZ)
child NEU.sit under table
'The child is sitting under the table'; #Figure 15

c. Mìi'iny zòob cwe'eh ni'ih me'es. (TMZ)
child NEU.sit beside foot table
'The child is sitting beside the leg of the table'; √ Figure 15

d. √Mìi'iny zòob cwe'eh me'es. (TMZ)
child NEU.sit beside table
'The child is sitting beside the table'; √ Figure 15

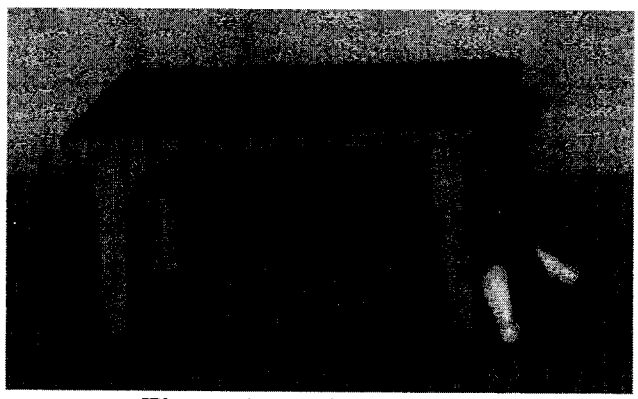

Figure 15. child and table

A final example is presented below. *Loh me'es* can be a noun phrase 'tabletop (literally the face of the table)'. This component part is an inherent part of the table, i.e. the part of the table that is referred to as *loh me'es* 'tabletop' is based on the composition of the table itself, and it does not change depending on which way the table is oriented: the tabletop is the tabletop even if the table is upside down! This is shown below, where (59) can be used to describe the tabletop (i.e. the circled part) in Figure 16 where the table is in canonical orientation, and in Figure 17 where the table is sideways.

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59. **Loh** **me'es** me'eu. (TMZ)
face table dirty
'The tabletop is dirty'; √ Figure 16, √ Figure 17 (if the circled area is dirty)

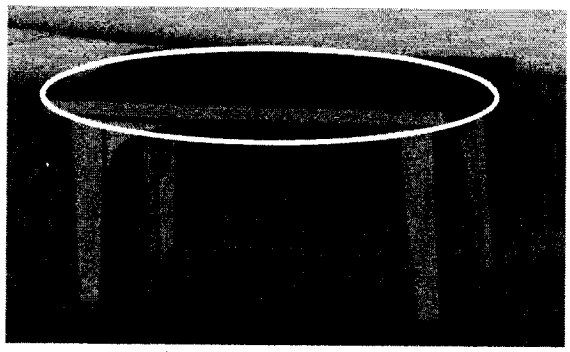

Figure 16. tabletop I

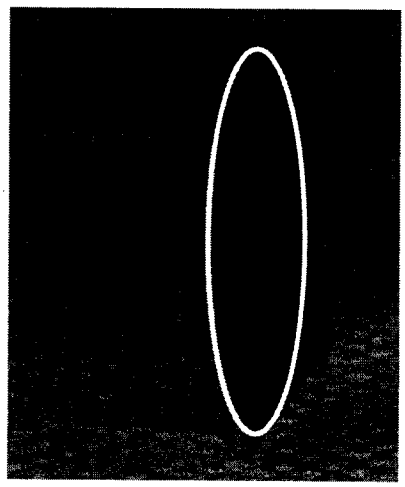

Figure 17. tabletop II

Although *loh me'es* 'tabletop' can refer to the tabletop regardless of the orientation of the table, it cannot refer to the part of the table that is the topmost, unless the table is in canonical orientation, as in Figure 16. Thus although the circled area Figure 18 is the topmost part of the table in the picture, *loh me'es* 'tabletop' cannot be used to describe the area circled, as shown in (60).

60. **Loh** **me'es** me'eu. (TMZ)
face table dirty
'The tabletop is dirty'; #Figure 18

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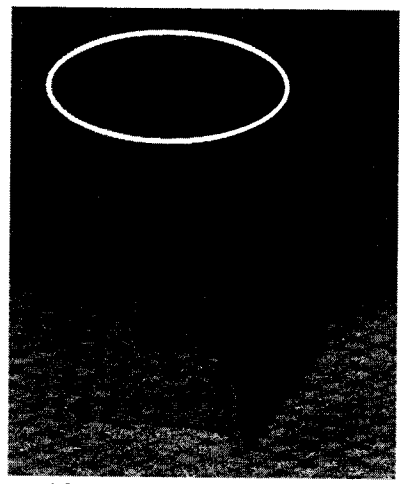

Figure 18. topmost part of the table II

So far, then, I have established that the noun phrase *loh me'es* 'tabletop' is an inherent component part of the table, and that this component part may not be interpreted relatively for a table. Now consider the examples below where the component part prepositions *loh* 'on' may be used to describe the relationship between the dog and the table, even if the dog is not located at the 'tabletop'.

61. Bèe'ecw zuu **loh** **me'es**. (TMZ)
dog NEU.stand on table
'The dog is on the table'; √ Figure 19; √ Figure 20

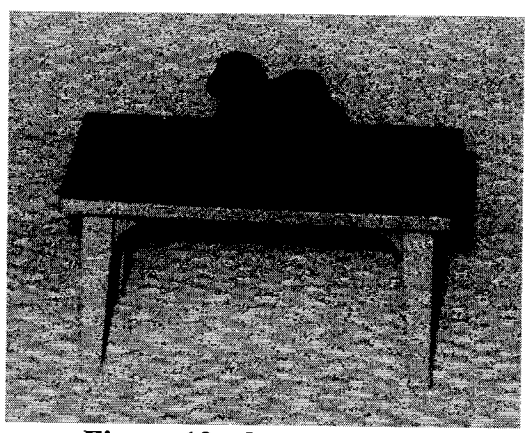

Figure 19. dog and table I

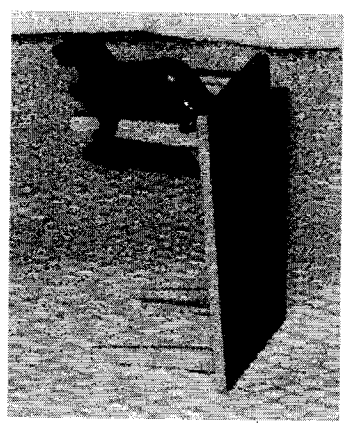

Figure 20. dog and table II

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Although there is a noun phrase *loh me'es* 'the tabletop', the Figure does not need to be located at that part of the table when using the component part preposition *loh* 'on'. In fact, if the Figure is located by the tabletop, but is not on the table, then the component part preposition *loh* 'on' cannot be used, as demonstrated in (62).

62. a. Bèe'ecw zuu **loh** **me'es**. (TMZ)
dog NEU.stand on table
'The dog is on the table'; #Figure 21

b. Bèe'ecw zuu **cwe'eh** **me'es**. (TMZ)
dog NEU.stand beside table
'The dog is beside the table' as in Figure 21

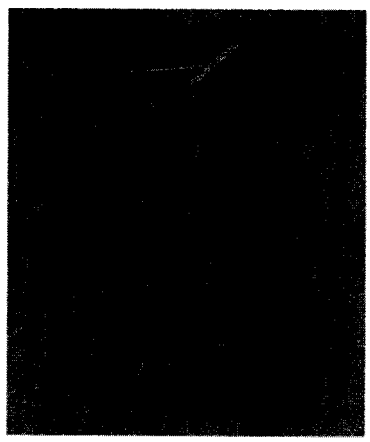

Figure 21. dog and table III

3.3.3. Irrelevance of orientation of Ground

In the case of the dog and the table presented above, and many other cases, the geography and orientation of the Ground is irrelevant to the choice of component part preposition, i.e. the preposition is asserting a locative relation in these cases, not identifying a location on the Ground. In these cases, the orientation of the Ground is irrelevant for the choice of preposition. (There are certain prepositions and certain Grounds which work differently. These will be discussed in §3.6.)

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Consider (63), which can describe both Figure 22 and Figure 23. We can see that *ni'ih* can be used to mean 'under' regardless of the orientation of the car, which is in its canonical orientation in Figure 22 and is upside-down in Figure 23.

63. N-u'uh bèèe'ld ni'ih ca'rr. (SJGZ)
NEU-be snake under car
'The snake is under the car'; √ Figure 22, √ Figure 23.

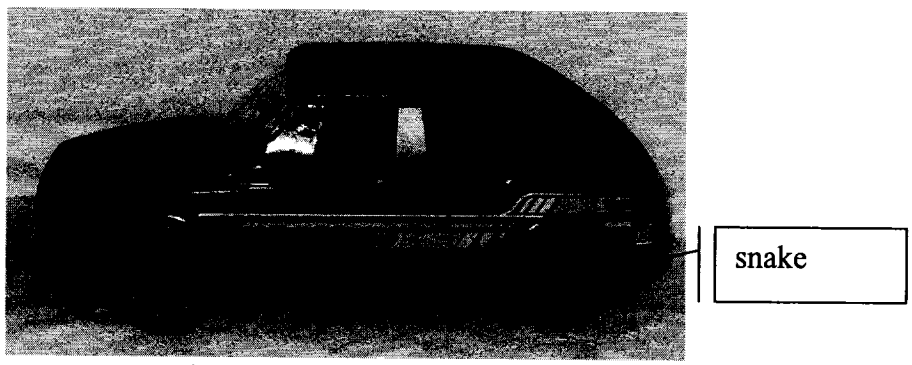

Figure 22. snake and car

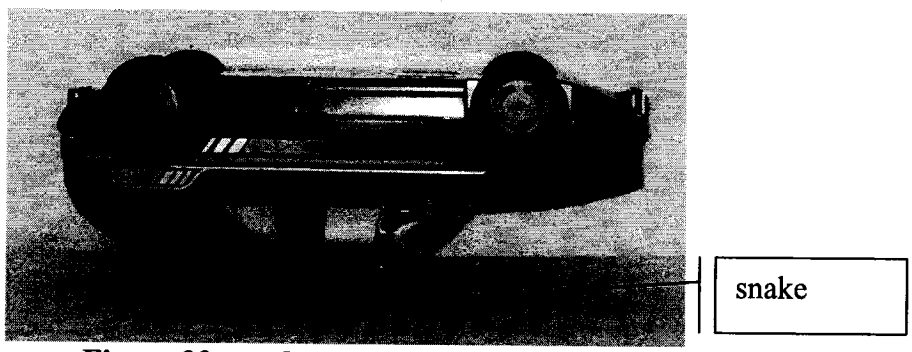

Figure 23. snake and upside-down car

The choice of preposition is dictated by the relationship between the Figure and the Ground and not by the geography or orientation of the Ground. This shows, again, that the notion of a prototypical "search domain" cannot be used alone to account for the meaning of the component part locatives in TVZ. *Ni'ih* in (63) is not locating the snake

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in relation to the car by finding the *ni'ih* of the car—instead it requires that the snake be under the car.

3.4. Frames of reference

A spatial array may often be described in more than one way. Consider the English examples (64a) – (64c), which can all be used to describe the location of the woman in relation to the car in Figure 24. (Even (64d) is true, although unlikely to be used by many speakers.)

64. a. The woman is in front of the car.
    b. The woman is beside the car.
    c. The woman is to the right of the car.
    d. The woman is to the north of the car.

→ N

Figure 24. woman and car

So how can the woman be thought of as being both *in front of* and *beside* the car? Levinson (2003) has dealt with these issues in defining three frames of reference that are used in describing spatial arrays in the world's languages: intrinsic, relative, and absolute. In §3.4.1 I explain Levinson's (2003) frames of reference. In §3.4.2 I show how the different frames of reference are used in TVZ. Based on data from TMZ, in §3.4.3 I

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revisit the definition of the intrinsic Frame of Reference. In the final two sub-sections I show how choice of frame of reference can be determined by the type of Ground (§3.4.2.3) and by the preposition itself.

3.4.1. Defining the frames of reference

In §3.4.1.1 I present the intrinsic frame of reference and in §3.4.1.2 I present the relative frame of reference. Finally, the absolute frame of reference will be briefly discussed in §3.4.1.3. I summarize these three frames of reference by comparing their definitional facts under rotation in §3.4.1.4.

3.4.1.1. Intrinsic frame of reference

In Levinson's intrinsic frame of reference the Figure is located on or in an area of space projecting from some component part of the Ground. The exact nature of the component part involved will be discussed further in §3.4.3. Levinson defines the intrinsic frame of reference as follows:

> Informally, this [the intrinsic] frame of reference involves an object-centred coordinate system, where the coordinates are determined by the 'inherent features', sidedness or facets of the object to be used as the ground or relatum.
>
> Levinson 2003:41

> More exactly: **an intrinsic spatial relator R** is a binary spatial relation, with arguments F[igure] and G[round], where **R typically names a part of G**. The origin X of the coordinate system C is always on the volumetric centre of G. An intrinsic relation R(F,G) asserts that F lies in a search domain extending from G on the basis of an angle or line projected from the centre of G, through **an anchor point A (usually the named facet 'R')**, outwards for a determined distance. F and G may be any objects whatsoever (including ego), and F may be a part of G. The relation R does not support transitive inferences, nor converse inferences.
>
> Levinson 2003:42; bold added

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The use of (64a) to describe Figure 24 is an example of the use of the intrinsic frame of reference in English.

Using Levinson's more precise definition above, we can see that for (64a), *in front of (woman, car)* asserts that the woman lies in a search domain extending from the car on the basis of a line projecting from the center of the car, through the component part named 'front of the car', outwards for some distance, as shown below in Figure 25.

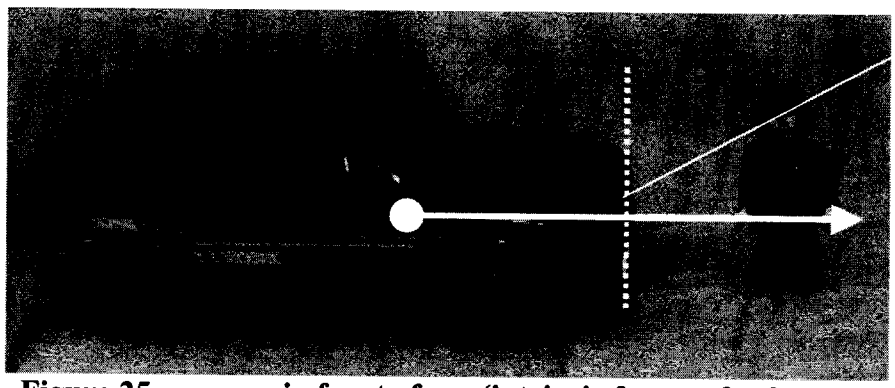

Figure 25. woman in front of car (intrinsic frame of reference)

3.4.1.2. Relative frame of reference

In the relative frame of reference the Figure in located in reference to the Ground using coordinates imposed by a Viewpoint. This Viewpoint usually corresponds with the viewer, although the Viewpoint can be shifted in the right circumstances. The use of (64b) and (64c) to describe Figure 24 are examples of the use of the relative frame of reference in English, which is schematized below in Figure 26.

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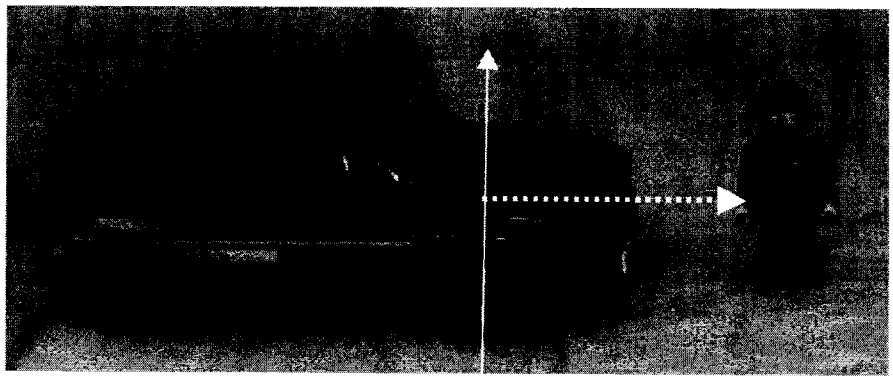

Viewpoint

Figure 26. woman beside car (relative frame of reference)

3.4.1.3. Absolute frame of reference

The absolute frame of reference makes use of fixed points in the real world to related a Figure to a Ground. Often these points correspond with cardinal directions, but that is not the only possible manifestation of an absolute frame of reference, as can be seen in the definition from Levinson below. The English example in (64d) above is an example of the use of the absolute frame of reference in English.

> ... many languages make extensive, some almost exclusive, use of such an absolute frame of reference on the horizonal. They do so by fixing arbitrary fixed bearings, 'cardinal directions', corresponding one way or another to directions or arcs that can be related by the analyst to compass bearings...
>
> More precisely: An absolute relator R expresses a binary relation between F[igure] and G[round], asserting that F can be found in a search domain at the fixed bearing R from G. The origin X of the coordinate system is nearly always centred on G... and the system of terms anchored by reference to a conceptual 'Slope' S. G may be any object whatsoever, including ego or another deictic centre; F may be a part of G. The geometry of the coordinate system is linguistically / culturally variable, so that in some systems equal quadrants of 90 degrees may be projected from G, while in others something more like 45 degrees may hold for arcs on one axis, and perhaps 135 degrees on the other. The literature also reports abstract systems based on star-setting points and winds, which will then tend to have uneven distribution around the horizon.
>
> Levinson 2003:49

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3.4.1.4. Definitional facts under rotation

Levinson (2003) also provides definitional criteria for the frames of reference based on truth conditions of a locative construction when various elements in the spatial array are rotated. These criteria, which I'll refer to as the definitional facts under rotation, are summarized in Table 2. The first column represents the starting configuration for a spatial array (the same one we saw in Figure 24) and three possible descriptions (using three different Frams of Reference) for this arrangement. The following three columns each show the rotation of one element in the array. In the first column, it is the viewer (or the Viewpoint) that is rotated around the array. For instance, the speaker might be walking around the array, looking at it from a different position. In the third column, the Ground item is rotated. The only different between the configuration of the spatial array in Column 1 and Column 3 is the orientation of the car. Finally, the last column shows the whole array rotated in space. Notice here that the array has been rotated 180°, but that the indication of the cardinal direction, north, remains constant. The rows are read as follows using the row "intrinsic" as an example: for the intrinsic frame of reference, if the viewer is rotated, is the same description true? -- yes; if the Ground object is rotatied, is the same description true? -- no; if the whole array is rotated, is the same description true? -- yes.

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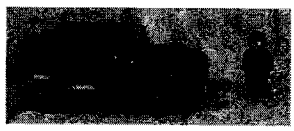
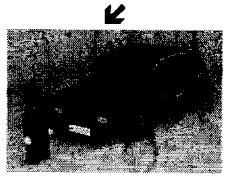
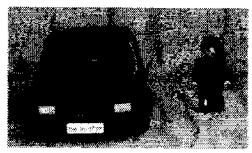
rotation of:	viewer	Ground object	whole array
→ N 	N ↙  same description?	→ N  same description?	→ N  same description?
Intrinsic woman in front of car	yes	no	yes
Relative woman to right of car	no	yes	no
Absolute woman to north of car	yes	yes	no

N = north

Table 2. frames of reference (based on Levinson's Figure 2.6 (2003: 52))

These facts under rotation that are summarized in Table 2, are part of the definition of the frames of reference. Thus, they can be used as diagnostics to determine which frame of reference is being utilized in any locative construction.

3.4.2. The use of frames of reference in TVZ

In this section I first give an overview of the use of the absolute frame of reference in TVZ (§3.4.2.1) and the use of the intrinsic and relative frames of reference in TVZ (§3.4.2.2). I then consider how the type of Ground (§3.4.2.3) and choice of preposition (§3.4.2.4) main limit which frames of reference are available for any given locative construction.

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3.4.2.1. The use of the absolute frame of reference in TVZ

TVZ can use the absolute frame of reference by locating things in relation to the cardinal directions or other fixed landmarks, like Oaxaca City. The use of the absolute frame of reference is rather limited, so I have not looked at this in depth. Here I provide the data from SLQZ from the dictionary (Munro and Lopez, et al. 1999) and provide correlates in TMZ or CVZ where possible.

There are several different ways to talk about cardinal directions in SLQZ. There are words for all four cardinal directions that begin with a word that looks like 'bone'. The dictionary entries for these, as well as the entry for *zu'aht* 'bone' are below. The word for 'north' contains the morpheme for 'up'.

> **zu'aht yaàa', zu'tyaàa, zu'syaàa'** north
> Munro and Lopez, et al. 1999: 376, Spanish omitted

> **yaàa', gyaàa'** up; high, up high {*Yaàa' bdèe'sëng gyihah* "He lifted up the rock"; *Yaàa' bzùu'b cafee ndaàa' tye'nn que'ity ygwàa'all bdòo' nyëng* "Put the hot coffee up high in order that the baby won't touch it"} ...
> Munro and Lopez, et al. 1999: 366; italics added, Spanish omitted

The second morpheme in 'south' is unidentified: *zu'aht tyùa'll, zu'tùa'll* 'south' (Munro and Lopez, et al. 1999:376).

The word for 'east', *zu'aht sìii'lly, zu'sìiilly*, contains the morphme *sìii'lly* that on its own means 'breakfast', which is semantically and lexically related to *rsìiilly* 'morning' (Munro and Lopez, et al. 1999:281), the time at which the sun is in the east (Munro and Lopez, et al. 1999:376).

> **sìii'lly** breakfast {*Oordya' x:tèe' sìii'lly bzehnny Gye'eihlly* "Mike arrived at breakfast time"} ...

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§§ The typical traditional meals and mealtimes are *cafee* (usually taken around 6 or 7 am, or earlier), *sìì'lly* (9-10 am), *cu'uhb* (11 am - 1 pm), *laizh:ih* (2-3 pm), and *xchihih* (8-9 pm). (Not all speakers agree that *cafee* and *cu'uhb* should be considered as meals, however.)

Munro and Lopez, et al. 1999: 334; italics added, Spanish omitted

Finally, the word for west contains the morpheme *ca'ài*, as indicated in the full SLQZ dictionary entry: *zu'aht ca'ài, zu'tca'ài, zu'ca'ài* 'west' (Munro and Lopez, et al. 1999:376). The semantic connection here is a little more difficult to see. It may be that both 'west' and *ca'ài* are related to darkness, in that when the sun sets (in the west) it is dark, or in the early morning, while the sun is still rising in the east, it is dark in the west.

ca'ài 1. very early in the morning, when it's still dark (adv.) {*Ca'ài ristiia'* "I get up very early in the morning"}; 2. stupid...

Munro and Lopez, et al. 1999:85; italics added, Spanish omitted

All four of these direction words contain *zu'aht*. This word can mean 'bone' or 'shell' and is a traditional unit of measurement, as indicated in the SLQZ dictionary entry. It may be that the use of this word in cardinal directions is more directly related to this latter meaning.

zu'aht 1. bone; 2. shell (of a turtle, for example)...; 3. traditional measure of length (the distance from the elbow to the end of the knuckles); 4. rattle Danza de la Pluma dancers wear on their feet...

Munro and Lopez, et al. 1999: 376; italics added, Spanish omitted

In addition, there are words for 'east' and 'west' based on the sun (65).

65. a. nehz laad que'ihty r-dyehnny wbwihzh (SLQZ; ML:175)
way side where HAB-rise sun
'east (toward where the sun rises)'

b. nehz lahty r-dyehnny wbwihzh (SLQZ; ML:175)
way where HAB-rise sun
'east (toward where the sun rises)'

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c. nehz laad que'ihty r-yààa'zy wbwihzy (SLQZ; ML:175)
way side where HAB-set sun
'west (toward where the sun sets)'

d. nehz lahty r-yààa'zy wbwihzh (SLQZ; ML:175)
way side HAB-set sun
'west (toward where the sun sets)'

Similar phrases are used in CVZ to express 'east' and 'west' (66b) – (66c), and (66a) was provided to me by my consultant as a modern equivalent to (66b), i.e. I showed my consultant the Colonial sentence (66b) and asked if this was possible in modern TVZ. Thus the sentence was not volunteered out of the blue or in a text, but does seem to show that this is at least grammatical in modern TMZ.

66. a. R-àa'p=a' tohby yuhuh solary ni r-zhàa'ag
HAB-have=1SG one dirt solar REL HAB-meet

cuhn mogoity x:tèe'en Che'ent Mendo's
with marker of Vincente Mendoza

nehz gaht r-yu'uh gwihzh. (TMZ; 3:183, cf. CVZ; Co721-2:22 (f))
way where HAB-enter sun

'I have one field that meets with the border marker of Vincent Mendoza toward where the sun enters (i.e. the west)'

b. cheela n-aachagaa bysaa Bisente de mendossa
and NEU-meet border_marker Vincente de Mendoza

nesena ruaa r-ijazij goobychaa (CVZ; Co721-2;22)
way mouth HAB-go_into sun

'and [the lot of land] meets the border marker of Vincente de Mendoza toward the edge the sun goes into (the west)'

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c. naa-chaga bijsaa layoo solar xtenij guetao sebastian
NEU-meet border_marker land solar of deceased Sebastian

bisente nesenaa rua r-ijlanee gobycha cheela… neesee rua
Vincente way edge HAB-emerge sun and way edge

r-iasij govijcha na-chaga vijsaa pedro gomes
HAB-go_into sun NEU-meet border_marker Pedro Gomez

(CVZ; Co721-3;4)

'[The lot of land] meets the border marker of the solar of the late Sebastian Vicente on the east… and toward the west [it] meets the border marker of Pedro Gomez'

There is also a borrowed Spanish word for 'north' in SLQZ: *No'rt* 'north', which can also mean 'the United States' (Munro and Lopez, et al. 1999: 183)

There is evidence from Colonial Valley Zapotec that large cities may have been used as other reference points in an absolute frame of reference. In (67), two houses are being contrasted—one that faces toward Oaxaca City (which would have been roughly north from Coyotepec) and the other faces toward where the sun goes in (i.e. west).

67. huanee tiopa yocho tobij n-ohuij lao=nij nesaa loolaha
and two house one NEU-look face=3 way Oaxaca

chela see-toobij n-ohuij lao=nij
and DEF-one NEU-look face=3

nesena late r-asi goobijcha (CVZ: Co721-2;13)
toward place HAB-go_into sun

'and two houses: one, its face looks toward Oaxaca and the other one, its face looks toward the place where the sun goes in (west)'

The absolute Frame of Reference does not seem to be used except for locating large geographical entities in relation to other large geographical entities, much as in English. However, even large geographical entities can be located without the use of the absolute frame of references, as in (68).

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68. a. Nyiss dòo'o n-u'uh cwe'eh Pwerto A'angl. (TMZ; 4:157)
water big NEU-be beside Puerto Angel
'The ocean is next to Puerto Angel'

b. San Lu'uc nàa gahx: Bahc. (TMZ; 3:226)
San Lucas COP near Tlacolula
'San Lucas is near Tlacolula'

I won't focus on the use of the absolute frame of reference in TVZ in this dissertation.

3.4.2.2. The use of the intrinsic and relative frames of reference in TVZ

For locating most items, TVZ utilizes either the intrinsic or relative frames of reference. In many situations both the intrinsic and relative frames of reference are available; for example, (69a) describes Figure 27 using the relative frame of reference while (69b) describes the same spatial array using the intrinsic frame of reference.

69. a. Mnààà' zuu **dehts** co'ch. (TMZ)
woman NEU.stand behind car
'The woman is standing behind the car'; √ Figure 27

b. Mnààà' zuu **cwe'eh** co'ch. (TMZ)
woman NEU.stand beside car
'The woman is standing beside the car'; √ Figure 27

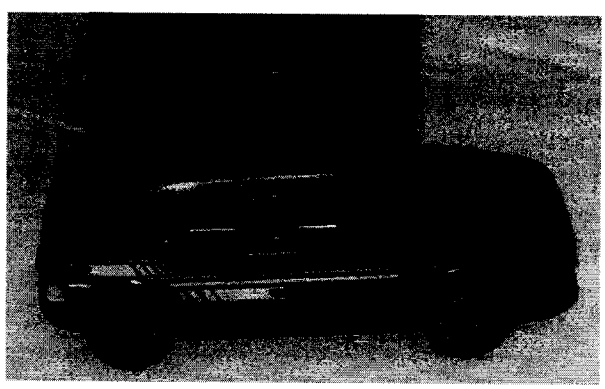

Figure 27. woman and car

However, in some cases only one frame of reference seems to be available. In cases like (70) describing Figure 28 and Figure 29, the relative frame of reference is used. We

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know this is the relative frame of reference since the truth of the locative construction (70) persists under rotation of the Ground (the ball is rotated in Figure 29). This may make sense on an intuitive level, since the Ground involved (a ball) does not have an inherent "side part" that could be utilized in the intrinsic frame of reference.

70. Gyahg zuu **cwe'eh** pelo't. (TMZ)
tree NEU.stand beside ball
'The tree is beside the ball'; √ Figure 28; √ Figure 29

Figure 28. tree and ball I

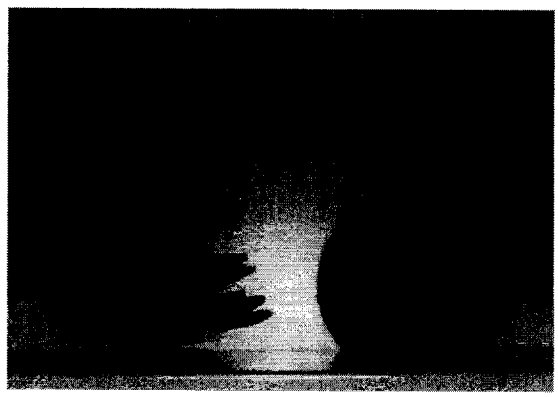

Figure 29. tree and ball II

However, in other cases, the lack of both options seems more surprising. For example, (71b) can describe Figure 30 but (71a), which would represent the relative frame of reference, cannot.

71. a. Bìinny zuu **dehts** mìi'iny. (TMZ)
person NEU.stand behind child
'The person is standing behind the child'; #Figure 30

b. Bìinny zuu **loh** mìi'iny. (TMZ)
person NEU.stand in_front_of child
'The person is standing in front of the child'; √ Figure 30

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Figure 30. person and child

In the following sections I show that the availability of a frame of reference to describe a spatial array can be affected by the type of Ground (§3.4.2.3) and the particular preposition being used (§3.4.2.4).

3.4.2.3. Frames of reference and types of Ground

In the following sections, I give evidence from TMZ (3.4.2.3.1) and Chickasaw (3.4.2.3.2) that the choice of frame of reference can be determined by aspects of the Ground including animacy and composition, i.e. the presence or absence of a particular body and component part.

3.4.2.3.1. Frames of reference and types of Ground in TVZ

Recall that in many locative situations both the intrinsic and relative frames of reference are available to describe a spatial array in TVZ: the use of (72a) to describe Figure 31 illustrates the relative frame of reference and the use of (72b) to describe Figure 31 illustrates the intrinsic frame of reference.

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72. a. Mnààà' zuu **dehts** co'ch. (TMZ)
woman NEU.stand behind car
'The woman is standing behind the car'; √ Figure 31

b. Mnààà' zuu **cwe'eh** co'ch. (TMZ)
woman NEU.stand beside car
'The woman is standing beside the car'; √ Figure 31

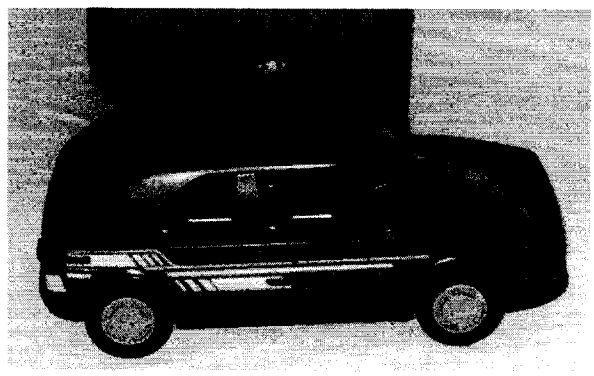

Figure 31. woman and car

However, for some types of Grounds, only the intrinsic frame of reference is available. When the Ground is an animal or human, the relative frame of reference is no longer available: (73a) cannot describe Figure 32 and (73b) cannot describe Figure 33. However, the intrinsic frame of reference is available: (73a) can describe Figure 33 and (73b) can describe Figure 32).

73. a. Mnààà' zuu **dehts** bzêiny. (TMZ)
woman NEU.stand behind deer
'The woman is standing behind the deer'; *Figure 32; √ Figure 33

b. Mnààà' zuu **cwe'eh** bzêiny. (TMZ)
woman NEU.stand beside deer
'The woman is standing beside the deer' ; √ Figure 32; *Figure 33

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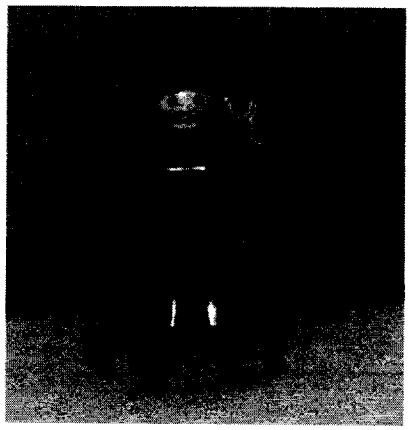

Figure 32. woman and deer I

Figure 33. woman and deer II

In TVZ both deers and cars have inherent component parts *cwe'eh* 'side' and *dehts* 'back', so the difference in the availability of frame of reference cannot be accounted for by the composition of the Ground per se. Instead, it seems to be that animacy is involved: animate Grounds force an intrinsic frame of reference, while most inanimate Grounds allow for the possibility of both. (Other factors, such as the meaning of the preposition (cf. §3.4.2.4) may force further constraints on the availability of the frames of reference).

There is one type of inanimate item which also forces an intrinsic frame of reference: a house. When a house is the Ground only the intrinsic frame of reference is available. For example, (74) can describe Figure 34, but cannot describe a situation where a person is standing 'beside' from the perspective of the viewer (e.g. Figure 35), unless the person is also at the area of space projecting from the house's side.

74.	Biinny	zuu	**cwe'eh**	yu'uh. (TMZ; 4:296)
	woman	NEU.stand	beside	house

'The woman is standing beside the house'; √ Figure 34; #Figure 35

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Figure 34. woman and house I

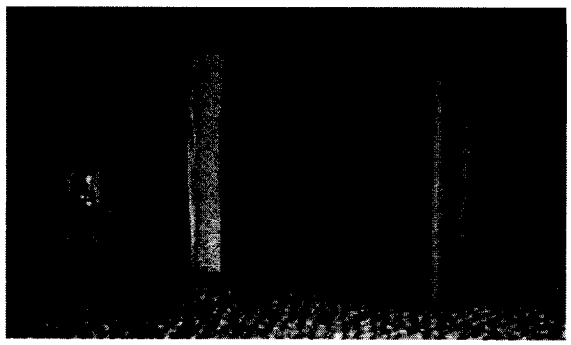

Figure 35. woman and house II

3.4.2.3.2. Frames of reference and types of Ground in Chickasaw

In Chickasaw,[14] the type of Ground can also affect the frames of reference that are available. In this case, it seems to be the composition of the Ground that is relevant. For example, if an item has a component part that can be identified as the left side, then only the intrinsic frame of reference is available for using *alhfabi'* 'at the left side of'. If an item has no component part that can be identified as the left side, then only the relative frame of reference is available. This makes the use of *alhfabi'* 'at the left side of' seem strikingly different from English.

Consider the example below. In Chickasaw, a car has an inherent component part 'left side'. The use of 'at the left side of' with a Ground such as a car requires the intrinsic frame of reference: (75a) can describe Figure 36, but not Figure 37. This is contrast with the English description in (75b) which can describe Figure 37, but not Figure 36.

[14] The Chickasaw data is from joint work with Pamela Munro. Without her assistance, I would not have been able to work with this wonderful language.

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75. a. Kaar aa-wáyya'a-ka alhfabi' pila-ho híkki'ya. (Chickasaw)
car LOC-stand[15]-DS left_side just-FOC.ACC stand
'It (the tree) is (standing) at the left side of where the car is (standing)';[16] √ Figure 36; #Figure 37

b. The tree is to the left of the car. (English)
#Figure 36; √ Figure 37

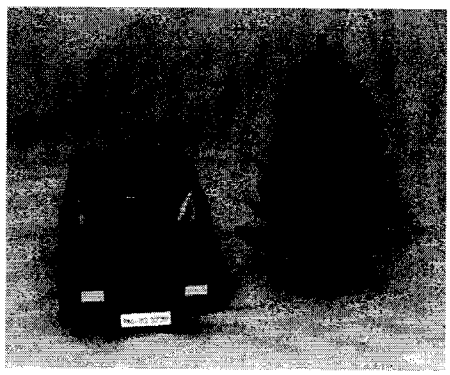

Figure 36. tree and car I

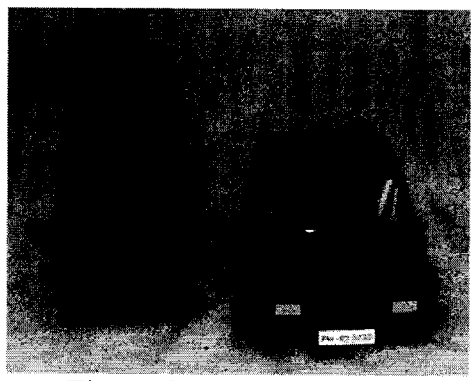

Figure 37. tree and car II

In Chickasaw, a table does not have a component part that can be identified as 'its left side'. When locating a Figure in reference to this type of Ground, we see that there is no intrinsic frame of reference available, and only the relative frame of reference can be used. Note, then, the contrast: (75a) cannot describe Figure 37, but (76a) can describe Figure 38.

76. a. Aai'pa' aa-wáyya'a-ka alhfabi' pila-ho híkki'ya. (Chickasaw)
table LOC-stand-DS left_side right-FOC.ACC stand
'He is standing to the left of where the table is standing'; √ Figure 38

b. The man is to the left of the table. (English)
√ Figure 38

[15] Chickasaw positional verbs are very complex (see Munro 2006). I present simplified glosses here.

[16] Note that this sentence is bi-clausal. Thus it may be that 'where the car is standing' is the Ground and not the car per se. This is worthy of further investigation.

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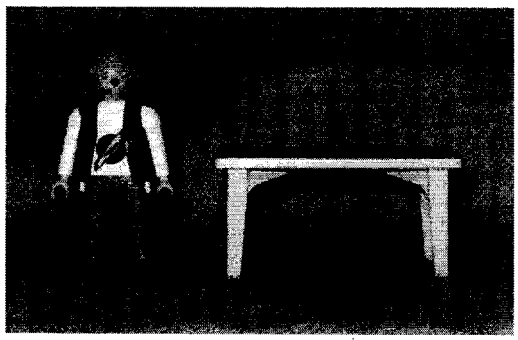

Figure 38. man and table

Thus, while the details of each system are different, in both TMZ and Chickasaw the type of Ground is involved in determining which frame of reference can be employed. The type of Ground, specifically its animacy or composition, may play a crucial role in the semantics of location by constraining the choice of frame of reference. The specific way this works seems to be language specific, and there remains much cross-linguistic work to be done on this question.

3.4.2.4. Frames of reference and prepositions

The meaning of a preposition (or other locative) may itself constrain the availability of frames of reference. This phenomenon has been noted before, e.g. Levinson (2003):

> Linguistics expressions may be specialized to a frame of reference, so we cannot assume that choice of frame of reference lies entirely outside language, for example in spatial thinking, as some have suggested. But spatial relators may be ambiguous (or semantically general) across frames, and often are.
>
> Levinson 2003:53

There are several prepositions in TMZ which by the nature of their meaning allow only the intrinsic frame of reference, regardless of the type of Ground. However, I am not aware of any prepositions in TMZ which require a relative frame of reference.

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Consider the preposition *zh:ààa'n*, which is related to the component part 'buttocks'. In (77) it seems to mean 'behind' in that it can describe Figure 39.

77. Mnnààa' zuu **zh:ààa'n** bzêiny. (TMZ)
woman NEU.stand behind? deer
'The woman is standing behind the deer'; √ Figure 39; √ Figure 40; #Figure 41

Figure 39. woman and deer I

However, now consider the fact that (77) can describe Figure 40 but not Figure 41. Clearly, then, the English translation 'behind' is not sufficient for understanding the meaning and use of this preposition.

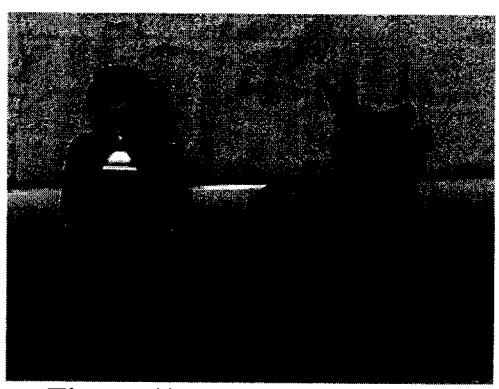

Figure 40. woman and deer II

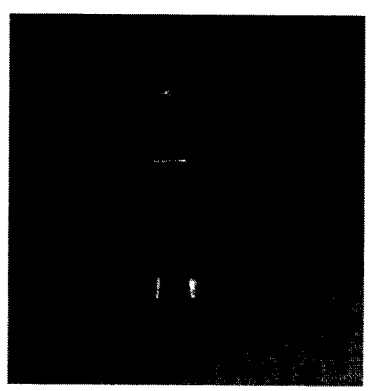

Figure 41. woman and deer III

Recall that *zh:ààa'n* is related to the component part 'buttocks'. In order for the preposition *zh:ààa'n* to be used appropriately, the Figure must be located in the area of

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space projecting from the Ground's buttocks. This projecting space (cf. Hollenbach 1995) is indicated with arrows in below in Figure 42, Figure 43, and Figure 44. This explains why *zh:ààa'n* initially seemed to mean 'behind' in (77) describing Figure 39: in this spatial array there is no contrast between the meaning of 'behind' the Ground and 'at the buttocks of' the Ground.

78. Mnnààa' zuu **zh:ààa'n** bzêiny. (TMZ)
woman NEU.stand at_buttocks_of deer
'The woman is standing at the buttocks of the deer'; √ Figure 42; √ Figure 43; #Figure 44

Figure 42. woman and deer I'

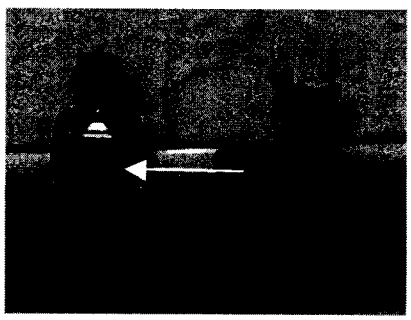

Figure 43. woman and deer II'

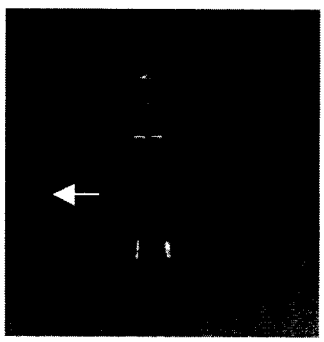

Figure 44. woman and deer III'

The meaning of the TVZ preposition *zh:ààa'n,* in other words, relates directly to the meaning of the corresponding referential component part noun 'buttocks'.

Other prepositions that require the intrinsic frame of reference in TVZ include *nnaàa'* 'on the hand of; on the branch of' (79a) and the borrowed preposition *pu'unn* 'on the tip of; at the top of' (79b).

79. a. A lo'ory zu'bga'ah nnaàa' gyahg rèe' (SLQZ; ML in prep.:31)
PRSN parrot NEU.sit on_hand_of tree this
'There's a parrot sitting on the branch of this tree'

b. Zùub te'ihby x:cuterguiilly pu'ann gyahg. (SLQZ; ML:203)
NEU.sit one x:cuterguiilly on_top_of tree
'There's a x:cuterguiilly bird on top of the tree'

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3.4.3. Revisiting the intrinsic frame of reference

A locative system such as the one in TMZ, which has component part locatives, is especially relevant in testing the definition of the intrinsic frame of reference, since it allows for the possibility that the component part preposition function as both the Relator and Anchor in calculating location. (See §3.4.1.1 for the original discussion of the intrinsic frame of reference.) In this section I suggest a refinement of the definition of the intrinsic frame of reference so that it makes explicit reference to the different linguistic types of referential body and component parts, namely inherent and relative component parts, as defined in §3.2.

The problem with the current definition is in the lack of explicitness about the relation between a component part preposition's meaning and the related referential component part. I will demonstrate this below by comparing the options in describing two spatial arrays: Figure 45 and Figure 46.

Below we see that component part preposition *dehts* can be used in (80) to describe Figure 45.

80.	Bìinny	zuu	dehts	mìi'iny. (TMZ)
	person	NEU.stand	behind	child

'The person is standing behind the child'; √ Figure 45

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Figure 45. person and child

In order to determine the frame of reference involved, we can test whether (80) remains a description of the spatial array under rotation of the array and the Ground as shown in Table 3. (I've left out the column specifying rotation of the viewer or Viewpoint, since this is only needed to further discriminate the absolute frame of reference from the intrinsic and relative frame of reference.) We see that the definitional facts of rotation diagnose the use of (80) in describing Figure 45 as an instance of the use of the intrinsic frame of reference, since the description persists under rotation of the array, but does not persist under rotation of the Ground.

rotation of:	array	Ground
 (= Figure 45)	 same description? (i.e. (80))	 same description? (i.e. (80))
intrinsic frame of reference	yes √	no √

Table 3. determining the frame of reference via definitional facts of rotation for (80) describing Figure 45

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In (81) we also see the component part preposition *dehts*, this time used to locate the person in relation to a deer, shown in Figure 46.

81. Bìinny zuu dehts bzêiny. (TMZ)
person NEU.stand behind deer
'The person is standing behind the deer'; √ Figure 46

Figure 46. person and deer

Again, utilizing the definitional facts of rotation, shown in Table 4, the locative relation matches that of the intrinsic frame of reference. The description (i.e. (81)) of the spatial array (Figure 46) persists under rotation of the array, but does not persist under rotation of the Ground.

rotation of:	array	Ground
		
	same description?	same description?
intrinsic FoR	yes √	no √

Table 4. determining the frame of reference via definitional facts of rotation for (81) describing Figure 46

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Thus the definitional facts under rotation for (80) describing Figure 45 and (81) describing Figure 46 seem to be the same— namely they both satisfy that criteria for the intrinsic frame of reference. However, I will show below that despite functioning the same under the definitional facts of rotation, the preposition *dehts* may not mean the same thing in both cases. This evidence leads to the necessity of refining the definition of the intrinsic frame of reference.

Recall that the intrinsic frame of reference utilizes a spatial relator R, which in these cases is the component part preposition. (I believe Levinson's use of "spatial relator" is equivalent to my use of "locative". This spatial relator (or locative) relates a Figure to a Ground on the basis of an anchor point. This anchor point is "usually" the part of the Ground named by relator.

> [A]n intrinsic spatial relator R is a binary spatial relation, with arguments F[igure] and G[round], where R typically names a part of G. The origin X of the coordinate system C is always on the volumetric centre of G. **An intrinsic relation R(F,G) asserts that F lies in a search domain extending from G on the basis of an angle or line projected from the centre of G, through an anchor point A (usually the named facet 'R'),** outwards for a determined distance. F and G may be any objects whatsoever (including ego), and F may be a part of G.
>
> Levinson 2003:42; bold added

The two uses of *dehts* described above differ in whether the anchor point is or is not the same as the relator. This can be seen once we realize that the back area of the deer is not 'the deer's back' in TVZ. The phrase *dehts bzêiny* refers to the area where the spine is, circled in Figure 47, not the backside, circled in Figure 48. This is demonstrated in (82).

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82. **Dehts** bzêiny me'eu. (TMZ)
back deer dirty
'The back of the deer is dirty'; describing the area circled in √ Figure 47; #Figure 48 (if that area is dirty)

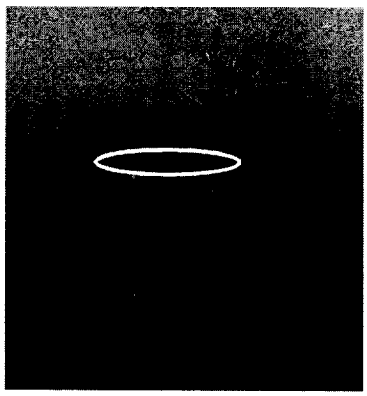

Figure 47. back of the deer

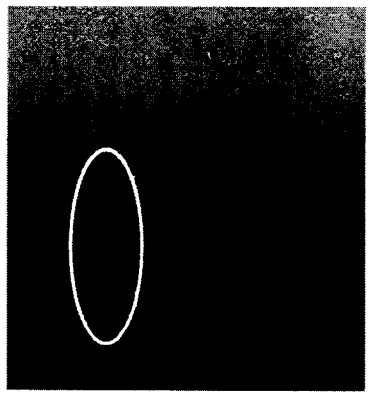

Figure 48. hindquarters of the deer

With this in mind, we can now see that while *dehts* can be both the relator (R) and anchor (A) in (80), it cannot be the anchor in (81). This is demonstrated visually in Figure 49 and Figure 50.

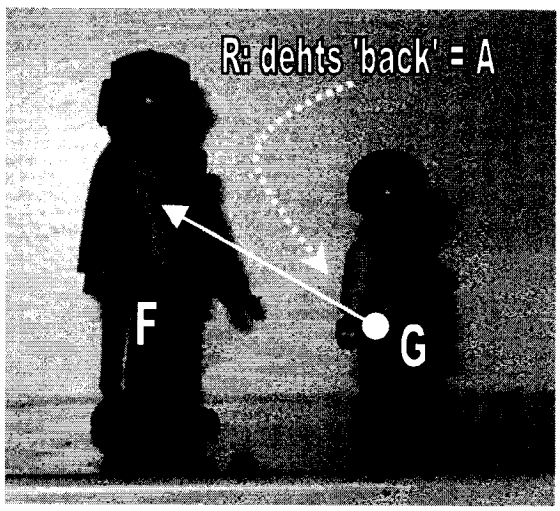

Figure 49. person and child
relator (locative) (R) = anchor (A)

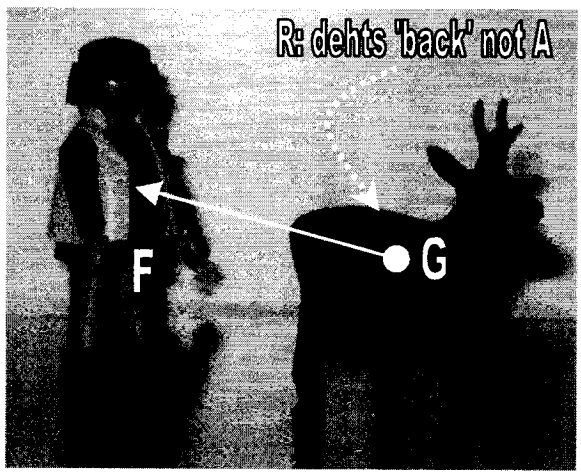

Figure 50. person and deer
R≠A

One way this apparent asymmetry could be resolved is by the assignment of component parts via an "armature". Ultimately, I find this explanation unsatisfactory, as

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I will explain below. But first I will demonstrate how this type of assignment would work.

The following description from Levinson shows his use of an "armature" in assigning component parts to items in English. I'll follow Bohnemeyer (p.c.)[17] in calling such component parts "generalized component parts".

> The English **intrinsic system can be thought of as a six-sided, box-like 'armature'** that is imposed on objects when in their canonical position (the position in which they normally, naturally occur or are intended to be used). The cubic armature is oriented by gravity, so the *top* side of an object is uppermost, and the *bottom* the underneath facet. *Front* and *back* are found in this way too, by taking 'perceptual apparatus' (as with animals, cameras etc.), canonical direction of motion, canonical direction of use etc. into account. The two remaining facets are the *sides* (if no front of back can be found, then the object will have up to four sides)... Objects can obviously resist these assignments if, like cubes and balls, they lack both inherent and functional asymmetries)...
>
> Levinson 2003:77; bold added

Since we saw that the definitional facts of rotation diagnosed the relationship of (81) describing Figure 46 as an instance of the intrinsic frame of reference, it may seem that the backside of the deer must in some way be conceived of as *dehts bzêiny* 'the back of the deer'. The notion of the "armature" could be used to assign such a generalized component part to the deer, illustrated in Figure 51. In this case the generalized front (i.e. the front of the "armature") could be aligned with the inherent *loh bzêiny* 'front of the deer'. This alignment would then create a generalized *dehts bzêiny* as the side opposite the 'front of the deer'.

[17] Many thanks to Jürgen Bohnemeyer for much invigorating conversation on this topic. Neither my use of his term nor my gratitude to him should be interpreted as his endorsement of my analysis here.

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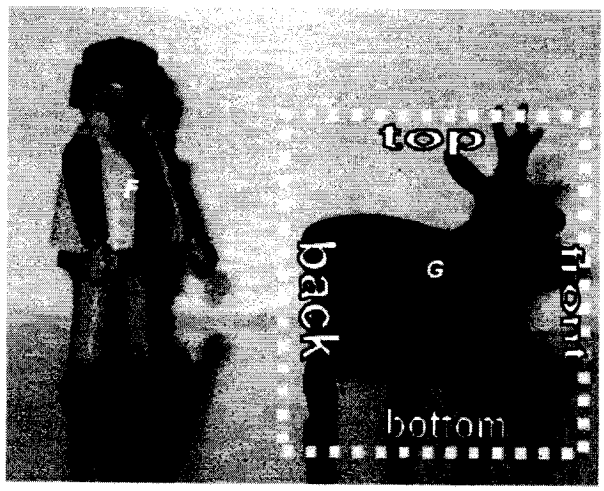

Figure 51. assigning generalized component part to a deer via an "armature"

With the generalized component part *dehts* 'back' assigned using the "armature", the intrinsic spatial relator *dehts* can now also function as the anchor point, as shown in Figure 52. This makes the calculation of the locative relation seem parallel to that shown for the person and the child, in Figure 49.

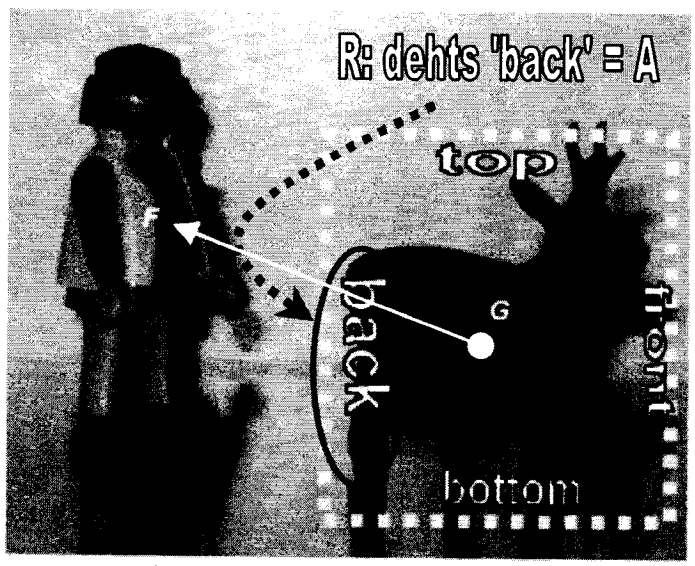

Figure 52. using a generalized component part as the anchor point in the intrinsic frame of reference

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My concern with the assignment of generalized component parts is that these parts are defined in locative relations in order to explain locative relations, i.e. the assignment of generalized component parts is circular. Let's reconsider how we came to conceive of the back part of the deer *dehts bzêiny* in Figure 52. Because this locative relationship met the criterion for the intrinsic frame of reference, it needed to be the case that the Figure was located in reference to the Ground based on some component part of the Ground. Using an "armature", we coerced that area into a generalized component part *dehts bzêiny*. We did this to explain the locative relationship, but the only "evidence" that we have that this component part is thus named is that same locative relationship. Thus the circularity: why do we think that the back part of the deer must be a generalized component part *dehts bzêiny?* Because *dehts bzêiny* is used to locate a Figure in relation to the Ground which is the area of space projecting from that part of the deer. The locative relation is used to create a generalized component part, which itself is supposed to explain the locative relation.

I do not think we need the notion of generalized component part at all. Everything that could be calculated as a generalized component part will fall into one of the following three categories: inherent component part, relative component part, or simply a locative relation (i.e. not a component part).

Below I present a paradigm showing that a generalized component part may or may not correspond to a relative component part. (Note that the relative frame of reference is used in the expression of location here, so the component part is not necessary in

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calculating the locative relation. The purpose here is to show the lack of correlation only.)

In TMZ a ball has a relative component part *cwe'eh*:

83. **Cwe'eh** pelo't nca'ài'. (TMZ)
side ball dark
'The side of the ball is dark'; used to describe the area circled in √ Figure 53; #Figure 54

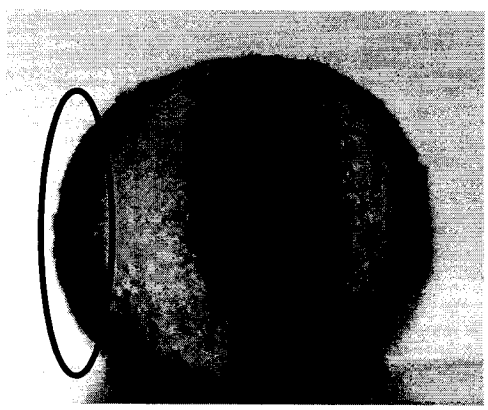

Figure 53. ball

Figure 54. ball rotated

Recall that *cwe'eh* can be used to locate a Figure 'beside' a ball.

84. Gyahg zuu **cwe'eh** pelo't. (TMZ)
tree NEU.stand beside ball
'The tree is beside the ball'; √ Figure 55; √ Figure 56

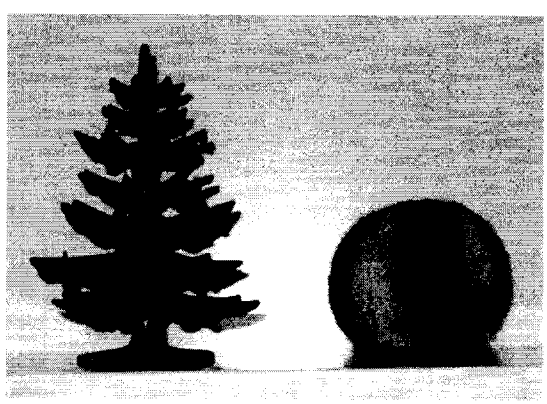

Figure 55. tree and ball I

Figure 56. tree and ball II

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In contrast to a ball, a bottle (quite surprisingly to me, since I do not understand what the difference is) does not have a component part *cwe'eh*, as shown in (85).

85. **#Cwe'eh** bote'iy nca'ài'. (TMZ)
side ball dark
cannot be used to describe any part of a (water) bottle; i.e. it appears to mean 'the side of the bottle is dark', but there is no part of the bottle that is 'the side'

In response to my surprise at this (since I asked for verification several times) my consultant said, "*La botella no tiene* [The bottle doesn't have a] *cwe'eh*, *pero* [but] when you put something next to it, it's beside it." (86) shows the locative use of *cwe'eh bote'iy*.

86. Gyahg zuu **cwe'eh** bote'iy.
tree NEU.stand beside bottle
'The tree is beside the bottle'; √ Figure 57, √ Figure 58

Figure 57. tree and bottle I

Figure 58. tree and bottle II

So while *cwe'eh* 'beside' can be used to relate the tree to both the ball and the bottle, *cwe'eh* also happens to refer to the component part of the ball in the search domain in Figure 59, while it does not refer to any component part of the bottle Figure 60. These examples show that using a component part locative in the relative frame of reference is independent of the Ground having a referential (relative) component part. The "armature" may not be sensitive to referential component parts, but rather to locative

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relations. Thus "generalized component parts" are not component parts at all, but are locative relations. Sometimes these correspond to component parts, but not always, as the assignment of referential component parts is different from the use of a component part term in a locative expression.

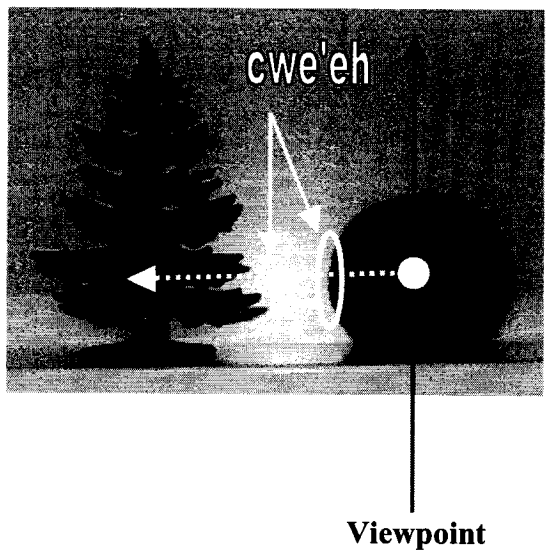

Figure 59. tree and ball

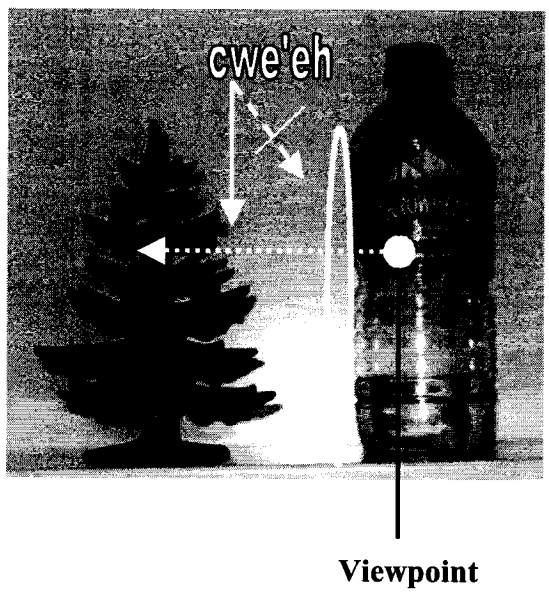

Figure 60. tree and bottle

Table 5 presents a summary of the relationship between my terminology for component part and other terminology. While Levinson (2003:76) classifies the front of a moving ship as an intrinsic feature of the ship, my classification depends on the type of ship involved. The front of an asymmetrical ship is an inherent component part, while the front of a symmetrical ship must be defined via motion; thus it is a relative component part. The back of a ball can be calculated via the "armature", and thus seems to qualify as a generalized component part. In my terminology this is also a relative component part, since the part refered to as the back depends on the location and

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orientaion of the ball in space in relation to observers. Finally, *dehts bzêiny* meaning 'the backside of the deer (i.e the buttocks area)' could be calculated as a generalized component part, but in fact I feel that there is no such component part at all.

other terminology		**potential instances of referential component parts**		**my terminology**
intrinsic / inherent features (component part)		the front of an asymmetrical ship		inherent component part
		the front of a moving symmetrical ship		relative component part
generalized component part (assigned via armature)		the back of a ball		
		dehts bzêiny 'the back of the deer' (meaning the buttocks area)		not a component part

Table 5. comparison of terminology for component parts

My suggestion for refinement of the intrinsic frame of reference is that it should be calculated based on an "inherent component part". Perhaps my real suggestion, then, is in how an inherent component part should be defined.

3.5. Viewpoint

As mentioned in §3.4.1.2, Viewpoint is a definitional component of the relative frame of reference. In this section, I provide an example of its use in calculating location in TVZ. Consider (87), where *dehts* 'behind' can be used to describe Figure 61 but not Figure 62. Based on its ungrammaticality in describing Figure 62, *dehts* does not seem to mean 'behind' using a relative frame of reference. At first glance it may seem that its use in describing Figure 61 is an example of the intrinsic frame of reference. However, as I will show below, this cannot necessarily be calculated using the intrinsic frame of reference,

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since the woman is not located near the part of the deer that is referred to with *dehts bzêiny* 'the back of the deer' (circled in Figure 63).

87. Mnnààa' zuu **dehts** bzêiny.
woman NEU.stand behind deer
'The woman is standing behind the deer'; √ Figure 61; #Figure 62

Figure 61. woman and deer I

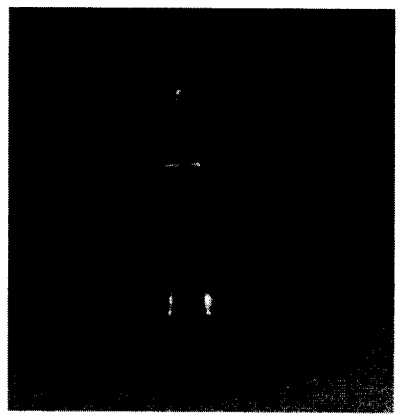

Figure 62. woman and deer II

3.5.1. Problems for calculating *dehts bzêiny* using the intrinsic frame of reference

It may not be immediately obvious that the woman is not located near the back of the deer in Figure 61. However, recall from (82) that in TVZ *dehts bzêiny* 'the back of the deer' is the area where its spine is (circled in Figure 63), and not the area where its buttocks are (circled in Figure 64). Thus (82), repeated below as (88) for the reader's convenience, cannot be used to describe the area circled in Figure 64, even if the deer is turned so that the circled area were farthest from the observer, in an attempt to facilitate a relative component part reading. *Dehts bzêiny* 'the back of the deer' is only appropriate to refer to the area circled in Figure 63.

88. **Dehts** bzêiny me'eu. (TMZ) (=82)
back deer dirty
'The back of the deer is dirty'; describing the area circled in √ Figure 63; #Figure 64 (if that area is dirty)

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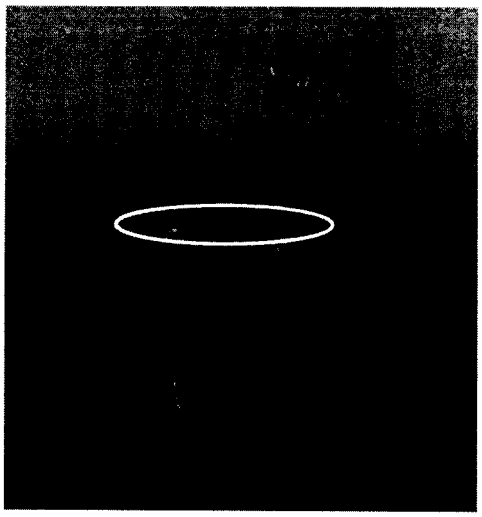

Figure 63. back of the deer (=Figure 47)

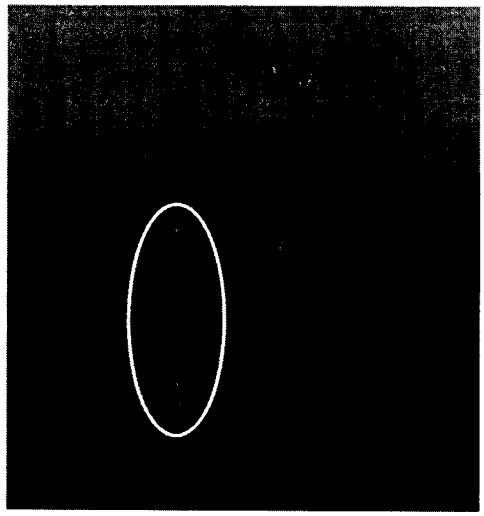

Figure 64. hindquarters of the deer (=Figure 48)

However, we are now faced with a problem in calculating how (87) can be used to describe Figure 61. We have apparently eliminated the intrinsic frame of reference as a possible means. The intrinsic frame of reference cannot be used to calculate 'at the back of' based on an inherent component part 'back', since the Figure is not in the area of space projecting from the deer's back, as illustrated below in Figure 65. If *dehts* means 'at the back of', i.e. if it is calculated using an intrinsic frame of reference based on the inherent component part 'back', then we would expect the locative relation to be calculated similar to this: Let there be a line L which begins at the center of the Ground, and proceeds outward to the subpart of Ground labeled *DEHTS* 'BACK'. The Figure is [*DEHTS* | *AT THE BACK OF*] the Ground if the Figure is located on L in some area that is not occupied by the Ground. However, when we apply this to Figure 65, we encounter a problem: the Figure (i.e. the woman) is not located on Line L!

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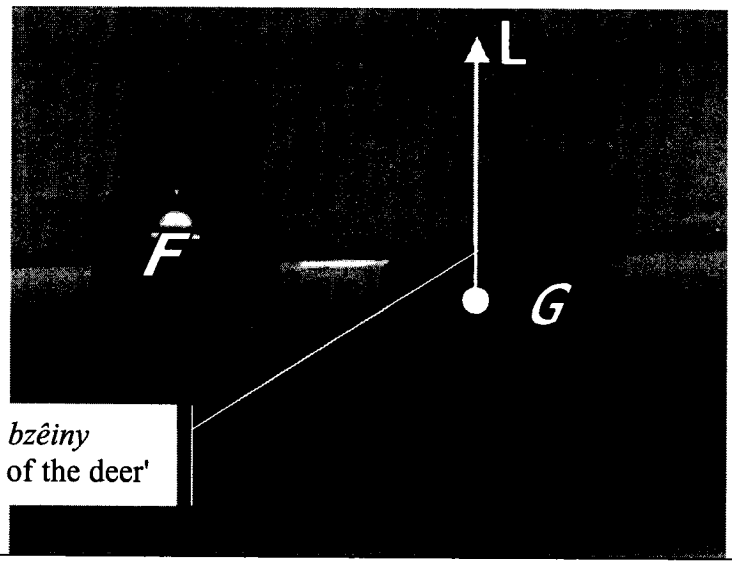

[*DEHTS* | *AT THE BACK OF*] (intrinsic frame of reference / inherent component part):
Let there be a line L which begins at the center of Ground G, and proceeds outward to the subpart of G labeled *DEHTS* 'BACK'.

F is [*DEHTS* | *AT THE BACK OF*] G if F is located on L in some area that is not occupied by G.
Problem: The Figure is not located on L!

Figure 65. *dehts bzêiny*: inherent component part *dehts* 'back' with intrinsic frame of reference

One way to maintain that the intrinsic frame or reference is in use, is to assign the component part name *DEHTS* 'BACK' to the "backside" of the deer. One could do this in several ways, including assigning a relative component part *DEHTS* 'BACK' (as opposite of the inherent component part *loh* 'face'). Then one could proceed as follows: let there be a line L which begins at the center of the Ground, and runs horizontally though the center of the Ground and extends outwards through the part assigned the label *DEHTS* 'BACK' a determined distance. The Figure is [*DEHTS* | *AT THE BACK OF*] the Ground if the Figure is located on L in some area that is not occupied by the Ground. The problem with this technique, however, is that *dehts bzêiny* 'the back of the deer' labels the wrong part of the deer (cf. (88)). We know that the part of the deer circled in Figure 64 can never be

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referred to with *dehts bzêiny*. So while the Line L can now be used to locate the Figure in reference to the Ground, we haven't solved the problem because the component parts of the Ground have been improperly labeled. In fact, it was only because we knew that *dehts bzêiny* can be used to describe the desired locative relationship that we were motivated to label the relevant component part *dehts bzêiny*. Labeling the "backside (rear)" of the deer as *dehts bzêiny* is circular: we want to do it to account for the locative relationship, but our only evidence for it is the locative relationship we are trying to account for. There is no other independent support that this area is the *dehts bzêiny* in any way, and in fact there is evidence to the contrary (88). In addition, this solution might be problematic since it allows the inherent frame of reference to be calculated based on a relative component part. I believe this is not something that we actually ever see attested. This attempt is summarized and displayed visually in Figure 66.

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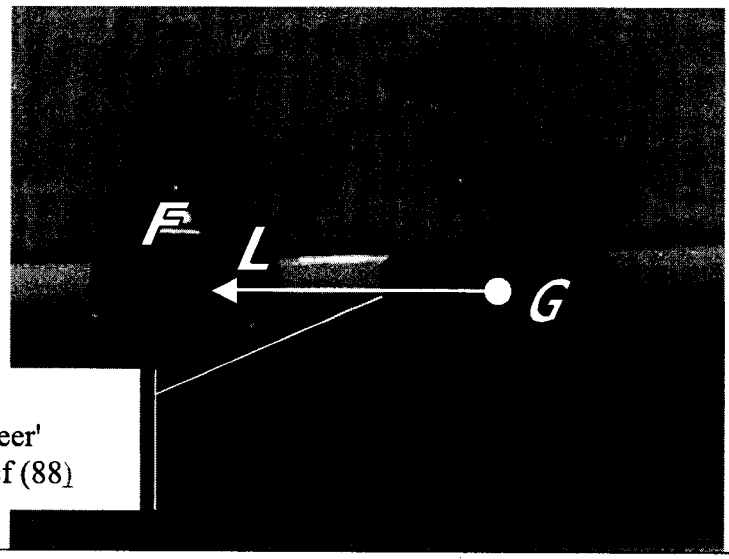

dehts bzêiny
'back of the deer'
(but it's not! cf (88)

[*DEHTS* | *AT THE BACK OF*] (intrinsic frame of reference / relative component part)
(1) assign a relative component part *DEHTS* 'BACK' (as opposite of the inherent component part *loh* 'face')
(2) Let there be a line L which begins at the center of Ground G, and runs horizontally though the center of G and extends outwards through the part assigned the label *DEHTS* 'BACK' a determined distance D.

F is [*DEHTS* | *AT THE BACK OF*] G if F is located on L in some area that is not occupied by G.
Problem: *dehts bzêiny* 'the back of the deer' labels the wrong part of the deer! cf (88)

Figure 66. *dehts bzêiny*: relative component part *dehts* 'back' with intrinsic frame of reference

3.5.2. A solution involving an obligatory shift of Viewpoint

In this section, I present one possible solution to the problem presented above,[18] namely that the intrinsic frame of reference is not being used, but that rather the relative frame of reference is being used in combination with an obligatory shift of the Viewpoint to the Ground.

[18] I also believe this is another potential solution to this problem which maintains the use of the intrinsic frame of reference, but defines *dehts* not in terms of the component part *dehts*, but in terms of something like "opposite of the component part *loh* 'face'". I believe this has potential because it maintains the use of the intrinsic frame of reference, which is desirable, and it defines the locative relationship in terms of an inherent component part (in this case not the homophonous one to the locative, however). I do not present this hypothesis in detail here, but hope to in future work. Thanks to Pamela Munro and Carson Schütze for discussion on this.

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An initial concern with this hypothesis might be with the choice of frame of reference. Under the definitional facts of rotation, this scenario met all the criterion for an intrinsic frame of reference—so how could it not be? If the facts of rotation are definitional, these should require the scenario to be classified as an example of the use of the intrinsic frame of reference. However, in the definitional facts of rotation, the Viewpoint of the relative frame of reference is assumed to be outside of the locative relation itself, and is schematized as being the observer. However, we know that the Viewpoint can be shifted, and if the Viewpoint were in fact shifted to the Viewpoint of the Ground, then the behavior concerning the definitional facts under rotation are not surprising, and are in fact exactly what we would predict. This means, as far as I can tell, that the definitional facts of rotation for the intrinsic frame of reference and for the relative frame of reference with the Viewpoint shifted to the Ground are identical.

Under this hypothesis the locative *dehts* means something more like 'behind (from the Viewpoint of the Ground)'. This is schematized below in Figure 67, and could perhaps be formalized in a way like the following: let there be a line L which begins at the subpart of the Viewpoint (which in this case is the Ground) 'front', and runs horizontally though the center of the Viewpoint (in this case the Ground) and extends outwards a determined distance. The Figure is [DEHTS | BEHIND] the Ground if the Figure is located on L in some area that is not occupied by the Ground.

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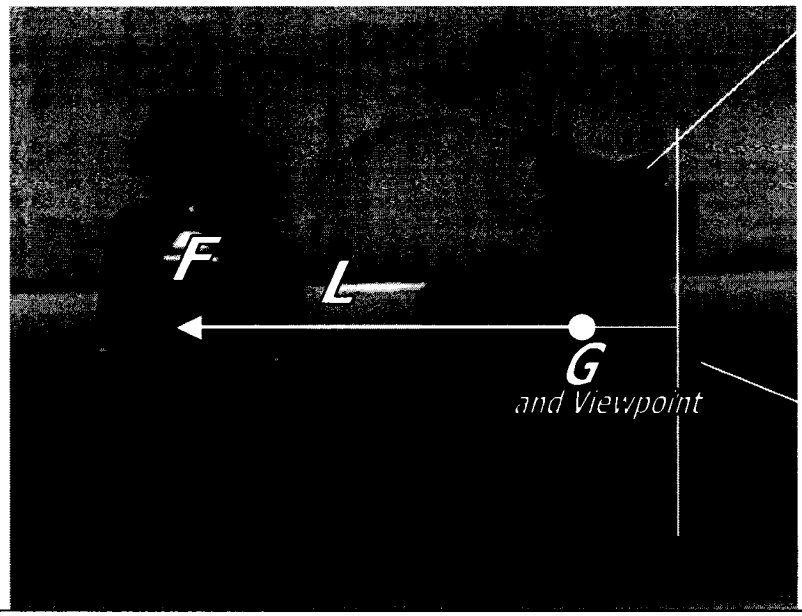

loh bzêiny 'face of the deer'

loh bzêiny 'front of the deer'

H3: [DEHTS | BEHIND] (relative frame of reference; Viewpoint = Ground)
(1) Let there be a line L which begins at the subpart of the Viewpoint (= Ground G) labeled as the FRONT, and runs horizontally though the center of the Viewpoint (= G) and extends outwards a determined distance D.

F is [DEHTS | BEHIND] G if F is located on L in some area that is not occupied by G.

Figure 67. *dehts bzêiny*: relative frame of reference, Viewpoint = Ground

3.5.3. Conclusions

As we will see more in the next section, in TVZ the contrast between inherent and relative component parts together with the contrast between intrinsic and relative frame of reference account for most locative meanings. In general inanimates have both the intrinsic and relative frames of reference available, and if the Ground has an inherent component part it usually takes precedence over any potential assigned relative component part. With human Grounds it seems to be the case that only the intrinsic frame of reference is available, based on the inherent component parts of the Ground. The main problem, like the one presented in this section, is with animal Ground. More specifically the problem seems to reside with *dehts*. Why might this be?

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I believe, that the limits of the problem area (i.e. that the problem is only evident with the locative *dehts* and with animal Grounds) is in fact evidence for an anthropomorphic model in the development of component part prepositions in Zapotec. The meaning of *dehts* must have developed based on a human model, but now has been grammaticized. Its use with animal Grounds as described in this section attests to its path of semantic change and grammaticalization. For a human Ground an inherent frame of reference based on 'back' and 'behind' based on a relative frame of reference with the Viewpoint shifted to the Ground will result in the same locative relationship: i.e. 'at the back of' a human and 'behind' the human are the same from the human's point of view! However, for an animal Ground this is not necessarily the case: at the animal's back is not the same as behind the animal from the animal's Viewpoint in TVZ.

The data in this section have also shown that Viewpoint is an independent semantic element in the locative system of TVZ.

3.6. The locative meaning of TMZ component part prepositions, revisited

In this section I discuss the meaning of some of component part prepositions first introduced in §3.1, in light of the intervening discussion of types of component parts, frames of reference, and Viewpoint. While in §3.1, I presented the component part prepositions and meanings in TVZ (i.e. both TMZ and SLQZ), in this section I look at the details of some patterns of meaning only in TMZ.

I discuss the prepositions by type of meaning. First I provide an example of a preposition with a very limited meaning: *nnaàa'* 'at the hand of' only allows in the

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intrinsic frame of reference and it cannot be used at all with a Ground that does not have a component part *nnaàa'* 'hand' (§3.6.1). Then I present an example of a preposition which require the intrinsic frame of reference for any Ground that has the referential related component part, but unlike *nnaàa'*, does allow the use of the relative frame of reference with a Ground that does not have the relevant component part: *cwe'eh* 'at the side of' (§3.6.2). Next, I present an example of a preposition with a more liberal type of meaning: *dehts* 'behind' (§3.6.3); unlike the other prepositions presented in this section, *dehts* allows both the intrinsic and relative frames of reference with differentiated inanimates. The last meaning type I present is that of *loh* (§3.6.4) which, like all the other prepositions, requires the intrinsic frame of reference with human and house Grounds, but *loh* allows the relative frame of reference with animal Grounds, as well as with differentiated and undifferentiated inanimate Grounds. Finally, in §3.6.5 I present a summary of the extant types of meaning of component part locatives in TVZ.

3.6.1. *Nnaàa'* 'at the hand of'

The component part preposition *nnaàa'* 'at the hand of' has a meaning that may seem very un-preposition like at first. I classify this word as a preposition based on syntactic criterion (cf. Chapter 2), and show in Chapter 4 that the type of meaning a locative has is not a valid criterion for discriminating syntactic category, based on joint work with Munro (e.g. Lillehaugen and Munro 2006). That being said, in this section I demonstrate the type of meaning this preposition has, showing that it requires an intrinsic frame of reference, regardless of the type of Ground.

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When used with human Grounds, *nnaàa'* means 'in the hand of' (89) or 'on the hand of' (90a). (Recall that 'hand' in Zapotec actually refers to the whole area from the fingertips to the elbow, not stopping at the wrist as in English.) With an animal Ground, *nnaàa'* means 'on the front foot / lower leg of' (90b).

89. Fru'at n-u'uh **nnaàa'** mnààa'. (TMZ)
fruit NEU-be at_hand_of woman
'The fruit is in the woman's hands', √ Figure 68

Figure 68. fruit and woman

90. a. Byìi'u càa **nnaàa'** mnààa'. (TMZ)
flea NEU.hang at_hand_of woman
'The flea is on the woman's hand'

b. Byìi'u càa' **nnaàa'** caba'iy. (TMZ)
flea NEU.hang at_hand_of horse
'The flea is on the horse's front leg'

Nnaàa' can also be used with some non-animate Grounds that have a (metaphorically assigned) inherent component part *nnaàa'* 'hand', such as a tree (91).

91. Ma'any-i'ih zòob **nnaàa'** gyahg. (TMZ)
animal-dim NEU.sit at_hand_of tree
'The bird is on the branch of the tree'

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Its difficult to imagine what *nnaàa'* might mean with a relative frame of reference, so above I only present evidence of the meaning of this prepositions by giving positive evidence.

The use of *nnaàa'* with any Ground that does not have an inherent component part *nnaàa'* 'hand' is infelicitous (92).

92. a. #Ma'any-i'ih zòob **nnaàa'** pelo't. (TMZ)
animal-dim NEU.sit at_hand_of ball
bad with any meaning; e.g. cannot mean 'The bird is on the ball'

b. #Ma'any-i'ih zòob **nnaàa'** yu'uh. (TMZ)
animal-dim NEU.sit at_hand_of house
bad with any meaning; e.g. cannot mean 'The bird is on the house'

A summary of the use of this preposition is presented in Table 6. *Nnaàa'* 'at the hand of' can only be used with the intrinsic frame of reference. This means, it can only be used with Grounds that have an inherent component part *nnaàa'*. Its use with Grounds that do not have this component part is infelicitous.

frame of reference available in cases of conflict	**type of Ground**			
	person	**animal**	**tree** (inherent component part *nnaàa'* 'hand')	**ball / house** (no inherent component part *nnaàa'* 'hand')
intrinsic	√ (89), (90a)	√ (90b)	√ (91)	n/a
relative	*	*	*	* (92)

Table 6. frames of reference available for *nnaàa'* 'at the hand of'

3.6.2. *Cwe'eh* 'at the side of'

Cwe'eh can be used with both the inherent and the relative frames of reference, depending on the type of Ground. For any Ground that has an inherent component part *cwe'eh* 'side' (e.g. people (§3.6.2.1), animals (§3.6.2.2), houses (§3.6.2.3), and cars

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(§3.6.2.4)) the intrinsic frame of reference must be used. The relative frame of reference is only available for Grounds that have no inherent component part 'side', such as a ball (§3.6.2.5). The data are summarized below with references to the examples which occur in the following sections.

frame of reference available in cases of conflict	**type of Ground**				
	person	**animal**	**house**	**car** (inherent component part *cwe'eh* 'side')	**ball** (no inherent component part *cwe'eh* 'side')
intrinsic	√ (93)	√ (95)	√ (96)	√ (98)	n/a
relative	* (93)	*(95)	*(96)	*(98)	√ (99)

Table 7. frames of reference available for *cwe'eh* 'beside'

3.6.2.1. *Cwe'eh* 'beside' with person as Ground

In TMZ, a person has an inherent component part *cwe'eh* 'side' (§2.2.1); a relative component part *cwe'eh* cannot be assigned to a person. As shown in (93), with a human Ground the intrinsic frame of reference is allowed (since it can describe both Figure 69 and Figure 70) and the relative frame of reference is not (since it cannot describe Figure 71 or Figure 72).

93. Mnàà̀a' zuu **cwe'eh** nguìu'. (TMZ)
woman NEU.stand beside man
'The woman is beside the man'; √ Figure 69, √ Figure 70; #Figure 71, #Figure 72

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Figure 69. man and woman I

Figure 70. man and woman II

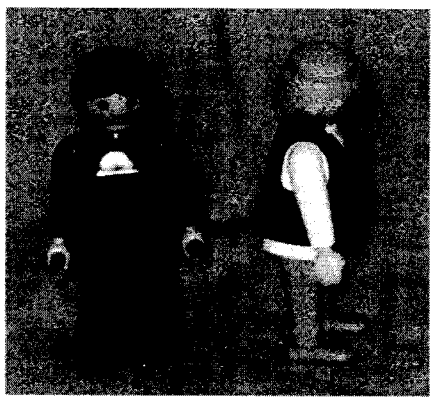

Figure 71. woman and man III

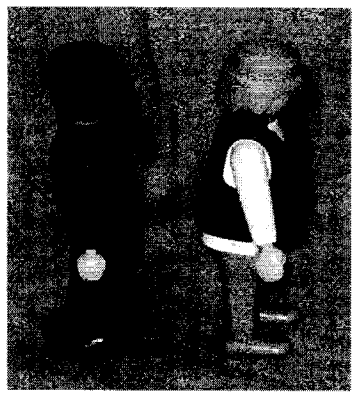

Figure 72. woman and man IV

Note that the orientation of the Figure does not seem to matter. Thus, there is no contrast in grammaticality between (93) describing Figure 69 and Figure 70 or Figure 71 and Figure 72, where the only difference is the orientation of the Figure. As far as I can tell, the orientation of the Figure never matters, so I will not continue to give such variants.

3.6.2.2. *Cwe'eh* 'beside' with animal as Ground

A deer has an inherent component part *cwe'eh* 'side'; *cwe'eh* 'side' cannot be interpreted as a relative component part for a deer (94).

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94. **Cwe'eh** bzêiny me'eu. (TMZ)
side deer dirty
'The side of the deer is dirty'; if used to describe the circled area (if it is dirty) in *Figure 73; √ Figure 74

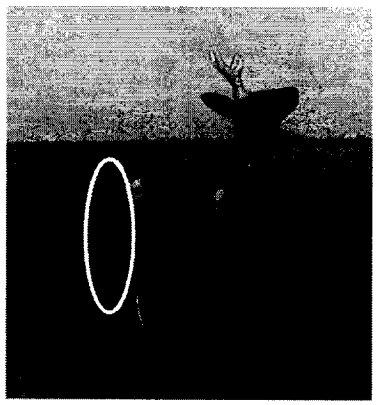

Figure 73. hindquarters of the deer (not the side of the deer)

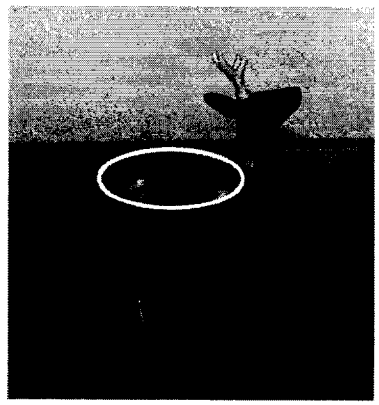

Figure 74. side of the deer

In the component part preposition *cwe'eh* 'beside' can be used to describe Figure 76 but not Figure 75, as in (95), showing that for the Ground deer, *cwe'eh* requires an intrinsic frame of reference based on the inherent component part *cwe'eh* 'side', and that an relative frame of reference is not allowed.

95. Mnnààa' zuu **cwe'eh** bzêiny. (TMZ)
woman NEU.stand beside deer
'The woman is beside the deer'; *Figure 75; √ Figure 76

Figure 75. woman and deer I

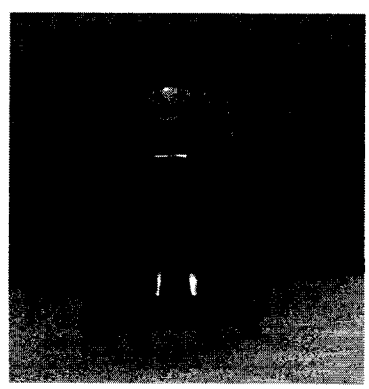

Figure 76. woman and deer II

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3.6.2.3. *Cwe'eh* 'beside' with house as Ground

Recall from §3.2.2.2 that a house has an inherent component part *cwe'eh* 'side'; and 'side' cannot be assigned as a relative component part. When a house is the Ground, the preposition *cwe'eh* 'beside' must be interpreted using the intrinsic frame of reference. The relative frame of reference is not allowed; the intrinsic frame of reference is always used. This is evidenced by the fact that (96) can Figure 77, where the Figure is standing in the area of space projecting from the house's side, but is in front of the house from the Viewpoint of the camera. The fact that (96) cannot be used to describe Figure 78 shows that the relative frame of reference is not available. Here the Figure is standing in the area of space projecting from the house's back, but is beside the house from the Viewpoint of the camera.

96. Bìinny zuu **cwe'eh** yu'uh. (TMZ; 4:296)
woman NEU.stand beside house
'The woman is beside the house'; √ Figure 77, #Figure 78

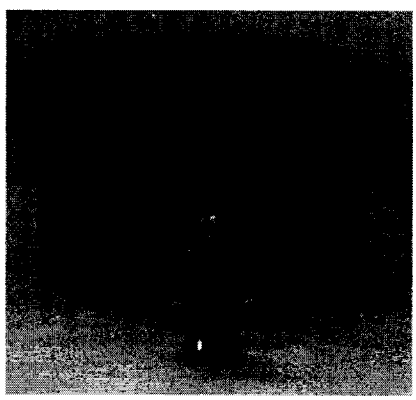

Figure 77. woman and house I

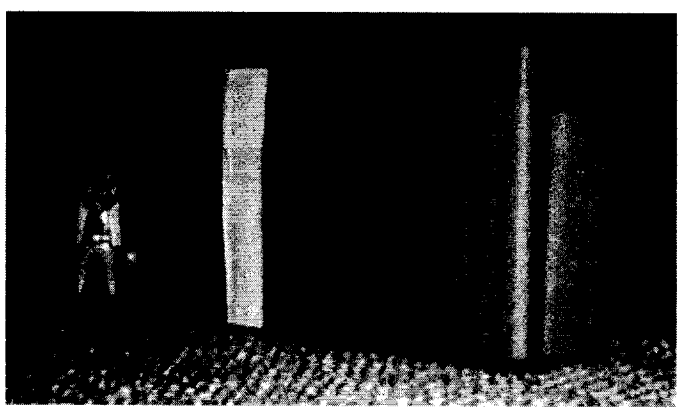

Figure 78. woman and house II

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3.6.2.4. *Cwe'eh* 'beside' with a differentiated inanimate as Ground

The same pattern can be seen when the Ground is a car, which, like a person, deer, and house, has an inherent component part *cwe'eh* 'side', which cannot be interpreted relatively (97).

97. **Cwe'eh** co'ch me'eu. (TMZ)
side car dirty
'The side of the car is dirty'; if used to describe the circled area (if it is dirty) in
*Figure 79, √ Figure 80

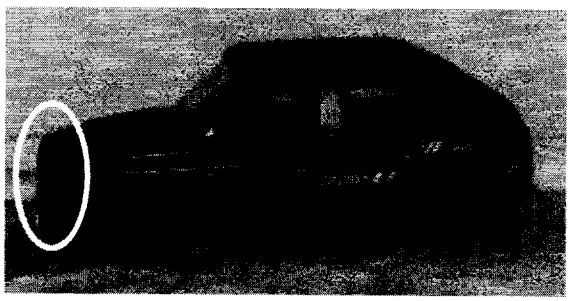

Figure 79. front of car

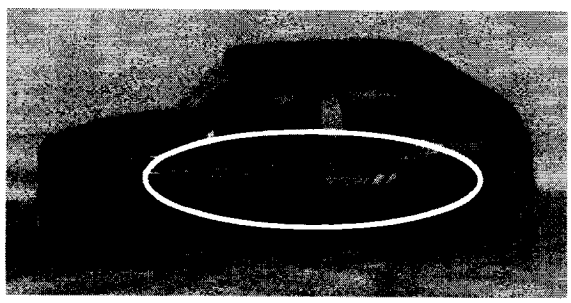

Figure 80. side of car

Cwe'eh 'beside' requires an intrinsic frame of reference based on the inherent component part *cwe'eh* 'side', and an relative frame of reference is not allowed when the Ground is a car (98).

98. Mnnààa' zuu **cwe'eh** co'ch. (TMZ)
woman NEU.stand beside car
'The woman is standing beside the car'; #Figure 81; √ Figure 82

Figure 81. woman and car I

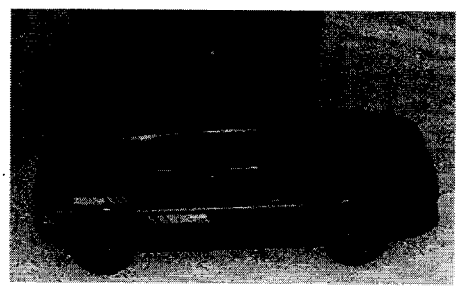

Figure 82. woman and car II

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3.6.2.5. *Cwe'eh* 'beside' with an undifferentiated inanimate as Ground

When the Ground has no inherent component part which can be referred to with *cwe'eh* 'side' (for instance, when the Ground is a ball), the inherent frame of reference is not possible. (99) shows that when a Figure (in this case a man) is beside a ball, based on a relative frame of reference with the Viewpoint of the camera (the observer), regardless of the orientation of the Figure, the word *cwe'eh* 'beside' can be used to refer to its location.

99.	Nguìu'	zuu	**cwe'eh**	pelo't. (TMZ)
	man	NEU.stand	beside	ball

'The man is beside the ball'; √ Figure 83, √ Figure 84

Figure 83. man and ball I

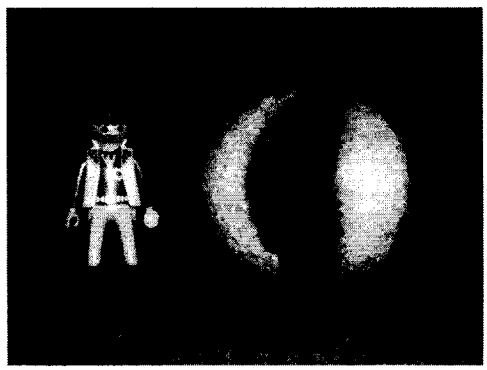

Figure 84. man and ball II

3.6.3. *Dehts* 'behind'

Dehts can also be used with both inherent and relative frames of reference depending on the type of Ground. For humans (§3.6.3.1), animals (§3.6.3.2), and houses, only the inherent frame of reference is available. For inanimates, both frames of references are available: if an inanimate has the component part *dehts* 'back' the intrinsic frame of reference can be used (§3.6.3.3). If is doesn't have an inherent component part *back*, the

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intrinsic Frame of Reference is not applicable, and so by default only the relative frame of reference is used (§3.6.3.4).

frame of reference available in cases of conflict	**type of Ground**				
	human	**animal**	**house**	**car** (inherent component part *dehts* 'back')	**table** (no inherent component part *dehts* 'back')
intrinsic	√ (100)	√ (101)	√	√ (103)	n/a
relative	* (100)	*% (102)	*	√ (103)	√ (104)

% see §3.5 for further discussion

Table 8. frames of reference available for *dehts* 'behind'

3.6.3.1. *Dehts* 'behind' with a human Ground

When the Ground is a human, *dehts* can only be used with an inherent frame of reference: (100) can be used to describe Figure 85 and Figure 87, where the Figure (the man) is in the area of space projecting from the Ground's back. But (100) cannot be used to describe Figure 86, where the man is behind the woman from a relative frame of reference, using the Viewpoint of the camera.

100. Nguìu' zuu **dehts** mnnààa'. (TMZ)
man NEU.stand behind woman
'The man is standing behind the woman'; √ Figure 85, #Figure 86, √ Figure 87

Figure 85. man and woman I

Figure 86. man and woman II

Figure 87. man and woman III

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3.6.3.2. *Dehts* 'behind' with an animal Ground

When used with an animal Ground, the intrinsic frame of reference is available, as shown by the fact that (101) can describe Figure 88.

101. Bzë'ahz zòob **dehts** bzêiny. (TMZ)
squirrel NEU.sit behind deer
'The squirrel is on the back of the deer'; √ Figure 88

Figure 88. squirrel and deer

It is a bit more complicated question as to whether or not *dehts* can be used with a relative frame of reference with the Ground is an animal. However, (102) does show that *dehts* cannot be used with a relative frame of reference with the Viewpoint of the camera (or observer). (For discussion of *dehts* used with a relative frame of reference with the Viewpoint forced to be on the Ground, see §3.5.)

102. Mnnààa' zuu **dehts** bzêiny. (TMZ)
woman NEU.stand behind deer
'The woman is behind the deer'; #Figure 89

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Figure 89. woman and deer I

3.6.3.3. *Dehts* 'behind' with a differentiated inanimate Ground

The use of *dehts* with a differentiated inanimate Ground is ant instance where both frames of reference are available as options. The use of (103) to describe Figure 90 is an example of the use of the relative frame of reference and the use of (103) to describe Figure 91 is an instance of the use of the inherent frame of reference.

103.	Mnnàà'a'	zuu	**dehts**	co'ch. (TMZ)
	woman	NEU.stand	behind	car

'The woman is standing behind the car' √ Figure 90; √ Figure 91

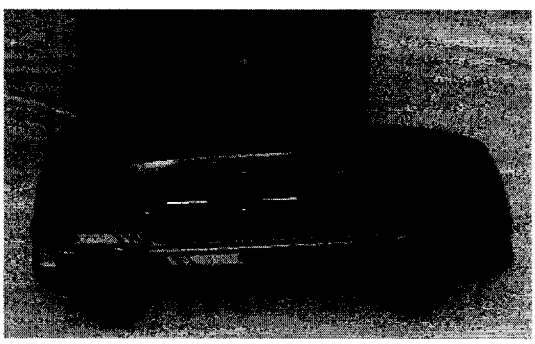

Figure 90. woman and car I

Figure 91. woman and car II

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3.6.3.4. *Dehts* 'behind' with an undifferentiated inanimate Ground

A table has no inherent component part *dehts*, so the intrinsic frame of reference is not applicable. The use of (104) to describe Figure 92 shows that relative frame of reference from the Viewpoint of the camera is possible.

104.	Mnnàà'	zuu	**dehts**	me'es. (TMZ)
	woman	NEU.stand	behind	table

'The woman is behind the table'; √ Figure 92

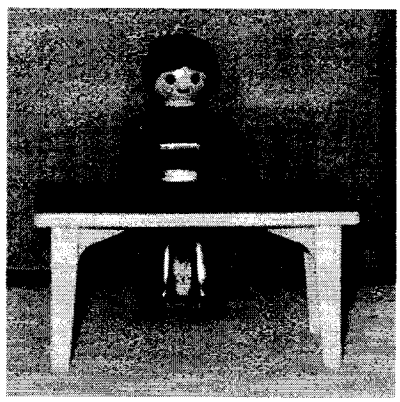

Figure 92. woman and table

3.6.4. *Loh* 'in front of; on'

Loh is the preposition with the most options for the use of the relative frame of reference. Like all other locatives, only the intrinsic frame of reference is used with the Ground is a human (§3.6.4.1) or a house (§3.6.4.2). However, with an animal Ground, both frames of reference are available (§3.6.4.3). Moreover, with inanimates, it seems that the relative frame of reference can be required, at least in some situations (§3.6.4.4). These uses are summarized below in Table 9 and exemplified in the following sections.

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frame of reference available in cases of conflict	type of Ground				
	human	**house**	**animal**	**table** (inherent component part *loh* 'face')	**ball** (no inherent component part *loh* 'face')
intrinsic	√ (105a)	√ (106)	√ (107)	* (110)	n/a
relative	* (105b)	*	√ (108)	√ (110)	√

Table 9. frames of reference available for *loh* 'in front of; on'

3.6.4.1. *Loh* 'in front of; on' with human as Ground

The use of (105a) to describe Figure 93 shows that the intrinsic frame of reference is available when *loh* is used with a human Ground. The fact that (105b) cannot describe Figure 94 shows that relative frame of reference is not available.

105. a. Nguìu' zuu **loh** mìi'iny. (TMZ)
man NEU.stand in_front_of child
'The man is in front of the child'; √ Figure 93

b. Mnààa' zuu **loh** nguìu'. (TMZ)
woman NEU.stand in_front_of man
'The woman is in front of the man'; # Figure 94

Figure 93. man and child

Figure 94. woman and man

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3.6.4.2. *Loh* 'in front of' with house as Ground

As with all the other prepositions discussed here, when *loh* is used with a house as the Ground only the intrinsic frame of reference is available, as shown by the fact that (106) can describe Figure 95, but not Figure 96. *Loh* never means 'on' when the Ground is a house; (106) being used to describe Figure 97 is infelicitous.

106. Mnààa' zuu **loh** yu'uh. (TMZ)
woman NEU.stand in_front_of house
'The woman is in front of the house'; √ Figure 95; #Figure 96; #Figure 97

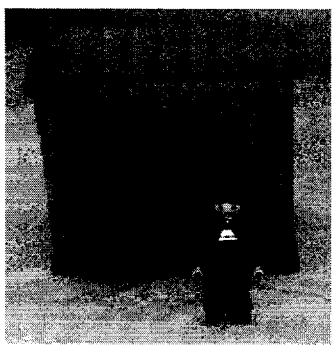

Figure 95. woman and house I

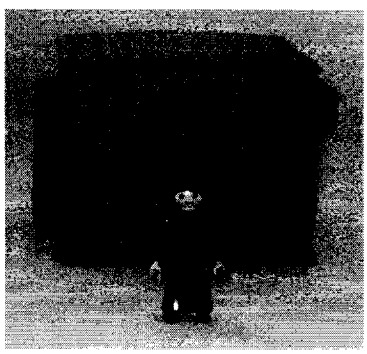

Figure 96. woman and house II

Figure 97. woman and house III

3.6.4.3. *Loh* 'in front of; on' with animal as Ground

When *loh* is used with an animal Ground, the intrinsic frame of reference is possible: (107) can describe Figure 98. It seems to be the case that the relative frame of reference is possible, but only with the meaning 'on': (108) can describe Figure 100; not the meaning 'in front of': (107) cannot describe Figure 99. Unfortunately, further work on the relation between the correlation between frames of reference and the locative meanings of *loh* is part of future research.

107. Nguìu' zuu **loh** bzêiny. (TMZ)
man NEU.stand in_front_of deer
'The man is in front of the deer'; √ Figure 98; #Figure 99

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108. Bzë'ahz zòob **loh** bzêiny. (TMZ)
squirrel NEU.sit on deer
'The squirrel is on the deer'; √ Figure 100

Figure 98. man and deer

Figure 99. man and deer

Figure 100. squirrel and deer

3.6.4.4. *Loh* 'in front of; on' with differentiated inanimate as Ground

In TMZ the tabletop is an inherent component parts as indicated in (109).

109. **Loh** **me'es** me'eu. (TMZ) (=59)
face table dirty
'The tabletop is dirty'; √ Figure 16 (if the circled area is dirty)

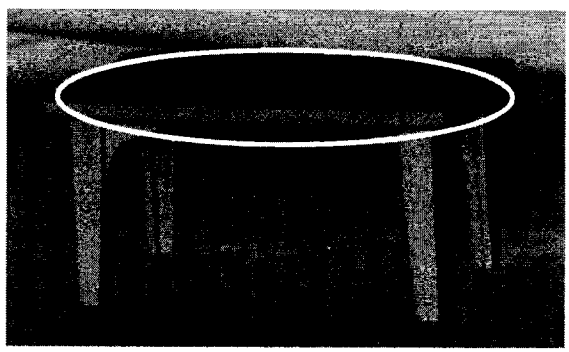

Figure 101. tabletop (=Figure 16)

Loh 'on' cannot be used with the intrinsic frame of reference when the Ground is a table, as shown by the fact that (110) cannot describe Figure 103. The relative frame of reference can be used, as shown by the fact that (110) can describe Figure 102.

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110. Bèe'ecw zuu **loh** me'es. (TMZ) (=61)
dog NEU.stand on table
'The dog is on the table'; √ Figure 102; #Figure 103

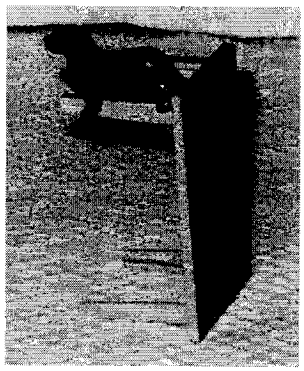

Figure 102. dog and table II (=Figure 20)

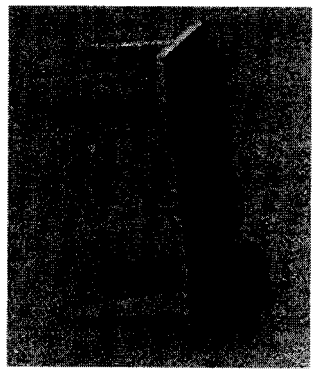

Figure 103. dog and table III (=Figure 21)

3.6.4.5. *Loh* 'in front of; on' with undifferentiated inanimate as Ground

The relative frame of reference is available when *loh* is used with undifferentiated inanimate, with both the meanings 'in front of' (111) and 'on' (112).

111. Nguìu' zuu **loh** pelo't. (TMZ)
man NEU.stand in_front_of ball
'The man is in front of the ball'; √ Figure 104

112. Bzë'ahz zuu **loh** pelo't. (TMZ)
man NEU.stand on ball
'The squirrel is of the ball'; √ Figure 105

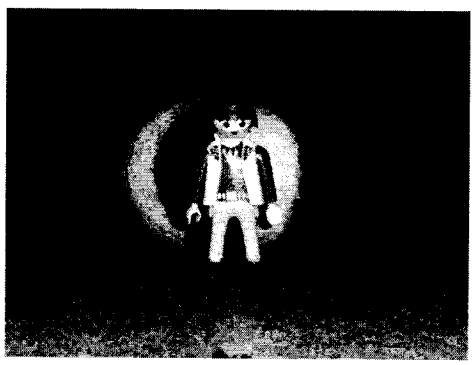

Figure 104. man and ball

Figure 105. squirrel and ball

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3.6.5. Summary of component part locative meanings in TMZ

In this section, I presented data showing that the meaning of component part prepositions in TMZ may be understood by considering which frames of reference they allow with which types of Grounds. A summary of the patterns of usage presented in this section is given in Table 10.

		human	house	animal	differentiated inanimate	undifferentiated inanimate
nnaàa'	at the hand of	intrinsic	(n/a)	intrinsic	intrinsic	(not possible)
cwe'eh	at the side of	intrinsic	intrinsic	intrinsic	intrinsic	**relative**
dehts	behind	intrinsic	intrinsic	intrinsic / relative ?	intrinsic **relative**	**relative**
loh	in front of; on	intrinsic	intrinsic	intrinsic / **relative** 'on'	intrinsic / **relative** 'on'	**relative**

Table 10. Summary of meaning types of component part prepositions in TMZ

As discussed in §3.4.2.3 the type of Ground involved in a locative relationship can may play a crucial role in the semantics by constraining the choice of frame of reference or by acting with the preposition to determine where the Viewpoint will be centered. Table 11 summarizes the types of frames of reference allowed for each Ground, as shown in this section. Human and house Grounds require an intrinsic frame of reference. Animals and differentiated inanimates allow the use of both the inherent and relative frames of reference (under the right conditions). Finally undifferentiated inanimates can be Ground in locative relationship involving a relative frame of reference.

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type of Ground	allows inherent frame of reference?	allows relative frame of reference?
Human	**Yes**	No
House	**Yes**	No
Animal	**Yes**	**Yes**
differentiated inanimates	**Yes**	**Yes**
undifferentiated inanimates	**n/a**	**Yes**

Table 11. Summary of frames of reference allowed by types of Grounds in TMZ

3.7. Component part terms in directional constructions

Motion verbs,[19] such as *brììa'* 'left', are intransitive, as can be seen in (113). In these sentences the source of the direction is not overtly mentioned, although in both cases it had been recently mentioned in the discourse (in Zhat:8 and Zhat:36 respectively).

113. a. Pehr chih=nìi' w-ta'ihsy mìi'iny
but when=NÌI' PERF-go_to_sleep child
zh:àa'at **b-rììa'** zh:àa'at (TMZ; Zhat:10)
toad PERF-leave toad
'But when the child went to sleep, the toad: the toad left'

b. Chi'c **b-rììa'** cantidaad dyee'p. (TMZ; Zhat:38)
then PERF-leave many wasp
'Then a lot of wasps came out'

Directional verbs can also occur with a locational phrase (indicated in boxes) that specifies either the source (114a, b) or the goal of the motion (114c, d).

114. a. Chi'c **b-rììa'** mìi'iny [s-toohby laad] (TMZ; Zhat:24)
then PERF-leave child DEF-one side
'Then the child left through the other side'

[19] I have previously written briefly about the use of component part prepositions in directional constructions in Lillehaugen 2003, although since then I have changed my analysis of this type of construction.

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b. Per [làa'any guêêë'dy=qui] **b-rìia'** to'ohby niilly. (TMZ; Zhat:34)
but in hole=this PERF-leave one mole
'But a mole came out of this hole'

c. **Z-èe** dyee'p [yaàa'] (TMZ; Zhat:39)
DEF-go wasp up
'The wasps went up'

d. Chi'c b-yèe'py mìi'iny [**guë'ëhcy** to'ohby gyiah]. (TMZ; Zhat:50)
then PERF-go_up child on one rock
'Then the child went up on a rock'

As can be seen from (114b, d) above, component part prepositions can be used in directional constructions. However, the use of component part prepositions in directional constructions is not straightforward syntactically or semantically. As can be seen in the pairs (115a, b) and (116a, b) the preposition is required in these cases in order to express the source (115a) or the goal (116a). It seems as though a simple noun phrase, such as *me'es* 'table' cannot function as a source or a goal in these directional construction. Its presence is not licensed by the intransitive verb (115c, 116c). (There is much more syntactic work to be done on this topic; e.g. the phrase *stoohby laad* 'another side, the other side' (114a) can be added to a directional sentence without a preposition. It would appear based on this limited data, then, that this type of quantified noun phrase functions differently from a simple (unquantified) noun phrase.)

115. a. Bèe'ecw b-yèe'py **loh** me'es. (TMZ; 5:151)
dog PERF-go_up on table
'The dog went up on the table'

b. *Bèe'ecw b-yèe'py me'es. (TMZ; 5:151)
dog PERF-go_up table
bad with any meaning; e.g. cannot mean 'The dog went up the table'

c. √ Bèe'ecw b-yèe'py. (TMZ; 5:151)
dog PERF-go_up
'The dog went up'

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116. a. Bèe'ecw b-ye'eht **loh** me'es. (TMZ; 5:151)
dog PERF-go_down from table
'The dog got off the table'

b.*Bèe'ecw b-ye'eht me'es. (TMZ; 5:151)
dog PERF-go_down table
bad with any meaning; e.g. cannot mean 'The dog got off of the table'

c.√ Bèe'ecw b-ye'eht. (TMZ; 5:151)
dog PERF-go_down
'The dog got off'

However, while *loh* seems syntactically required in (115a) and (116a), what meaning is it contributing? It cannot be expressing the direction of the motion: notice that *loh* is used both in a sentence where the motion is directed at the object of *loh* and one where the motion is directed away from the object of *loh*. Moreover, the directional information seems to be completely contained in the verb, as evidenced from (115c) and (116c).

Although more work is needed, I believe that directional verbs allow locational adjuncts of certain syntactic types (prepositional phrases (114b, d), adverbs (114c), quantified noun phrases? (114a), but not simple noun phrases (115b, 116b)) and that the interpretation of these locational adjuncts as source or goal will depend on the meaning of the particular verb. In (115b) *loh me'es* is interpreted as a goal, since *byèe'py* means 'went up', and in (116c) *loh me'es* is interpreted as a source, since *bye'eht* means 'got off'.

Notice that despite these syntactic and semantic complications, data from the use of component part locatives in directional constructions can be used to support the hypothesis that component part locatives are not of the same syntactic category as nouns, given that the phrase *loh me'es* can function as a source in (117a) while *me'es* cannot (117b).

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117. a. Bèe'ecw b-ye'eht **loh** **me'es**. (TMZ)
dog PERF-get_off on table
'The dog got off the table'

b. *Bèe'ecw b-ye'eht **me'es**. (TMZ)

In the following sections I document the use of component part prepositions in directional constructions introducing both goals and sources. Further syntactic and semantic analysis of these constructions is a goal in future work.

3.7.1. *Guë'ëhcy* 'on'

Guë'ëhcy 'on' can be seen introducing goals in the directional constructions in (118) and a source in (119).

118. a. Chi'c b-yèe'py mii'iny **guë'ëhcy** to'ohby gyiah. (TMZ; Zhat:50)
then PERF-go_up child on one rock
'Then the child got up on a rock'

b. Nadòo' bèe'ecw b-lèe'py mii'iny **guë'ëhcy** tru'unnc (TMZ; Zhat:69)
first dog PERF-put_up child on log
'First the child put the dog on the log'

119. B-dyèe'lly=a' **gue'ehcy**u'uh. (SLQZ: ML:246)
PERF-fall_off=1SG roof
'I fell off the roof'

3.7.2. *Làa'any* 'in'

Làa'any 'in' is also found being used to introduce both goals (120) and sources (121) in directional constructions.

120. a. Chi'c b-iahahb mii'iny **làa'any** x:-ca'ch bzêiny (TMZ; Zhat:54)
then PERF-fall child in POSS-horn deer
'Then the child fell into the deer's antlers'

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b. Chi'c bèe'ecw ca-lùu'uh x:-tro'omp=nìi'
then dog PROG-put POSS-snout=3ANAP

làa'any bo't x:tèe' nnyi'his (TMZ; Zhat:8)
in jar of water

'Then the dog was putting his snout in the jar of water'

121. a. Chi'c **làa'any** guêêë'dy nih n-àa' têë'ix gyahg
then in hole REL NEU-lie side tree

b-rìia' to'ohby da'amm (TMZ; Zhat:40)
PERF-leave one owl

'Then from the hole which is on the side of the tree an owl came out'

b. R-bèe' bùunny lango'ost **làa'iny** zu'aht
HAB-take_out person lobster in egg

pahr ch-ìi'llèe' g-a'u bùunny=ih. (SLQZ; ML in prep.:119)
for IRR-can IRR-eat person=3DST

'One has to remove a lobster from its shell in order to be able to eat it'

3.7.3. *Loh* 'on'

We have already seen examples of *loh* being used to license both a goal and a source in a directional constructions, but they are repeated here as (122) and (123).

122. Bèe'ecw b-yèe'py **loh** me'es. (TMZ)
dog PERF-go_up on table
'The dog went up on the table'

123. Bèe'ecw b-ye'eht **loh** me'es. (TMZ)
dog PERF-get_off from table
'The dog got off the table'

3.7.4. *Ru'uh* 'at the edge of'

Ru'uh 'at the edge of' is also seen used to introduce a location that can function as a goal (124) or a source (125) in a directional construction.

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124. Chi'c b-zh:êë'nny bzêiny **ru'uh** schu' barra'annc. (TMZ; Zhat:59)
then PERF-run deer at_edge_of edge ditch
'Then the deer ran to the edge of the ditch'

125. B-lèe bèe'ecw guë'ëhcy=nìi' **ru'uh** venta'n. (TMZ; Zhat:21)
PERF-stick dog head=3ANAP at_edge_of window
'The dog stuck his head out the window'

3.7.5. *Têë'ix* 'beside'

The final examples presented in this section are of *têë'ix* being used to indicate a location that is a goal of directed motion (126) and a source of directed motion (127). These SLQZ examples are particularly interesting since the object of *têë'ix* (SLQZ *tèi'x*) in both cases is *yu'uh* 'house' and the object of the verb in both cases is *gyèe'ts* 'paper'.

126. A'anng bcwààa'ah gyèe'ts tèi'x yu'uh (SLQZ; ML in prep.:201)
A'a=nng b-cwààa'ah gyèe'ts **tèi'x** yu'uh.
BASE=3PROX PERF-throw paper side house
'He put up a paper on the side of the house'

127. Candìedyëng gyèe'ts tèi'x yu'uh. (SLQZ; ML:244)
Can-dìedy=ëng gyèe'ts **tèi'x** yu'uh.
PROG-peel=3PROX paper side house
'He's peeling the paper off the wall'

3.8. Non-locative *loh*

As first documented for TVZ in Munro and Lopez, et al. 1999, the preposition *loh* (with locative meanings including 'in front of' or 'on'; cf §3.1.5 and §3.6.4) also has a large range of non-locative meanings, such as 'to' (128a) and 'from' (128b), as exemplified here for TMZ.

128. a. B-x:èe'l=a' gyìia' **loh** x:-na'an=a'. (TMZ; 5:145a)
PERF-send=1SG flower to POSS-mother=1SG
'I sent flowers to my mother'

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b. Li'eb b-ìe'ny co'br x:-mêëëlly=nìi' **loh** Jwaany. (TMZ; 5:145a)
Felipe PERF-do collection POSS-money=3ANAP from John
'Felipe collected his money from John'

I present the range of non-locative meanings of *loh* in modern TVZ in §3.8.1. I consider some cross-linguistics characteristics of dative case in §3.8.2, and then examine the ways in which modern non-locative *loh* is consistent with (§3.8.3) and inconsistent with (§3.8.4) dative case. In §3.8.5 I present the non-locative uses of *loh* in Colonial Valley Zapotec, and I offer conclusions in §3.8.6.

This investigation would not have been possible without the work done on SLQZ and the wonderful information available in the dictionary (Munro and Lopez, et al. 1999). Some of these ideas have been discussed previously in Lillehaugen 2004d and 2005b.

3.8.1. Non-locative *loh* in modern TVZ

The non-locative meanings of *loh* seem to be very broad, including 'to' (128a), 'from' (128b, 129), 'in' (130), 'for' (131), 'at' (132), and 'than' (133).

129. Tu b-zì=u' nìi **loh**=nìi'? (SLQZ, ML:156)
who PERF-buy=2INF that from=3ANAP
'Who did you buy that from?'

130. B-ìe'ny=a' gaan to'ohby rràady **loh** rrie'f. (TMZ)
PERF-do=1SG winning one radio at raffle
'We won a radio in / through / at the raffle'

131. a. B-zhùu'azh=a' gueht **loh** bèe'cw. (SLQZ, Munro 2002,[20] ex 53)
PERF-tear=1SG tortilla for dog
'I tore up the tortilla for (and in the presence of) the dog'

[20] In the SLQZ examples from Munro (2002), I have adjusted the glosses to be consistent with the rest of the glossing in this dissertation.

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b. B-ìi'lly=a' **loh** x:-na'an=a' (TMZ)
PERF-sing=1SG for POSS-mother=1SG
'I sang for (and in the presence of) my mother'

132. a. Chi'c bèe'ecw ca-du'uhx ca-gwi'ih **loh** to'ohby bteheh. (TMZ; Zhat:36)
then dog PROG-bark PROG-look at one hive
'Then the dog was barking and looking at a hive'

b. Chi'c bèe'ecw ca-du'uhx ca-gwi'ih **loh** mìi'iny. (TMZ; Zhat:58)
then dog PROG-bark PROG-look at child
'Then the dog was barking and looking at the child'

133. Zyuùa'll=ru' Rrodriiegw **loh** Lia Oliieb (SLQZ, Munro 2002, ex 54)
tall=more Rodrigo than Ms. Olivia
'Rodrigo is taller than Olivia'

As is perhaps obvious by my translations of the examples, it is not always clear what the best translation of *loh* is in these non-locative sentences. Perhaps more detailed semantic work might make some of this clearer, but note that the differences between 'in', 'through' and 'at' in (130) in English are subtle at best, even for a native speaker, and this might not be the type of meaning difference I can access in Zapotec via elicitation.

These non-locative meanings in addition to others are documented in the entry for *loh* in the SLQZ dictionary, which also gives examples of many of these types of non-locative meanings.

> **lohoh** ... 3. **to, toward** (prep.); ... 5. **in, inside** (prep.) {*Bìe'nyënn gaan te'ihby rràady loh rrie'f* "We won a radio in the raffle"; *Rgwi'a' ua's zagrùu nàa re'nn loh fo't* "I saw that it was very pretty here in the pictures"}; 6. **from** (prep.) {*Tu bzìu' nìi lohni'?* "Who did you buy it from?"}; 7. **for** (prep.) {*Bzhùu'azha' gueht loh bèe'cw* "I broke up the tortilla for the dog"}; 8. **in, during** (prep.) {*loh sete'nntayseeis* "in seventy-six, in 1976"; *A'anng cayàann tye'nn que'ity tu ygwi'ih loh x:cyèe'ts sa'ni' loh prweeb* "He is observing to see that no one looks at the others' papers during the test"}; 9. **of** (among) (prep.) {*Tu rumbèu' loh ra bùunny nih btàa'az Gye'eihlly* "Which of the men who hit Mike do you know?, Which do you know of the men who hit Mike?"}; 10. **than** ... {*Zyuùa'llru' Rrodriiegw loh Lia Oliieb* "Rodrigo is taller than Olivia"; *Tu zyuùa'llru'a' lohni'?* "Who am I taller than?"} ...
>
> Munro and Lopez in prep.:131; Spanish omitted; italics and some bold added

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MacLaury mentioned another common use of non-locative *loh*: to mark the addressee in verbs of speaking.

> Zapotec does not use body-part terms as prepositions, nor even as markers of goal, path, and source; its dative extensions are restricted to verbs of speaking, which locate one person in front of another…
>
> MacLaury 1989:120

And while it is does not seem to be true that *loh*'s "dative" extensions are limited to verbs of speaking, it is the case that *loh* can be used before addressees (134); in fact in some cases *loh* seems to be required before these objects (134b, e). Although given the grammaticality of (134c, f) the obligatoriness of *loh* might depend on the particular construction, speaker, or language variety.

134. a. R-a'ipy=a' **loh** chie'll=a'. (TMZ; 5:152)
HAB-tell=1SG to spouse=1SG
'I told my spouse'

b. *R-a'ipy=a' chie'll=a'. (TMZ; 5:152)
HAB-tell=1SG spouse=1SG
'I told my spouse'

c. R-e'ipy=ëng Gye'eihlly xi g-uhc. (SLQZ; ML:246)
HAB-tell=3PROX Mike what PERF-happen
'He told Mike what happened'

d. W-nniì=a' **loh** chie'll=a'. (TMZ; 5:152)
PERF-say=1SG to spouse=1SG
'I told my spouse'

e. *W-nniì=a' chie'll=a'. (TMZ; 5:152)
PERF-say=1SG spouse=1SG
'I talked to my spouse'

f. Zi'cy m-nnì=ëng nàa'. (SLQZ; ML:277)
thus PERF-say=3PROX 1SG.FP
'He told me (thus)'

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g. B-ri'xtiah=a' **loh** chie'll=a'. (TMZ; 5:151)
PERF-yell=1SG to spouse=1SG
'I yelled at my spouse'

h. √ B-ri'xtiah=a' chie'll=a'. (TMZ; 5:151)
PERF-yell=1SG spouse=1SG

In addition to the use described above, MacLaury states that *loh* can be used with an "expression of abstract location".

> Exclusively 'face' functions as a dative marker and as an expression of abstract location; here it is suffixed with a pronominal enclitic or with a noun, which denotes an addressable dative object or a nonphysical situation...
>
> MacLaury 1989:120

Unfortunately, not examples were given, so I'm not sure if the following examples are exactly what MacLaury had in mind, but *loh* does seem to be used what I would call abstract locations in TMZ (135).

135. N-u'uh=na'ah loh probleem. (TMZ; 5:152)
NEU-be=3DIST at problem
'He's in trouble'

Finally, MacLaury states that there are different syntactic realizations of these *loh* phrases. He states that *loh* phrases which are of the dative construction type must follow the verb, and *loh* phrases which are abstract locations are syntactically unrestricted (MacLaury 1989:120). I have not found any such restrictions in TMZ; *loh* phrases with addressees (136a, b) and *loh* phrases with abstract locations (136c) can both occur before the verb.

136. a. Loh chie'll=a' r-a'ipya'. (TMZ; 5:153)
at spouse=1SG HAB-tell=1SG
'I told my spouse

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b. Loh chie'll=a' w-nniì=a'. (Tmz; 5:153)
at spouse=1SG PERF-say=1SG
'I spoke to my spouse'

c. Loh probleem n-u'uh=na'ah. (TMZ; 5:153)
at problem NEU-be=3DIST
'He's in trouble'

3.8.2. Cross-linguistic dative case

Many of the uses of non-locative *loh* seem similar to the uses of a dative case marker. In this section I will consider some definitions of dative case and the realization of dative in Chickasaw in order to evaluate the possibility of non-locative *loh* being a dative marker.

SIL's online *Glossary of Linguistic Terms* (Loos et al. 1999) says that "Dative case is a case that marks any of the following: indirect objects…; nouns having the role of recipient (as of things given), beneficiary of an action, or possessor of an item."

Blake offers the following definition of dative case.

> The dative… will typically include those (functions) listed as (a), (b), and (c)… and quite frequently functions (d) to (h):
> a. indirect object of some two-place verbs low in the transitivity scale (e.g. verbs such as HELP, SEEK or LIKE)
> b. indirect object of a few three place verbs such as GIVE and SHOW [LEND]
> c. the roles of purpose (*She went for fish*) and beneficiary (*She went for (on behalf of) her mother)*…
> d. possessor…
> e. destination…
> f. the indirect object of a detransitivised construction as in the antipassive of various languages…
> g. the direct object in certain aspects or tenses…
> h. the indirect object of certain verbs or of all verbs in certain aspects.
>
> Blake 2001:143

While Zapotec non-locative *loh* does not serve all of the functions listed above (e.g. it does not manifest the uses in (d) – (h) as far as I know; cf. §3.8.4), it does seem to have

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some of the uses listed in (a) – (c) (cf. §3.8.3). In fact, however, there are two questions to be asked here. Is Zapotec non-locative *loh* a case marker? Is Zapotec non-locative *loh* dative? Before turning to these questions, then, for comparison, I present data from Chickasaw, which has a dative applicative prefix.

The Chickasaw dative applicative prefix *im-* and its phonological variants, like the Zapotec non-locative *loh*, can be translated in English in a variety of ways, including 'to', 'for', 'at', 'in', and 'from' (Table 12).

atobbi	'to pay'	*im-atobbi*	'to pay to'
tono'chi	'to roll (a ball)'	*in-tono'chi*	'to roll (a ball) to'
toshooli	'to interpret'	*in-toshooli*	'to interpret for'
toshaffii	'to break off a piece of'	*in-toshaffi*	'to break off a piece of (something) for'
moshmoli	'to wink'	*i̲-moshmoli*	'to wink at'
aakánnalli	'to dodge (intr.)'	*im-aakánnalli*	'to dodge (a person)'
ashannichi	'to lock (something)'	*im-ashannichi*	'to lock up (someone) in'
ishi	'to take'	*im-ishi*	'to take from'
lohmi	'to hide (something)'	*i̲-lohmi*	'to hide (something) from'
yimmi	'to believe (something)'	*i̲-yimmi*	'to believe (someone)'

Table 12. Chickasaw *im-* (dative) applicative (from Gorbet and Munro (2002) Table 3)

While this range of translations seems broad, the presence of an additional human participant is common to most of them.

> What seems to be central to the dative is a directional meaning with a human goal, as in *im-alla* 'to arrive to, come to (someone)' (cf. *ala* 'to arrive (at)').
>
> Gorbet and Munro 2002:11

In addition to human goal, the Chickasaw dative often is used with a benefactive meaning, as explained below and exemplified in (137).

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> There are two rather common other extensions of the two aspects of the basic directional meaning of the dative. The first is the benefactive, which is a common metonymic consequence of the recipient role…
>
> Gorbet and Munro 2002:11

137. Paska **an**-toshaffi-tok. (Chickasaw; Gorbet and Munro 2002)
bread 1sIII.dat-break_off-pt
'He broke off a piece of the bread for me'

Another common use of the Chickasaw dative is as the addressee of verbs of communication. Gorbet and Munro explain this meaning below.

> The second is the addressee of a verb of communication, a metaphorical extension based on a conduit metaphor, as in *i̲loshka* 'to lie to' (cf. *loshka* 'to lie') and *im-anompoli* 'to talk to' (cf. *anompoli* 'to talk'), or even *i̲moshmoli* 'to wink at' (cf. *moshmoli* 'to wink'). With these, the addressee gains possession of the content of the communication.
>
> Gorbet and Munro 2002:11

3.8.3. Non-locative *loh* is not case marking

While non-locative *loh* exhibits certain features consistent with case marking (§3.8.3.1), overall its behavior does not seem consistent with case marking (3.8.3.2).

3.8.3.1. Ways in which non-locative *loh* is consistent with case marking

There is a limited area in which non-locative *loh* seems consistent with case marking. Specifically, in pairs such as (138) and (139) it seems to be an optional marker on the object. Here, the object's presence in the sentence is licensed by the verb, as the grammaticality of (138b) and (139b) show. (Also note that while (138b) was elicited based on the volunteered (138a), the situation is reversed for the pair in (139) with (139b) having been volunteered in a narration and (139a) elicited latet based on it.) *Loh*, then, does not seem to be functioning as a preposition per se in (138a) and (139a)—in any case

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it does not seem to be licencing the presence of an additional participant, but rather to be marking a participant already licenced by the verb.

138.	a. Chi'c=ru'	w-nnàa	mìi'iny	**loh**	tyo'p	zh:àa'at. (TMZ; Zhat:73)
	then=still	PERF-see	child	at	two	toad
	'Then the child saw two toads'					
	b. √ Chi'c=ru'	w-nnàa	mìi'iny		tyo'p	zh:àa'at. (TMZ; 5:153)
	then=still	PERF-see	child		two	toad
	'Then the child saw two toads'					
139.	a. √ Chih=nìi'	w-nnàa	mìi'iny	**loh**	staal	zh:àa'at. (TMZ; 5:153)
	then=NÌI'	PERF-see	child	at	many	toad
	'Then the child saw lots of toads'					
	b. Chih=nìi'	w-nnàa	mìi'iny		staal	zh:àa'at. (TMZ; Zhat:75)
	then=NÌI'	PERF-see	child		many	toad
	'Then the child saw lots of toads'					

The same pattern exemplified above for TMZ also seems to exist to some extent in SLQZ, as I will discuss below. However, for the verb *ràann* 'see', and other verbs of 'seeing', complements with *loh* are much more prototypical (Munro p.c.), as can be seen by the description from *Cali Chiu* which indicates the necessity of *loh* with verbs of seeing.

> Most Valley Zapotec expressions that refer to seeing or looking at something express the noun phrase telling who or what was seen as the object of the preposition **lo** rather than as a regular object. Here are two of these verbs:
>
> **ran lo** [ràann loh] sees
> **rgwi lo** [rgwi'ih loh] looks at, watches, checks out
>
> The verb **ran** is quite irregular: its perfective is **mna**, and its irrealis is **gan**.
>
> These new verb phrases can be used in sentences like the following:
>
> | | |
> |---|---|
> | Rana lo Bed. | "I see Pedro." |
> | Mna Lia Len lua. | "Elena saw me." |
> | Cagwiu lo telebisyony e? | "Are you watching television?" |
> | Chigwi Jwany lo ra budy. | "Juan is going to go and look at the chickens." |
>
> ...
>
> In these expressions, **lo** does not mean "on" or "in front of" (though you usually are facing whatever you are looking at!). It is best just to think of it as part of the

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"seeing" verb. What would be the object in the English sentence is expressed in Zapotec in a prepositional phrase, as the object of the preposition **lo**.

Munro, Lillehaugen, and Lopez in prep.: Lesson 18

However, there are instances where the general pattern presented above in (138) and (139) does seem to occur in SLQZ as indicated by the dictionary definitions presented in Table 13. Here are two pairs of verbs: in both cases the presence of *loh* does not increase the valency of the verbs; i.e. *loh* does not seem to be licensing the presence of an additional participant, like a prototypical preposition. In the case of *rdèèi'dy*, the meaning of the verb does not seem to change, either. This seems much on par with the TMZ examples above: the presence of *loh* seems optional. For the verb *rguèe'by* the presence of *loh* does seem to change the meaning of the verb slightly, although the valency is not changed.

rdèèi'dy	1. crosses (a street or border)...	**rdèèi'dy lohoh**	crosses (a street or border)
rguèe'by	puts, rubs (something) on (a part of his or another person's body)	**rguèe'by lohoh**	puts (grease, ointment, sun screen) on (something, another person)

Table 13. SLQZ verbs with *loh* prepositional objects: no increased valency
(data from Munro and Lopez, et al. 1999)

In addition this pattern is attested for other verbs in SLQZ as shown in Table 14. However, these differ from those discussed above, in that the meaning of the verb with *loh* seems to be idiomatic, or at least not synchronically transparent. What these have in common with all the other examples presented in this section, is that *loh* does not license the presence of an additional participant. Instead, *loh* seems to be marking a participant already licensed by the verb.

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rbèe'cy	1. puts on (pants, a skirt); 2. starts, lights (a fire); 3. plants; 4. lays (an egg)	**rbèe'cy lohoh**	fights (a bull)
rindàa	goes as far as	**rindàa lohoh**	1. runs into, encounters; 2. still owes (because of having only partly repaid)

Table 14. SLQZ verbs with *loh* prepositional objects: idiomatic meaning with no increased valency (data from Munro and Lopez, et al. 1999)

3.8.3.2. Ways in which non-locative *loh* is inconsistent with case marking

While the examples presented in §3.8.3.1 apparently showed *loh* being used to mark certain kind of objects, most commonly non-locative *loh* is used to introduce additional participants in the sentence. The pattern in (140) - (142) is typical of the behavior of non-locative *loh*. In these case *loh* is used to license the presence of an additional participant: *rrie'f* 'raffle' (140a), *x:na'ana'* 'my mother' (141a), and *Jwaany* 'John' (142a). These participants are not licensed by the verb, as indicated by the ungrammaticality of (140b), (141b), and (142b). Moreover, all three verbs are grammatical as a simple transitives (140c), (141c), and (142c). The function of *loh* in these sentences seems to be to introduce this additional participant: the source of winning the radio (140a), the goal of sending the flowers (141a), and the person from whom the money was collected (142a). This type of behavior makes non-locative *loh* look like a preposition and not a case marker.

140. a. B-ìe'ny=a' gaan to'ohby rràady **loh** rrie'f. (TMZ)
PERF-do=1SG winning one radio at raffle
'I won a radio at / in / through / from the raffle'

b. *B-ìe'ny=a' gaan to'ohby rràady rrie'f. (TMZ)

c. B-ìe'ny=a' gaan to'ohby rràady. (TMZ; 5:153)
'I won a radio'

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141. a. B-x:èe'l=a' gyìia' **loh** x:-na'an=a'. (TMZ; 5:145a)
PERF-send=1GS flower to POSS-mother=1SG
'I sent flowers to my mother'

b. *B-x:èe'l=a' gyìia' x:-na'an=a'. (TMZ; 5:145a)

c. √ B-x:èe'l=a' gyìia'. (TMZ; 5:145a)
'I sent flowers'

142. a. Li'eb b-ìe'ny co'br x:-mêëëlly=nìi' **loh** Jwaany. (TMZ; 5:145a)
Felipe PERF-do collection POSS-money=3ANAP from John
'Felipe collected his money from John'

b. *Li'eb b-ìe'ny co'br x:-mêëëlly=nìi' Jwaany. (TMZ; 5:145a)

c. Li'eb b-ìe'ny co'br x:-mêëëlly=nìi'. (TMZ; 5:145a)
'Felipe collected his money'

SLQZ also has many verbs that follow this pattern. Those that are presented in Table 15 all show that with the addition of *loh* an additional participant is licensed.

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rbèe'luuzh	sticks out his tongue	**rbèe'luuzh lohoh**	sticks out his tongue at
rbi'eg	moves closer, approaches (here, there)	**rbi'eg lohoh**	moves closer to
rcwàa'yaàa'	acts bossy; feels superior; brags; acts mean	**rcwàa'yaàa' lohoh**	acts bossy to; feels superior to
rchààa'g	1. exchanges, trades (things)...	**rchààa'g lohoh**	exchanges (something) with, trades (something) with
rchinnaàa'	puts his hands together in reverence	**rchinnaàa' lohoh**	makes a reverent gesture toward
rdèe's	picks up, lifts	**r-dèe's-nnaàa' lohoh** HAB-raise-hand LOH	raises his hand (threateningly) against
re'inyag	different	**re'inyag lohoh**	different from
rguèe	cusses, uses obscenities...	**rguèe lohoh**	insults, swears at, cusses out, uses obscenities to, uses obscenities about
rguìi'ny	1. borrows...	**rguìi'ny lohoh**	borrows (something) from
rgwi'ih	looks (in a direction)	**rgwi' lohoh**	looks at, watches; checks out, looks over
rnààa'b	asks for, requests, orders (in a restaurant, for instance)	**rnààa'b lohoh**	asks for (something) from (someone)

Table 15. SLQZ verbs with *loh* prepositional objects; increased valency
(data from Munro and Lopez, et al. 1999)

Some verbs that follow this pattern seem to have a more idiomatic meaning, such as SLQZ *rìi'an* 'remains, is located' (Munro and Lopez, et al. 1999:270) and *rìi'an biien lohoh* 'acts nice to (someone, for personal gain)' (Munro and Lopez, et al. 1999:270).

Since the pattern presented in this section (i.e. non-locative *loh* licensing the presence of an additional participant) seems to be much more frequent than the pattern presented in §3.8.3.1 (i.e. non-locative *loh* marking the object of a verb), I do not think there is sufficient evidence to conclude the non-locative *loh* is a case marker. Nevertheless, the pattern exemplified in §3.8.3.1 is worthy of further investigation.

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3.8.4. Is non-locative *loh* a dative preposition?

While non-locative *loh* does not seem to best be characterized as a case marker, a question remains: is *loh* a dative preposition? In the following sections I present ways in which the meaning of non-locative *loh* seems consistent with (§3.8.4.1) and inconsistent with (§3.8.4.2) the canonical dative uses, based on the characteristics presented by Loos et al. (1999), Blake (2001), and Gorbet and Munro (2002).

3.8.4.1. Ways in which non-locative *loh* is consistent with the dative

Non-locative *loh* seems consistent with a dative meaning in certain of its uses. It is used to mark some recipients (143).

143. B-x:èe'l=a' gyìia' **loh** x:-na'an=a'. (TMZ; 5:145a) (=128a)
PERF-send=1SG flower to POSS-mother=1SG
'I sent flowers to my mother'

It can also be used to introduce some types of beneficiaries (144), but it has the additional requirement that the action be done in the presence of the beneficiary. In this sense, which is not strictly locative, it seems to have a strong tie to the locative meaning 'in front of' and this meaning probably developed from that.

144. a. B-zhùu'azh=a' gueht **loh** bèe'cw. (SLQZ, Munro 2002, ex 53) (=131)
PERF-tear=1SG tortilla for dog
'I tore up the tortilla for (and in the presence of) the dog'

b. B-ii'lly=a' **loh** x:-na'an=a' (TMZ)
PERF-sing=1SG for POSS-mother=1SG
'I sang for (and in the presence of) my mother'

Loh can also be used to mark participants that might be realized as indirect objects in some languages (145) and Table 16.

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145. Li'eb b-ìe'ny co'br x:-mêëëlly=nìi' **loh** Jwaany. (TMZ; 5:145a)
Felipe PERF-do collection POSS-money=3ANAP from John (=142)
'Felipe collected his money from John'

ràann	1. sees, observes…	**ràann lohoh**	sees, looks at
rchààa'g	1. exchanges, trades (things)...	**rchààa'g lohoh**	exchanges (something) with, trades (something) with
rnààa'b	asks for, requests, orders (in a restaurant, for instance)	**rnààa'b lohoh**	asks for (something) from (someone)
rguìi'ny	1. borrows...	**rguìi'ny lohoh**	borrows (something) from
rguèe	cusses, uses obscenities...	**rguèe lohoh**	insults, swears at, cusses out, uses obscenities to, uses obscenities about
rbèe'luuzh	sticks out his tongue	**rbèe'luuzh lohoh**	sticks out his tongue at
rcwàa'yaàa'	acts bossy; feels superior; brags; acts mean	**rcwàa'yaàa' lohoh**	acts bossy to; feels superior to

Table 16. SLQZ non-locative *loh* used with potential indirect objects
(data from Munro and Lopez, et al. 1999)

Loh can be used to mark destinations in some constructions as in SLQZ *rbie'g* 'moves closer, approaches (here, there)' and *rbi'eg lohoh* 'moves closer to' (Munro and Lopez, et al. 1999:225).

Zapotec non-locative *loh* seems particularly like the Chickasaw dative applicative in that it is often used when the additional participant is human, as illustrated in the examples in Table 17.

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rbèe'luuzh	sticks out his tongue	**rbèe'luuzh lohoh**	sticks out his tongue at
rchààa'g	1. exchanges, trades (things)...	**rchààa'g lohoh**	exchanges (something) with, trades (something) with
rcwàa'yaàa'	acts bossy; feels superior; brags; acts mean	**rcwàa'yaàa' lohoh**	acts bossy to; feels superior to
rdèe's	picks up, lifts	**rdèe'snnaàa' lohoh** (*nnaàa'* 'hand')	raises his hand (threateningly) against
rguèe	cusses, uses obscenities...	**rguèe lohoh**	insults, swears at, cusses out, uses obscenities to, uses obscenities about
rguìi'ny	1. borrows...	**rguìi'ny lohoh**	borrows (something) from
rgùu'uh	1. puts, gets (something, in a place)...	**rgùu' dìi'zh lohoh** (*dìi'zh* 'word')	gossips to
rìi'an	remains, is located	**rìi'an biien lohoh** (*biien* 'good deed')	acts nice to (someone, for personal gain)
rindàa	goes as far as	**rindàa lohoh**	1. runs into, encounters; 2. still owes (because of having only partly repaid)
riti'xloh	goes and appears in, goes and shows his face in (a place)	**riti'xloh lohoh**	goes and visits (someone) when he is dying
rnààa'b	asks for, requests, orders (in a restaurant, for instance)	**rnààa'b lohoh**	asks for (something) from (someone)

Table 17. SLQZ non-locative *loh* used with humans
(data from Munro and Lopez, et al. 1999)

3.8.4.2. Ways in which non-locative *loh* is inconsistent with the dative

While non-locative *loh* is used to mark many types of noun phrases that appear marked as dative cross-linguistically, there are some noticeable gaps.

Loh is not used to mark the recipient with 'give' or verbs morphologically related to 'give' such as the compound verb 'give as a present' in (146).

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146. a. B-dèèi'dy-x:lià=a' ba'ih x:-na'an=a'. (TMZ)
PERF-give-present=1SG rebozo POSS-mother=1SG
'I gave my mom a rebozo as a present'

b. *Bdèèi'dyx:liàa' ba'ih **loh** x:-na'an=a'. (TMZ)

While *loh* can mark 'in front of' benefactives, it cannot mark more typical benefactives as in (147) where the action of making the cake does not happen in the presence of the agent's mother.

147. a. Guuny=a' to'ohby paste'l **pahr** x:-na'an=a'. (TMZ)
IRR.does=1SG one cake for POSS-mother=1SG
'I will make a cake for my mother.'

b. *Guuny=a' to'ohby paste'l **loh** x:-na'an=a'. (TMZ)

As far as I know *loh* is not used to mark possessors, purpose, or "indirect object of some two-place verbs low in the transitivity scale" (Blake 2001:143).

3.8.5. Non-locative *loh* in Colonial Valley Zapotec

Non-locative meanings of *loh* are also attested in CVZ, which exhibits both the modern TVZ non-locative meaning of *loh* (§3.8.5.1) and other non-locative meanings that do not seem to have been retained in modern TVZ (§3.8.5.2).

3.8.5.1. Non-locative meanings of CVZ *loh* also found in TVZ

In (148) *lao* appears with the meaning 'to' similar to the modern example repeated in (149).

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148. a. tiopa tomines r-oni=ja gona
two tomines HAB-do=1SG offering

lao beecogoo Santa Jerusalem (CVZ; Co721-2;7)
face altar Holy Jerusalem

'I make an offering of two reales to the altar of Holy Jerusalem'

b. toby=ga tomines r-oni=ja gona
one=each tomines HAB-do=1SG offering

lao too-tobi=ga beecoogo (CVZ; Co721-2;9)
face one-one=each altar

'I make an offering of one real to each altar'

149. B-x:èe'l=a' gyìia' **loh** x:-na'an=a'. (TMZ)
PERF-send=1SG flower to POSS-mother=1SG
'I sent flowers to my mother'

Additional types of goal meanings are exemplified below in (150). Since paying someone or making an offering at a location usually involves being present in front of that person or location, this overlap in pragmatic usage could account for this type of meaning.

150. a. r-ooni=a goona **laoo** cofradia xtenij cooquij
HAB-do=1SG offering face confraternity of noblewoman

xoonaxij del Rosario (CVZ; Co721-3;21)
Lady of_the Rosary

'I make an offering to the confraternity of the noblewoman Lady of the Rosary'

b. qui=ni gona topa p°s **lao** yobi padre fray alvaro
IRR.pay=3 offering two pesos face same Padre Fray Alvaro

de grijalva coquij Vicario xiteni quechi cetoba (CVZ; Te618b;8)
de Grijalva lord vicar of town Cetoba

'He will pay an offering of two pesos to the same Padre Fray Alvaro de Grijalva, Lord Vicar of the town of Cetoba'

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c. t-oni=a notificaçiõ **lao**
HAB-do=1SG notification face

ni n-aca baltasar hernãdez (CVZ; Te590;44)
REL NEU-be Baltasar Hernandez

'I make the notification to (he) who is Baltasar Hernandez'

Loh also appears in the Colonial documents meaning 'from' (151) similar to the modern example repeated in (152). As with the example above, I believe that since asking or demanding something from someone or collecting money from them usually involves being present in front of that person; this overlap in pragmatic usage could account for this meaning.

151. Laaca tomines nijxij nij n-aaca galee pesos guij-nabaa tio
same money this REL NEU-be twenty pesos IRR-ask uncle

xijteni=a **laoo** Pascual Peres (CVZ; Co721-5;12)
of=1SG from Pascual Peres

'This same money, which is twenty pesos, my uncle will demand from Pascual Peres'

152. Li'eb b-ie'ny co'br mêëëlly x:teen=a' **loh** Jwaany. (TMZ)
Felipe PERF-do collection money of=1SG from John
'Felipe collected my money from John'

Although it is sometimes difficult to understand the exact meaning of certain words in the Colonial documents, the use of *loh* in (153) seems similar to me to the use of *loh* in modern TVZ shown in (154). This use does not seem to be easily explained using the base of 'face' or 'in front of', however. Additional explanation is needed to account for the meaning of *loh* in these cases. I will suggest in §3.8.6, that perhaps *loh* was a default preposition, especially in CVZ.

153. a.tipela na-bani=ni **lao** bexoana=na dios (CVZ; Ti642;8)
if NEU-alive=3 face lord=1PL God
'if he is alive through / by (the grace / will / power of) our Lord God'

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b. r-aca ticha lao naa escrivano
HAB-be word face 1SG scribe

lao quella-hue-togoticha xitene=ni (CVZ; Te590;32)
face NMLZ-NMLZ-judge of=3

'The words are before me, the scribe through / by / via his order'

154. B-ìe'ny=a' gaan to'ohby rràady **loh** rrie'f. (TMZ)
PERF-do=1SG winning one radio in raffle
'We won a radio in / through / at the raffle'

3.8.5.2. Non-locative meanings of CVZ *loh* not found in TVZ

Not all of the meanings of CVZ *loh* that are attested are seen in modern TVZ.

For example, CVZ *loh* is used in (155a) in a way that is no longer available (155c). Modern TMZ uses the Spanish loan *pahr* instead of *loh* (155b).

155. a. guij-quij=nij **laoo** guela-guichija
IRR-pay=3 for NMLZ-sickness

xijteni=a=laa **laoo** guela-gooti xteni=a (CVZ; Co721-5;12)
of=1SG=and for NMLZ-death of=1SG

'It (the money) will pay for [the expenses of] my illness and for my death'

b. Quiizh=ni **pahr** gahll.gui'ihihzh x:tèe'n=a'. (TMZ)
IRR.pays=3PRX for sickness of=1SG
'It will pay for my sickness'

c.*Quiizhni **loh** gahll.gui'ihihzh x:tèena'. (TMZ)

The use of *loh* in (156a) is another example of a meaning that is no longer available in modern TVZ (156c). Again, instead of *loh* a borrowed Spanish preposition is used (156b).

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156. a.n-aca=yaa Cristiano hua-roba=ya ni[sa] **lao**
NEU-be=1SG Christian NMLZ-get_spilled_on=1SG water face

guela-gracia xtenij Bejuanaa=na Dios (CVZ; Co721-1;12)
NMLZ-grace of high_lord=1PL God

'I am a Christian baptized with/through/in/by the grace of our God'

b. B-ro'p.nnyi'ihs=a' **cuhnn** gra'isy x:tèe' Dyooz. (TMZ)
PERF-get_baptized=1SG with grace of God
'I was baptized through/with/in/by the grace of God'

c. *Bro'pnnyi'ihsa' **loh** gra'isy x:tèe' Dyooz. (TMZ)

CVZ *loh* could be used to say 'in (the year)' (157). This is also possible in modern TMZ (158).

157. Annachij Biernes 14 ex-chij beo de otubre
today Friday 14 POSS-day month of October

loo yssa de 1740 (CVZ; Oc740;1)
face year of 1740

'Today, on the fourteenth day of the month of October, in the year of 1740'

158. Gwa'=a' Bahc iihiz tyo'p mi'll gài'. (TMZ; 5:167)
PERF.go=1SG Tlacolula year two thousand five
'I went to Tlacolula in 2005'

Non–locative *loh* was also used in religious formulas in CVZ, as in (159a). When I first asked my main consultant how he might say this in Zapotec, he didn't know. He felt he would just say the whole phrase in Spanish instead: "*En el nombre del padre y del hijo y del espiritu santo...*". However, when I told him how it was said in CVZ, he offered (159b) and said that he remembered his grandmother saying this and that it sounded right. I am not entirely sure of the status of this sentence; nevertheless it was offered and repeated several times by my consultant, so it seems to be grammatical, if perhaps antiquated.

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159. a. **loo** la Dios Bixoozee **loo** la Dios xijnij
face name God father face name God child

loo la Dios espiritu santo (CVZ; Co721-1;12)
face name God spirit holy

'In the name of God the Father, in the name of God the Son, in the name of God the Holy Spirit'

b. **loh** lah Dyooz, **loh** lah
at name God at name

zhìi'iny Dyooz, **loh** lah espiritu sa'ant (TVZ; 5:155)
child God at name spirit holy

'In the name of God, in the name of God's child, in the name of the Holy Spirit'

In some cases, modern TVZ varieties differ in their use of non-locative *loh*. For example, in (160a) CVZ *loh* could be translated using many English words: 'with', 'through', and 'in'. While using *loh* in a construction like this seems possible in TMZ (160c) (alongside an alternative using a borrowed preposition (160b)), it is not possible in SLQZ.

160. a. r-oni=a xygaba-testamento xijteni=a
HAB-do=1SG account-testament of=1SG

lao qui-tobij guelaa.nayanij (CVZ; Co721-1;10)
face IRR-one understanding

'I make my account and testament with/through/in total understanding'

b. G-uuny=a' te'est x:tèe'n=a' **cohnn** gahll.ryeihny-za'c. (TMZ)
IRR-do=1SG will of=1SG with mind-good
'I will make my will with / in a sound mind'

c. √ Gunnya' te'est x:tèe'na' **loh** gahllryeihnyza'c. (TMZ)
'I make my will with/in a sound mind.'

Loh had a very broad meaning in the Colonial period. While some of these non-locative meanings can be accounted for based on reanalysis from a locational meaning, others cannot. The non-locational meanings are suggestive that *loh* may have been

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grammaticized as a preposition in the Colonial period. However, semantics alone is not a sufficient diagnostic for syntactic category, especially when it comes to component part locatives (Lillehaugen and Munro 2006). Therefore, arguments relying on the CVZ syntax and morphology are needed. This is work that I plan to pursue.

3.8.6. Conclusions

Although much work remains to be done on the meaning of non-locative *loh* in both modern and Colonial Valley Zapotec, I offer an hypothesis here for the range of meaning of this word, which might also explain the change (i.e. the decrease) in the range of meaning over the last few hundred years.

It may have been the case that *loh* was a default oblique preposition. This could account for the meanings that seem difficult to derive from any of the locative (or nominal) meanings, such as the one in (161). Notice, also, that *làa'any* 'in', a locative preposition, cannot be substituted for *loh* here. Perhaps this is because the relationship is not locative, per se, but some other oblique relationship that can only be grammatically expressed with *loh*.

161.	a.	B-ìe'ny=a'	gaan	to'ohby	rràady	**loh**	rrie'f. (TMZ)
		PERF-do=1SG	winning	one	radio	in	raffle
		'We won a radio in / through the raffle'					
	b.	*B-ìe'ny=a'	gaan	to'ohby	rràady		rrie'f. (TMZ)
	c.	B-ìe'ny=a'	gaan	to'ohby	rràady. (TMZ; 5:153)		
	d.	*B-ìe'ny=a'	gaan	to'ohby	rràady	**làa'any**	rrie'f. (TMZ)
		PERF-do=1SG	winning	one	radio	in	raffle

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Viewing *loh* as a default oblique preposition could also account for overlap with some uses of a dative marker, since dative case has been described as "the unmarked oblique case" for German (Riemsdijk 1983:237).

This also offers a possible explanation for the broader use of *loh* in CVZ. It would seem that as TVZ languages began borrowing Spanish prepositions, these new prepositions have taken over roles previously assigned to the "default" *loh*.

3.9. Child acquisition of component part locatives

In this section I give evidence from the child language acquisition of TVZ that component part locatives in TVZ can be acquired independently from their related referential component part terms. This suggests that at least for children, the meanings of some component part locatives are not necessarily synchronically derived from their corresponding referential component parts.

This paper reports the results of a pilot study of two children acquiring SLQZ, ages 1;6 and 2;3.[21] The study is described in full detail in Lillehaugen 2003 and portions of this section has appear previously in Lillehaugen 2003 and 2004c. The children's knowledge of the meanings of both the referential component parts and the component part locatives was tested using a forced choice, picture identification task. The data suggest that the component part locatives are acquired as independent grammatical elements and their acquisition is not related to the acquisition of the corresponding referential component parts. This dissociation between the acquisition of the component

[21] Ages are given in the following format: years;months(;days). For example, and 2;3 stands for two years and three months old and 1;6;14 stands for one year, six months, and fourteen days old.

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part locatives and the referential component parts supports my hypothesis that some locative terms are not synchronically metaphorical extensions of the nominal forms, as some locatives can be acquired without the referential component part nouns having been acquired. These results are consistent with an analysis of component part locatives as prepositions.

3.9.1. Participants and methodology of SLQZ child language acquisition pilot study

Here I present the results of two children tested in the pilot study: Vanesa (1;6) and Andrea (2;3). At the time, Vanesa was learning SLQZ as her primary language and also had Spanish input. Andrea was learning both SLQZ and Spanish as her first languages.

In order to test the children's understanding of referential component parts and component part locatives, two forced-choice picture identification tasks were designed testing the eight words listed in Table 1. Each word was tested twice in each task; 16 questions for referential component parts and 16 questions for component part locatives for a total of 32 questions. The tests were run twice, on separate occasions.[22]

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[22] The children were tested in their home during two sessions in March 2001. I was present during the tests, as were Silvia Lopez and sometimes the child's mother. S. Lopez is a native speaker of SLQZ and has worked as a linguistic consultant with Munro and me. Only one child was present during the test. The child was asked if she wanted to play a game. S. Lopez explained the game by saying that the child would hear a question while looking at the book, and she was to pick the picture that answered the question and every time she answered she would get a sticker. Previous to this study, I had observed the children for another project so they all knew me and were used to speaking Zapotec in front of me.

The pictures used in the tests are all black and white line drawings. All but one of the pictures used in these tests were adapted from Curtiss and Yamada (1987). The picture for *làa'any* 'stomach' was drawn for me by Melissa Tai in the style of the Curtiss and Yamada (1987) pictures.

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SLQZ	body part meaning	locative meaning
cwe'eh	'side'	'beside'
dehts	'back'	'behind'
gue'ehcy	'head'	'on top of'
làa'any	'stomach'	'in'
lohoh	'face'	'on, in front of'
ni'ih	'foot'	'under, beneath'
ru'uh	'mouth'	'at the edge of'
zh:àà'n	'bottom'	'behind, under'

Table 18. body part terms tested

Along with each question the child was shown two pictures (one that corresponded to the question being asked, and one that did not). For example, the child was shown a picture of a foot and a picture of a head, in Figure 106 below, and was asked *Cu'an gue'ehcy bùunny?* 'Where is the person's head?' The picture on the right (a head) corresponds correctly to the question, whereas the picture on the left (a foot) does not.

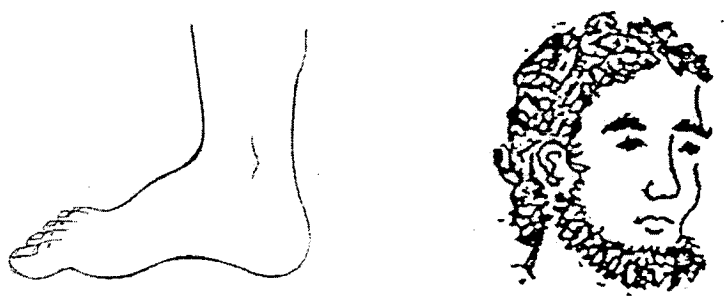

Figure 106. sample picture pair for referential component part test

A pre-test was conducted before the body part test, which introduced the child to the forced choice task. During this section, if the child was unresponsive after being asked the question, Silvia Lopez modeled how to choose a picture by pointing at the correct picture. This established the task of choosing and the method of choosing: pointing. Furthermore, the pre-test was used to introduce some of the pictures that would be used later in the body part locative test. The child's success in the pre-test showed that she

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could recognize the pictures and understood the task. As in the test itself, all answers given by the child were rewarded with verbal praise and a sticker regardless of whether the answer was correct or not.

During the referential component part test, each body part was tested twice, once with the correct answer on the left and the other with correct answer on the right, to control for the children having a bias for one side or another. Each body part was paired with a different distracter body part for the two trials. The question asked of the children for each pair was *Cu'an* ____ *bùunny?* 'Where is the person's ___?' (Recall that in SLQZ unpossessed body parts are generally ungrammatical. *Cu'an ni'ih?* 'Where is the foot?', would be viewed as awkward at best.)

As with the referential component parts, each component part locative was tested twice. Each time it was tested, it was tested opposite a different locative relationship and the matching picture occurred on different sides in each trial. In addition, the type of positional verb used had to be controlled for. Unlike in English, there is no single TVZ verb, like *is*, that can be used in any type of simple locative sentence, such as *The book* <u>*is*</u> *on the table,* or *The ball* <u>*is*</u> *beside the chair*. Instead there are a small number of positional verbs that can be used (see Chapter 5 for more of positional verbs). In this test, five positional verbs were used.[23] In order to ensure that the only difference between the matching and non-matching pictures was the preposition, I chose pictures that could be described using the same verb, as verified by a native speaker. The question asked of the

[23] *Bèe'b* 'is located on' [usually a raised surface]; *nàa'tga'ah* 'is lying down, is (located) in a lying position'; *nu'uh* 'exists (in a location)' [often has a habitual sense]; *zuu* 'is standing, is located (standing)'; *zùub* 'is sitting; is located, exists (sitting or projecting)' (Munro and Lopez, et al. 1999).

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children for each pair was on the model: *Cu'an FIGURE nih VERB PREP GROUND?* 'Where is the FIGURE that is PREP GROUND?'; for example, *Cu'an bèe'cw nih zùub ni'ih me'es?* 'Where is the dog that is under the table?' and *Cu'an ta's nih zùub loh me'es?* 'Where is the cup that is on the table?'[24]

The following is a sample picture pair from the component part preposition test. The corresponding question to Figure 107 is *Cu'an bèe'cw nih zùub ni'ih me'es?* 'Where is the dog that is under the table?' (The picture on the right corresponds correctly with the question.)

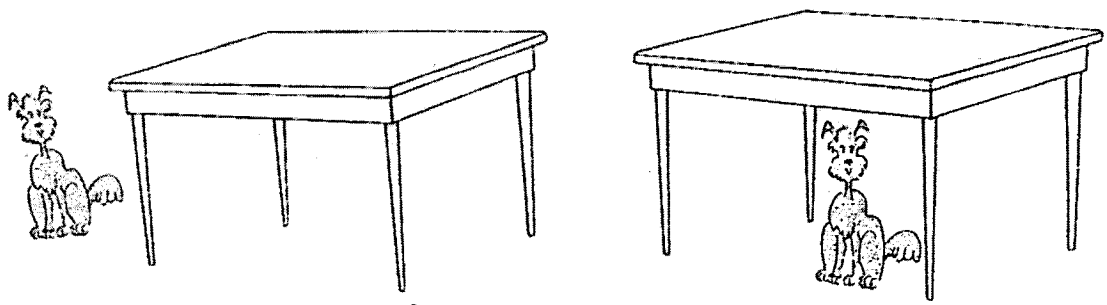

Figure 107. sample picture pair from component part preposition test

3.9.2. Results

A child was counted as knowing a certain word if she answered correctly for that word more often than they answered incorrectly. Because of the limited data, the results were not tested for statistical significance.[25] Therefore the results can only be interpreted as suggesting trends.

[24] I wanted to choose a question that was syntactically relatively uncomplicated while still natural. Upon consultation with Munro and S. Lopez, I decided that this question, though containing a relative clause, was the most natural way to ask the question.
[25] I hope to be able to replicate this study later with more participants.

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Andrea (2;3) demonstrated knowledge of 7 of the 8 referential body parts tested: *cwe'eh* 'side' and *làa'iny* 'stomach' were identified correctly 4 out of 4 times; *gue'ehcy* 'head', *lohoh* 'face', *ni'ih* 'foot', and *zh:ààa'n* 'bottom' 3 out of 4 times; *ru'uh* 'mouth' was identified correctly 2 out of 3 times. She demonstrated knowledge of 4 of the 8 component part locatives: *làa'iny* 'in' and *zh:ààa'n* 'behind' she answered correctly 4 out of 4 times; *lohoh* 'on, in front of' and *ni'ih* 'under' she answered correctly 3 out of 4 times.

Vanesa (1;6) demonstrated knowledge of 3 of the 8 referential body parts tested: *gue'ehcy* 'head' was identified correctly 4 out of 4 times; *dehts* 'back' and *lohoh* 'face' 3 out of 4 times. She demonstrated knowledge of 5 of the 8 component part locatives: *cwe'eh* 'beside', *lohoh* 'on, in front of', *dehts* 'behind' were identified correctly 4 out of 4 times; *ni'ih* 'under' 3 out of 4 times; *làa'iny* 'in' 2 out of 3 times.

The acquisition of the referential component parts and the component part locatives can be classified into four patterns. In Patterns 1 and 2 either both the referential component part noun and the component part locative have been acquired or neither of them have. Patterns 3 and 4, on the other hand, exhibiting a *dissociation* between the acquisition of the referential component part and the component part locative. In these patterns one of the terms have been acquired but the other one has not.

In Pattern 1 neither the referential component part nor the component part locative have been acquired: e.g. *dehts* 'back' and 'behind' (Andrea). In Pattern 2 both the referential component part and the component part locative have been acquired: e.g. *dehts* 'back' and 'behind' (Vanesa).

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In Pattern 3 the referential component part has been acquired, but the component part locative has not. Examples of this include *cwe'eh* 'side' (Andrea), *gue'ehcy* 'head' (Vanesa, Andrea), and *ru'uh* 'mouth' (Andrea). An analysis of all component part locatives as having metaphorically extended meanings would have a difficult time accounting for this dissociation. Both of the children had acquired some component part locatives for which they had also acquired the corresponding referential component part (Pattern 2). If all component part locative meanings are derived through metaphor, then the fact that the children showed adult comprehension for some pairs might suggest that they have also acquired the metaphor "tools" they need. An analysis of component part locatives as nouns with metaphorically derived meaning would have to account for the ability of the children to apply the metaphor in some cases, and their inability to apply it in others.

Finally, in Pattern 4 the component part locative has been acquired, but the referential component part has not: *cwe'eh* 'beside' (Vanesa); *làa'iny* 'in' (Vanesa); *ni'ih* 'under' (Vanesa). An analysis of the meaning of all component part locatives as metaphorically extended meanings could not account for this dissociation. If all locative meanings are based upon the referential body part nominal meaning, how could the child acquire the locative meaning without also having acquired the referential noun? If, instead, the component part locatives are prepositions, as I argue, this dissociation is in fact expected. One would predict that the referential body part nouns would be acquired the way children acquire nouns, and that the component part prepositions would be acquired in the same order as children acquire prepositions.

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Table 19 summarizes this data; the cells that show a dissociation between the acquisition of the referential component part and the component part locative have been shaded.

	meaning	Vanesa (1;6)	Andrea (2;3)
cwe'eh	'side' (n)	No	**Yes**
	'beside' (prep)	**Yes**	No
dehts	'back' (n)	**Yes**	No
	'behind' (prep)	**Yes**	No
gue'ehcy	'head' (n)	**Yes**	**Yes**
	'on top of' (prep)	No	No
làa'iny	'stomach' (n)	No	**Yes**
	'in' (prep)	**Yes**	**Yes**
lohoh	'face' (n)	**Yes**	**Yes**
	'on' (prep)	**Yes**	**Yes**
ni'ih	'foot' (n)	No	**Yes**
	'under' (prep)	**Yes**	**Yes**
ru'uh	'mouth' (n)	No	**Yes**
	'at the edge of' (prep)	No	No
zh:ààa'n	'bottom' (n)	No	**Yes**
	'under' (prep)	No	**Yes**

Table 19. SLQZ Acquisition of Body Part Terms

3.9.3. Child language acquisition data from SMTZ

There are other data that further substantiate the dissociation between the referential component part nouns and prepositions in the acquisition of Zapotec. Jensen de López (2002) reports the results of a longitudinal study of one child acquiring San Marcos Tlapazola Zapotec (SMTZ) (from age 1;3 to 2;9). At the end of this study, the child reportedly used four of the component part terms in locative constructions: *láani* 'in' and *quia* 'on' (as of 2;0;12); *lo* 'on' (as of 2;3;23); and *dets* 'behind' (as of 2;6).

Jensen de López (1999) reported data from the same SMTZ acquiring child at age 2;9. By this time, the child is reported to use one additional component part term in

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locative constructions: *ruu* 'at the edge of.' In Table 20 I present Jensen de López's (1999) data, showing for each component part whether the child used that term as a referential body part meaning or as a locative.

SMTZ Body Part Term[26]	Body Part Meaning	Used as Body Part	Used as Locative
làani	'stomach'	No	Yes
lo	'face'	Yes	Yes
quia	'head'	No	Yes
ruu	'mouth'	No	Yes
dets	'back'	No	Yes
nii	'foot'	Yes	No

Table 20. referential component parts and locatives produced by SMTZ acquiring child 2;9 (modified from Jensen de López's Table B (1999:17))

The SMTZ acquisition data also show two types of dissociation within the acquisition of component part nouns and prepositions; these cells are marked with shading. Pattern 3, the acquisition of the referential component part but not the component part locative, can be seen for *nii* 'foot' and Pattern 4, the acquisition of the component part locative but not the referential body part, can be seen for *làani* 'in'; *quia* 'on'; *ruu* 'at the edge of'; *dets* 'behind'. These results are consistent with the data found in my pilot study.

3.9.4. Comparison with cross-linguistic acquisition of prepositions

How does the acquisition of Zapotec prepositions compare with the acquisition of prepositions in other languages? Cross-linguistically, the first prepositions to be acquired are 'in' and 'on', then 'under' and 'beside', then 'front' and 'back' of things that have inherent fronts and backs, and finally 'front' and 'back' of things with no inherent fronts or backs, as exemplified by several languages in Table 21.

[26] The SMTZ data are presented in the orthography used by Jensen de López (1999, 2002).

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order of acquisition	English	Turkish	Serbo-Croatian	Italian	Hebrew
1	in on	in on	on in	in on	in on
2	under beside	under beside	beside under	under beside	beside
3	in $front_F$ of in $back_F$ of	in $front_F$ of in $back_F$ of	in $front_F$ of in $back_F$ of	in $front_F$ of in $back_F$ of	behind
4	in back of in front of	in back of in front of	in back of in front of	in back of in front of	under

$Back_F$ and *$front_F$* refer to objects that have inherent fronts and backs as opposed to *front* and *back*, which refer to objects with no inherent front or back. The data from English, Turkish, Serbo-Croatian, and Italian are from Johnston and Slobin (1979). The Hebrew data are from Dromi (1979).

Table 21. cross-linguistic order of acquisition for prepositions

The acquisition of TVZ component part prepositions, presented in Table 22, is consistent with the cross-linguistic data. The analysis of component part locatives as prepositions predicts that TVZ component part locatives would be acquired as other prepositions are cross-linguistically, and the SLQZ and SMTZ child language acquisition data seem to bear out this prediction.

Vanesa 1;6	Andrea 2;3	SMTZ child 2;6	SMTZ child 2;9
'in'	'in'	'in'	'in'
'on'	'on'	'on'	'on'
'under'	'under'	--	--
'in front of'	'in front of'	'in front of'	'in front of'
'behind'	'behind'	'behind'	'behind'
'beside'	--	--	--
--	--	--	'on top of'
--	--	--	'at the edge of'

Table 22. summary of acquisition of prepositions by TVZ acquiring children

3.9.5. Conclusions

There is no evidence that the fact that component part prepositions are homophonous with referential component part words affects their acquisition. In fact, there is no

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evidence from my data that the TVZ learning children acquire prepositions in a different order than children acquiring any other language.

Patterns of dissociation, such as the fact that the Vanesa (1;6) had acquired *làa'any* 'in', but not *làa'any* 'stomach' and *ni'ih* 'under' but not *ni'ih* 'foot', seem to be the strongest evidence in support of a grammatical dissociation between the words. If the child acquires 'in' before 'stomach', how can the child's use of 'in' be a metaphorical extension of 'stomach'? Similar patterns of dissociation were also found in Jensen de López's (1999, 2002) study on the acquisition of SMTZ.

This may have implications for adult grammar as well, since children acquire component part locatives as separate lexical items and do not necessarily derive the locational sense of the component part locative from the referential component part noun. If one wished to argue that adults derive the meaning of all component part locatives from the referential component part terms through active metaphor, one would have to specifically address the issue presented by the acquisition data in SLQZ and SMTZ.

3.10. Semantic change and syntactic reanalysis

The meanings of the component part terms as both nouns and prepositions can be accounted for through a path of meaning extension through metaphor and syntactic reanalysis. These terms, though once purely lexical morphemes, referring to concrete objects, have developed into functional morphemes.

Adapting arguments from Hollenbach (1995), I categorize the meanings of the component part locative into three types: basic meaning, meanings derived from

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metaphorical extension, and meanings derived through "projecting space" extension; these are described below. Hollenbach (1995) uses these types of meaning change to account for all of the referential and locative meanings of the body part terms in Mixtecan, another Otomanguean language family of Oaxaca. The types of changes she describes for Mixtec seem to be able to account for all of the locational meanings in TVZ.

3.10.1. Basic meaning

The "basic meaning" of most of the body part terms seems to be the human body part, the potential exceptions being *cwe'eh* (§2.2.1) and *zh:àa'* (§2.2.2). The human body part meaning seems most basic for two reasons: all the other meanings seem explainable with the body part as the original source of the noun and speakers define these terms (when presented in isolation) as body parts. (However, it may be easier to define a noun out of context than it is to define a preposition, so perhaps the task of defining a word in isolation lends itself to receiving the noun definition.) A similar phenomenon is attested by Hollenbach for Mixtecan.

For example, *loh* can mean many things including 'face', 'top (of something e.g. a table)', 'face (of a watch)', 'front (of a house)', and the locative prepositions 'on' and 'in front of'. When presented out of context *loh* is usually defined by speakers as '(a person's) face'. 'Face' seems to be the most basic meaning of this term, and all the other meanings can be explained using 'face' as a semantic base.

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3.10.2. Metaphorical extension

The other nominal meanings for the body part terms have resulted from metaphorical extension. The human body is projected onto inanimate objects, such that tables can have faces, mouths, and feet (Figure 108); houses can have faces, backs, sides, heads, stomach, and mouths. This process explains the development of all the nominal meanings beyond the basic meaning.

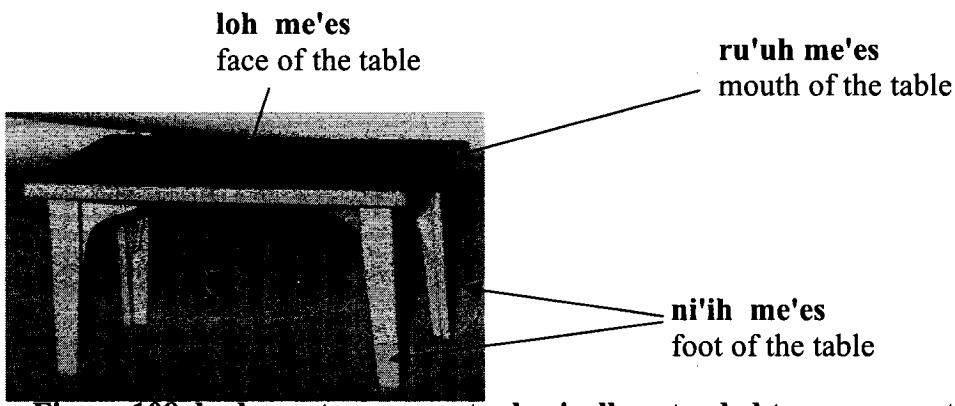

Figure 108. body part nouns metaphorically extended to component parts of a table

3.10.3. Projecting space

This extension can account for most of the locative meanings (see below for some problem cases). The process, along with syntactic reanalysis, can be used to explain the development of the body parts into grammatical prepositions. Projecting space extends the meaning of the terms from the part of the object to the area 'projected' by that part of the object. This seems to be a metonymic extension: "the use of a word for something associated with its original meaning" (Hollenbach 1995:171). For example, *loh* has a basic meaning of 'face'. Through a projecting space extension it could also come to mean the area of space in front of a face; and *loh* 'face' could undergo a metaphorical extension

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to mean 'top (of a table)'; this meaning could then undergo a projecting space extension such that *loh* could also refer to the area above the top of the table, i.e. the area projected from the top of the table.

Examples of all three types of meaning are given below in Table 23, which gives examples in English, Copala Trique (a Mixtecan language), and TMZ.

Meaning	English	Copala Trique[27]	TMZ
Basic Meaning	**My side** hurts.	**rian**^{32} ne?e^{3h} a^{32} face baby DEC 'the baby's face'	Rahc **zh:ààa'n**=a'. hurts buttocks=1SG 'My bottom hurts'
Metaphorical Extension	I painted the **side of the house**.	**rian**^{32} we$^{3?}$ a^{32} face house DEC 'the front surface of the house'	**zh:ààa'n** ca'rr buttocks car 'trunk (car's buttocks)'
Projecting Space	The dog is **beside me**. The lawnmower is **on the side of the house.**[28]	**rian**^{32} we$^{3?}$ a^{32} face house DEC 'the area in front of the house'	Biinny n-u'uh **zh:ààa'n** ca'rr person NEU-be buttocks car 'The person is under the car'

Table 23. component part terms and their range of meanings

3.10.4. Syntactic reanalysis

The meaning changes described above are not sufficient to account for the development of prepositions (see Chapter 4). However, these types of changes, especially the projecting space extension together with the metaphorical extension, produce a situation that lends itself to syntactic reanalysis, especially since TVZ languages are head initial. This means that possessed noun phrases and prepositional phrases can be phonetically identical. As can be seen in Table 23, for all three languages, the same phrase can be found in both the metaphorical extension cell and the projecting space cell: *the side of the*

[27] Data from Hollenbach 1995: 174-175. Tone marking is denoted with superscript numbers following the word; DEC stands for her "declarative".
[28] Some English speakers prefer *The lawnmower is at the side of the house* for this meaning.

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house for English, *rian we* for Trique, and *zh:àà'n ca'rr* for TMZ. In all three languages, these phrases can be analyzed as possessed noun phrases in the metaphorical extension row. The syntactic reanalysis of a possessed noun phrase seems especially likely given that it would be string identical to a prepositional phrase.

If the component part prepositional phrases were originally possessed noun phrases, it also seems likely that the verb carried some locative information and c-selected for a noun phrase complement. There are a few verbs in modern TVZ languages that do this. For example SLQZ *zàa* 'to be from' and *rbèez* 'resides in', which both take noun phrase complements (Munro and Lopez, et. al 1999) These verb cannot take prepositional phrase complements, and a potentially ambiguous phrase such as *làa'any Sann Lu'uc*, which out of context can either mean 'in San Lucas' or 'Saint Luke's stomach' will be interpreted as a noun phrase when it is the complement of the verb *rbèez* even if the semantic context favors the prepositional phrase, as in (162b) below.

162. a. Rbèez=a' Sann Lu'uc. (SLQZ)
reside_in=1SG San Lucas
'I live in San Lucas'

b. Rbèez=a' làa'iny Sann Lu'uc. (SLQZ)
reside_in=1SG stomach Saint Luke
'I live in Saint Luke's stomach' / *'I live in San Lucas'

Given that verbs of this type exist in modern TVZ languages, it seems plausible that a sentence like *Bèe'cw zòob ni'ih me'es* might originally have had the structure presented in (163). (I use << >> to enclose hypothetical sentences. These are forms that I am conjecturing may have existed at some previous stage of the language, but are not attested.)

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163. Stage 1.

a. << Bèe'ecw zòob me'es.>>
dog NEU.sit_AT table
'The dog is sitting by the table'

b. << Bèe'ecw zòob ni'ih me'es.>>
dog NEU.sit_AT foot table
'The dog is sitting by the foot of the table'

However, with the syntactic reanalysis of the possessed nouns as prepositions, perhaps partially on analogy with non-component part prepositions such as *xtèe'n* 'of', it seems likely that the locative information shifted from the verb to the newly available grammatical morpheme, and could then be analyzed as in (164), in which the component part locatives have been reanalyzed as prepositions, and the locative verbs c-select for locational phrases.

164. Stage 2: Modern Language

a. *Bèe'ecw zòob me'es. (TMZ)
dog NEU.sit table
'The dog is sitting by the table'

b. Bèe'ecw zòob ni'ih me'es. (TMZ)
dog NEU.sit under table.
'The dog is sitting under the table.'

While more historical and comparative work is required, it seems that the path of syntactic and semantic change that would be necessary to develop this system can be accounted for using already existing and well established types of change such as metaphor and metonymic extension. Whatever the exact path of historical development, these changes must have happened very early, since the use of component part prepositions seems to be reconstructable for Proto-Zapotecan.

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CHAPTER 4

Toward a Typology of Component Part Locatives

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4. Towards a Typology of Component Part Locatives[1]

In this chapter, I present work on the typology of component part locatives, showing that the syntactic category (e.g. preposition or relational noun) cannot be inferred from the semantics (i.e. whether the meaning of the locative is synchronically related to the meaning of the component or not) and vice versa. I cite data from the Muskogean language Chickasaw, which has relational nouns, some of which have meanings that are not synchronically related to the meaning of the corresponding component, based on data from Munro (2006b) and Lillehaugen and Munro (2006 and in prep.). (Examples cited from Lillehaugen and Munro 2006 will be referenced with LM:#, where # refers to the example number in Lillehaugen and Munro 2006. Examples from Lillehaugen and Munro in prep. will be referenced with LM in prep.) This chapter is based primarily on joint work with Pamela Munro (e.g. Lillehaugen and Munro 2006 and in prep.) and would be impossible without Munro's extensive work on Chickasaw (e.g. Munro and Willmond 1994, Munro 2000 and 2006b).

Chickasaw, like TVZ, uses component part words both as referential nouns and in locative constructions. In Chickasaw, for example, the word *pakna'* 'top' is used both to refer to the top of the table (1a) and in a locative construction (1b). In (2), the word *nota'* 'underside' is used both to refer to a part of the table (2a), and in locative constructions (2b, c). (In Chickasaw, the component part locatives are generally words for component parts of objects, and not human body parts.)

[1] Parts of this chapter were presented at the 2006 LSA annual meeting (Lillehaugen and Munro 2006).

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1. a. Aai̲'pa' **pakna'**-at homma. (Chickasaw)
table top-NOM be_red
'The top of the table is red'

b. Kowi'-at aai̲'pa' **pakna'** o̲-wáyya'a. (Chickasaw)
cat-NOM table top on-stand[2]
'The cat is on the table'

2. a. Aai̲'pa' **nota'**-at litiha. (Chickasaw)
table underside-NOM be_dirty
'The underside of the table is dirty'

b. Kowi'-at aai̲'pa' **nota'** wáyya'a. (Chickasaw)
cat-NOM table underside stand
'The cat is under the table'

c. Cholhkan-at aai̲'pa' **nota'** aa-a̲a. (Chickasaw; LM:2b)
spider-NOM table underside LOC-go_around
'The spider is walking around under the table'

In the following sections, I use data from TVZ and Chickasaw to sketch out a beginning typology of component part locatives, based on work done in Lillehaugen and Munro 2006 and in preparation. In §4.1, I discuss the syntax of component part locatives, particularly contrasting the syntax of TVZ component part prepositions and Chickasaw relational nouns. In §4.2, I discuss the semantics of component part locatives, primarily contrasting component part locatives whose meaning references the meaning of the component part it is related to, and those that do not. In §4.3, I present the conclusions, based on Lillehaugen and Munro 2006 and in preparation, that the syntactic category of any component part locative is not inferable from its meaning, nor is the type of meaning of a component part locative inferable from its syntactic category.

[2] The semantics of Chickasaw positional verbs is complex (Munro 2006); glosses here have been simplified. For example, *wáyya'a* actually is used to mean 'stand' only of objects thought of as

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4.1. Towards a syntactic typology: prepositions and relational nouns

In this section I look at the syntactic characteristics of component part locatives that are prepositions, as in TVZ (§4.1.1) and those that are relational nouns, as in Chickasaw (§4.1.2).

4.1.1. Prepositions

SIL's online *Glossary of Linguistic Terms* offers the following definition for adposition:

> An adposition is a cover term for prepositions and postpositions. It is a member of a closed set of items that occur before or after a complement composed of a noun phrase, noun, pronoun, or clause that functions as a noun phrase, and form a single structure with the complement to express its grammatical and semantic relation to another unit within a clause.
>
> Loos et al. 1999

In the following sections I will remind the reader of arguments for the syntactic status of TVZ component part locatives as prepositions: component part prepositions can function as locational adjuncts (§4.1.1.1), component part locative phrases are selected as preposition phrases in contrast to noun phrases (§4.1.1.2), they cannot be modified as nouns can (§4.1.1.3). In each case I simply present a summary of my previous arguments, and direct the reader to the appropriate section in the dissertation for a full discussion.

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having their primary opening down, with four-legged animals apparently seen as defining an open area with their legs.

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4.1.1.1. Adjunction

In §2.4 I show that TVZ component part prepositional phrases can function as adjuncts, and I repeat one of the examples here below (cf. Lillehaugen 2003, Lillehaugen and Munro 2006 and in preparation, and Munro 2006b). Usually, a noun phrase cannot be added to a sentence like (3a) as a locational adjunct (3c).[3] Instead, in order to add such an adjunct, one must use a preposition to license the additional participant (3b).

3. a. Cay-ùu'll=nàa'. (TMZ)
   PROG-sing=3DST
   'He is singing'

   b. Cay-ùu'll=nàa' **làa'any** yu'uh. (TMZ)
   PROG-sing=3DST in house
   'He is singing in the house'

   c. *Cay-ùu'll=nàa' yu'uh. (TMZ)
   PROG-sing=3DST house
   bad with any meaning; i.e, not 'He is singing at / by the house'

This is one way in which TVZ component part locatives differ in their syntax from nouns: component part locative phrases may appear as adjuncts, while noun phrases usually cannot.

4.1.1.2. Selection

In §2.5 I show that TVZ component part prepositions are selected as prepositional phrases, and that they do not pattern with noun phrases in this respect.

4. a. *Bèe'cw zùub. (SLQZ)
   dog NEU.sit
   bad with any meaning; e.g. cannot mean 'The dog is sitting (there)'

[3] Recall that there are certain locative phrases which may be added to a sentence as locational adjuncts without a preposition (Munro 2005). These are discussed in §1.4.5.

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b. Bèe'cw zùub **ni'ih** **me'es**. (SLQZ)
dog NEU.sit under table
'The dog is sitting under the table'

c. *Bèe'cw zùub **me'es**. (SLQZ)
dog NEU.sit table
bad with any meaning; e.g. cannot mean 'The dog is sitting by the table'

d. *Bèe'cw zùub **x:-me'es=a'**. (SLQZ)
dog NEU.sit POSS-table=1SG
bad with any meaning; e.g. cannot mean 'The dog is sitting by my table'

4.1.1.3. Modification

In §2.7 I show that while nouns can be modified with plural marker, quantifiers, numbers, and adjectives, component prepositions cannot (cf. Lillehaugen 2004, Lillehaugen and Munro 2006 and in preparation, and Munro 2006b). One example is given below, where *loh* 'on' (5a) cannot be modified by quantifiers (5c) or adjectives (5e) when it is a preposition, but can when it is a noun (5d) and (5f).

5. a. Bèe'ecw zuu **loh** gyizhi'iilly. (TMZ; LM:1b)
dog NEU.stand on chair
'The dog is standing on the chair'

b. *Bèe'ecw zuu gyizhi'iilly. (TMZ; LM:5b)
dog NEU.stand chair
bad with any meaning; i.e., not 'The dog is standing on / by the chair'

c. *Da bèe'ecw zuu tyo'p **loh** gyizhi'iilly. (TMZ; LM:5c)
PL dog NEU.stand two on chair
bad with any meaning; i.e., not 'The dogs are standing on two chairs'

d. B-dìi'by=a' tyo'p **loh** me'es. (TMZ)
PERF-wash=1SG two face table
'I washed two tabletops'

e. *Bèe'ecw zuu **loh** ncye'ts gyizhi'iilly. (TMZ; LM:5d)
dog NEU.stand on white chair
bad with any meaning; i.e., not 'The dog is standing on the white chair'

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f. B-dìi'by=a' **loh** ncye'ts me'es. (TMZ)
PERF-wash=1SG face white table
'I washed the white tabletop (lit. the white face of the table)'

In this way, TVZ component locatives differ in their syntax yet again from nouns: noun phrases may be modified by the plural marker, quantifiers, numbers, and adjectives, while component part prepositional phrases may not.

4.1.2. Relational nouns

The term "relational noun" can be problematic, since it is not a well defined term or class. Linguists have used the term relational noun in many ways. In the Meso-American literature, it has been used for locatives with body or component part etymology, regardless or their synchronic syntactic category (and often in absence of data regarding their syntactic classification). Following Munro 2006b and Lillehaugen and Munro 2006 and in preparation, I use the term relational noun to mean words that express relational, locational concepts, but which have nominal syntax. Levinson (2003: 102) refers to such items as "relational nominals", a subclass of his class of "spatial nominals". Our definition seems similar in spirit to Larsen's definition for Kiche below, although note that the order of relational noun and "object" noun may of course differ depending on the language:

> Relational nouns are like prepositions in that they are placed before an "object" noun phrase to indicate the case of that noun phrase, but unlike prepositions they are formally possessed nouns with the following object noun phrase being formally the possessor of the relational noun.
>
> Larsen 1988, quoted in Heinz 2005:3

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Chickasaw has relational nouns. The class of relational nouns is a sub-set of inalienably possessed component part words. In the following sections I present evidence that Chickasaw relational phrases cannot function as adjuncts (§4.1.2.1), are selected for as nouns are (§4.1.2.2), can be modified as nouns can (§4.1.2.3), and can be case marked as nouns can (§4.1.2.4) (cf. Lillehaugen and Munro 2006 and in preparation, Munro 2006b).

4.1.2.1. Adjunction

In Chickasaw, relational nouns cannot function to license the presence of an additional participant, in this case a location or place. Instead, relational nouns function just like other nouns, in that their presence as an adjunct needs to be licensed by the verb or an applicative prefix on the verb.

> Chickasaw has no prepositions, no postpositions, and no oblique case markers. All nominals that would be the objects of adpositions in more typical languages must be licensed in a Chickasaw sentence by applicative affixes on the verb, **appearing as arguments rather than syntactic obliques**.
>
> Munro 2006b:332; bold added

Chickasaw is a language with very strict lexical transitivity. An intransitive verb takes one and only one argument: a subject. (Chickasaw is also a pro-drop language, so that subject need not appear overtly). In (6) we see an example of an intransitive verb in Chickasaw: *á̱a* 'go around'. No other nominals can be added to the sentence, regardless of their semantic role.[4]

[4] More general locative phrases, such as place names, may sometimes be added to Chickasaw sentences whose verbs are otherwise strictly intransitive. I will not discuss these here.

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6. Cholhkan-at áa. (Chickasaw; LM:7)
spider-NOM go_around
'The spider is walking around'

One way to license the presence of an additional participant is by adding an applicative prefix to the verb. "Adpositional relations are shown by applicative prefixes on the verb… which increases the valence of the verb and licenses the inclusion of the locative object ... (Munro 2000)" (Lillehaugen and Munro 2006:3). This is demonstrated below where *on-* 'on' (7a) licenses the presence of location *aaí'pa'* 'table'. Note that the location *aaí'pa'* 'table' cannot be included in the sentence, unless the applicative prefix is present (7b).

7. a. Cholhkan-at aaí'pa' on-áa. (Chickasaw; LM:8)
spider-NOM table on-go_around
'The spider is walking around on the table'

b. *Cholhkan-at aaí'pa' áa. (Chickasaw; LM:10)

Relational nouns may be used in locative constructions, but are syntactically optional. "A Chickasaw C[omponent] P[art] L[ocative] like *pakna'* 'top' can be used to indicate a more specific location… *Pakna'* adds specificity to the locative construction …but is syntactically optional" (Lillehaugen and Munro 2006:4). This is demonstrated in the examples below, where (8a) is minimally different from (7a) in that (8a) includes the relational noun *pakna'* 'top'. Both (7a) and (8a) are grammatical.

Similarly, (8b) is minimally different from (7b) in that (8b) includes the relational noun *pakna'* 'top'. Notice here, though, that neither (7b) not (8b) are grammatical. Recall that (7b) is ungrammatical because the verb *áa* 'go around' is strictly intransitive. The location *aaí'pa'* 'table' cannot be added as an argument of the verb, nor can it function as

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an adjunct. Its presence in (7b) is illicit. (8b) shows that *pakna'* cannot salvage this construction by licensing the presence of *aai'pa'* 'table'.

8. a. Cholhkan-at aai'pa' **pakna'** on-áa. (Chickasaw; LM:9)
spider-NOM table top on-go_around
'The spider is walking around on (the) top of the table'

b. *Cholhkan-at aai'pa' **pakna'** áa. (Chickasaw; LM:10)

4.1.2.2. Selection

There are two ways we can talk about selection of relational nouns phrases in Chickasaw. The first is the selection of a locative phrase by a verb with an applicative prefix, of the type shown above. The second has to do with the selection of locative phrases directly by the verb.

Since much of what was said above in §4.1.2.1 relates to the selection of locative phrases by a verb with an applicative prefix, I will comment only briefly on it here. A verb with a locative applicative prefix selects for a locational phrase, which may be satisfied with a common noun phrase, a locative demonstrative, a relational noun phrase (9b), or a proper place name (9a).

> Sentence (66) [(9b) below] is syntactically entirely parallel to (61a) [(9a)], but with a more specific locative ... *Aachompa' anonka'* is case-marked just like any other noun, and functions in (66) [(9b)] as a nominal argument just like *Albertsons* in (61a) [(9a)] (thus, whether or not the relational noun is present, the verb must have the locative applicative prefix *aa-*).
>
> Munro 2006b: 334

9. a. Ihoo-at Albertsons-a bala' **aa**-chompa. (Chickasaw)
woman-NOM Albertsons-ACC beans LOC-buy (Munro 2006b: ex 61a)
'The woman buys beans at Albertsons'

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b. Ihoo-at aachompa' **anonk**-a bala' **aa**-chompa. (Chickasaw)
woman-NOM store inside-ACC beans LOC-buy (Munro 2006b: ex 66)
'The woman buys beans in(side) the store'

In Chickasaw, as in TVZ, positional verbs are transitive. For example (10a) may seem intransitive at first glance, but it has a pro-dropped third person location (Munro p.c.). Positional verbs select for a location phrase (10b) and (10c).

10. a. Hattak-at bínni'li. (Chickasaw)
man-NOM be_sitting_sg
'The man is sitting (there)'

b. Hattak-at abooha anonka' bínni'li. (Chickasaw; Munro 2006: ex 22a)
man-NOM house inside be_sitting_sg
'The man is sitting in the house'

c. Hattak-at abooha bínni'li. (Chickasaw)
man-NOM house be_sitting_sg
'The man is sitting at the house'

But, unlike the TVZ component part prepositions, the Chickasaw relational nouns are not obligatory in such constructions (10c). Instead, they are "used to further specify the precise location of locative objects" (Munro 2006b: 334).

> Positional verbs are transitive. The subject of such a verb is the item whose position or location is being asserted ("the figure"), and the object is the item with regard to which it is positioned or located (the "ground"). In contrast to most other Chickasaw verbs, these verbs do not require an applicative prefix... to license these semantic "obliques", which are syntactic direct objects of such verbs.
>
> Munro 2006:6

4.1.2.3. Modification

Chickasaw relational nouns can be modified by adjectives, demonstratives, and quantifiers, just like any other noun (Lillehaugen and Munro 2006 and in prep.). In Chickasaw, these modifiers follow the head. In (11a) the *yammako* 'that' is modifying *aai'pa'* 'table' while in (11b) it is modifying the whole relational noun phrase *aai'pa' nota'*

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'underside of the table'. Note that in English, the most natural translations of the sentences in (11) are identical, but in (11a) *yammako* follows and is modifying 'table', while in (11b) *yammako* follows and is modifying 'underside of the table'.

11. a. Ofi'-at aaiʼpa' yamm-akoʼ **nota'** tí'wa. (Chickasaw; LM:12a)
dog-NOM table that-CONTR underside be_lying
'The dog is lying under that table'

b. Ofi'-at aaiʼpa' **nota'** yamm-akoʼ tí'wa. (Chickasaw; LM:12b)
dog-NOM table underside that-CONTR be_lying
'The dog is lying under that table'

Here we see, then, that Chickasaw relational nouns can be modified just as nouns can, quite in contrast to the TVZ data presented earlier.

4.1.2.4. Case marking

Chickasaw relational nouns can receive case marking, as illustrated in (12) below. "*Aachompa' anonka'* is case-marked just like any other noun, and functions in (61a) [(12a)] as a nominal argument just like *Albertsons* in (66) [(12b)]..." (Munro 2006b: 334).

12. a. Ihoo-at aachompa' anonk-**a** bala' aa-chompa. (Chickasaw)
woman-NOM store inside-ACC beans LOC-buy (Munro 2006b: ex 66)
'The woman buys beans in(side) the store'

b. Ihoo-at Albertsons-**a** bala' aa-chompa. (Chickasaw)
woman-NOM Albertsons-ACC beans LOC-buy (Munro 2006b: ex 61a)
'The woman buys beans at Albertsons'

4.2. Towards a semantic typology

In this section I explore the meaning of the component part locatives in TVZ (§4.2.1) and Chickasaw (§4.2.2). Some component part locatives have meanings that directly relate to

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the meaning of the corresponding component part (§4.2.1.1), while others do not (§4.2.1.2, §4.2.2). I conclude (based on Lillehaugen and Munro 2006 and in prep.) that there is no relation between the syntactic category (e.g. preposition or noun) and the type of meaning (i.e. whether the locative has a meaning that directly relates to the meaning of the corresponding component part). This is significant in that it separates the question of syntactic category and meaning, and shows that a researcher cannot use the type of meaning of a locative as evidence for its syntactic category. This are really two very separate questions.

4.2.1. The meaning of TVZ component part locatives

In the following sections I present examples of TVZ component part prepositions which refer to the meaning of the corresponding component part (§4.2.1.1), as well as those that do not (§4.2.1.2). Chapter 3 of this dissertation is dedicated to the description and analysis of the meaning of TVZ component part prepositions, and I refer the reader there for a more thorough discussion of the (complex) meanings of these prepositions.

4.2.1.1. Meanings referring to the corresponding component part

Some component part prepositions in TVZ have meanings that must (or may, given the right conditions) refer to the meaning of the corresponding component part, for example *zh:àà̀a'n* 'at the buttocks of' (cf. §2.2.6.12, Lillehaugen and Munro 2006 and in prep.). Recall that the TMZ preposition *zh:àà̀a'n* requires that the Figure be located in the area of

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space projecting from the Ground's buttocks (indicated with arrows in Figure 1, Figure 2, and Figure 3) , as in the case of the woman and the deer in (13).

> The meaning of the TVZ preposition *zh:àà a'n,* in other words, relates directly to the meaning of the corresponding referential component part noun 'buttocks', and does not express a more abstract relational meaning.
>
> Lillehaugen and Munro 2006:9

13. Mnnàà a' zuu **zh:àà a'n** bzêiny. (TMZ; LM:19)
woman NEU.stand at_buttocks_of deer
'The woman is standing at the buttocks of the deer'; √ Figure 1; √ Figure 2; #Figure 3

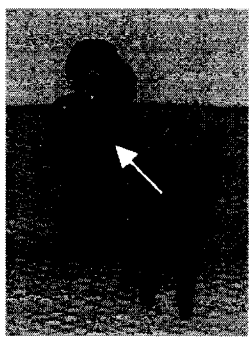

Figure 1. woman and deer I

Figure 2. woman and deer II

Figure 3. woman and deer III

4.2.1.2. Meanings synchronically unrelated to the corresponding referential component part

In contrast, there are other TVZ prepositions that may, under the right conditions, have a meaning that does not refer to the meaning of the corresponding referential component part. Consider the examples with the component part preposition *loh* 'on' related to the component part 'face'. The referential noun phrase *loh me'es* means 'tabletop (literally 'the face of the table')'. *Loh* 'face' is an inherent component part of the table (cf. §2.2.2); its usage does not change, no matter which way the table is oriented: the tabletop is the tabletop even if the table is upside-down or on its side.

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In (14b), the component part preposition *loh* 'on' is used to describe the relationship between the dog and the table, but note that as (14a) shows, the part of the table the dog is touching is not *loh me'es* 'the tabletop'.

14. a. **Loh** me'es me'eu. (TMZ)
face table dirty
'The tabletop is dirty'; cannot refer to the circled area in Figure 4.

b. Bèe'ecw zuu **loh** me'es. (TMZ)
dog NEU.stand on table
'The dog is on the table'; √ Figure 5

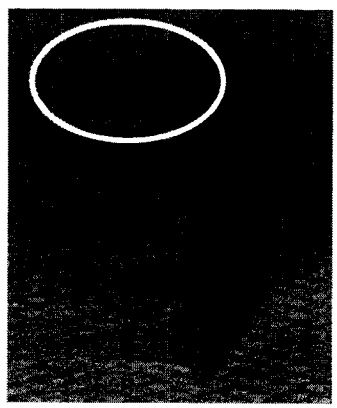

Figure 4. topmost part of the table

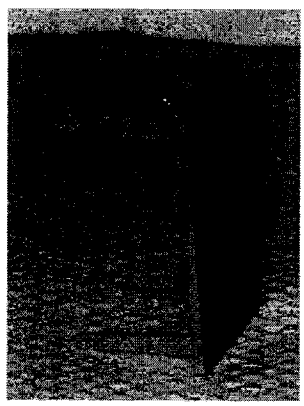

Figure 5. dog and table

The following data complements the paradigm presented above. In (15a) we see that the tabletop can be referred to as *loh me'es* 'tabletop' even if it is not the topmost part of the table. However, a Figure located next to this area in (15b) cannot be located in relation to the table using the preposition *loh* 'on'.

15. a. **Loh** me'es me'eu. (TMZ)
face table dirty
'The tabletop is dirty'; cannot refer to the circled area in Figure 6.

b. Bèe'ecw zuu **loh** me'es. (TMZ)
dog NEU.stand on table
'The dog is on the table'; #Figure 7

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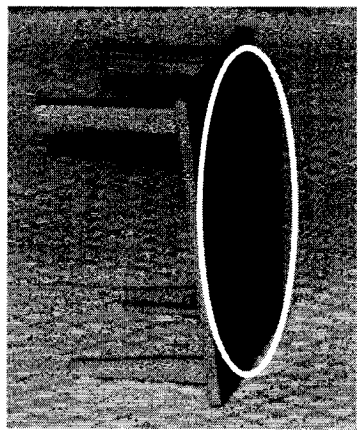

Figure 6. tabletop

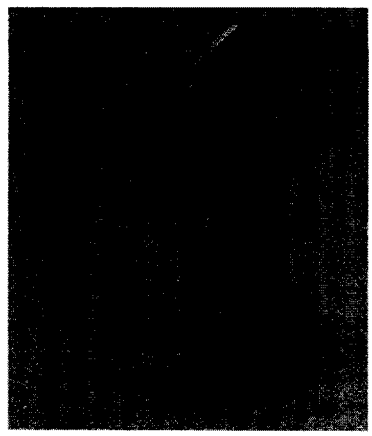

Figure 7. dog and table

Even though *loh* 'on' is related to *loh* 'face', then, the meaning of the component part word *loh* 'face' is not used in calculating the locative relationships expressed with *loh* 'on' in the examples above.[5] Specifically, this TVZ component part preposition does not locate the Figure in relation to an inanimate Ground by naming a subpart of the Ground.

4.2.2. The meaning of Chickasaw component part locatives

Since component part locatives in Chickasaw are relational nouns, it may seem a good starting hypothesis that the relational nouns have referential meaning is locative sentences like (16a), just as in non-locative sentences like (16b). This hypothesis, then, would predict that the meaning of *pakna'* 'top' is either the same in (16a) and (16b), or that one meaning is directly derived from the other. Under this analysis, another translation of (16a) might be 'The cat is on the top (i.e. lid) of the box'.

16. a.	Kowi'-at	box	**pakna'**	o̲-wáyya'a. (Chickasaw; LM:14a)
	cat-NOM	box	top	on-stand
	'The cat is on the box'; √ Figure 8			

[5] However, these prepositions may have different semantics with different types of Grounds (§3.6).

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b. Box **pakn**-aat litiha. (Chickasaw; LM:14b)
box top-NOM be_dirty
'The top of the box is dirty'; *can describe the area circled in Figure 9. box*

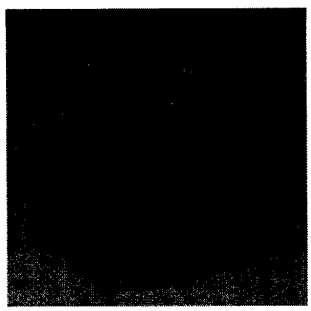

Figure 8. cat and box
(LM Figure 6)

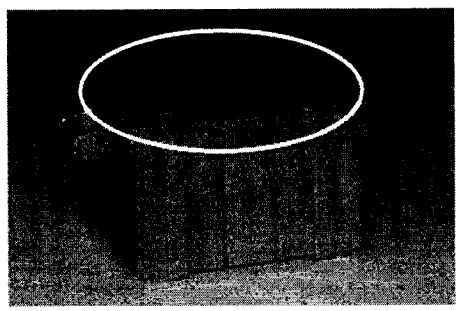

Figure 9. box
(LM Figure 7)

However, this hypothesis can only be tested if one forces a contrast between the potential meanings of 'on' and 'on the lid (i.e. top) of'. In Figure 8 the cat is both on the box and located on the lid (top) of the box, so there is no way to disambiguate these potential meanings. However, in Figure 10, where the box is upside-down, this contrast becomes apparent. While *pakna'* can be used to describe the location of the cat on an upside-down box in (17a), it cannot be used referentially to refer to the component part of the box that the cat is standing on in (17b).

17. a. Kowi'-at box **pakna'** o̲-wáyya'a. (Chickasaw; LM:23a)
cat-NOM box top on-stand
'The cat is on the box'; √ Figure 10

b. Box **pakn**-aat litiha. (Chickasaw; LM:23b)
box top-NOM be_dirty
'The top of the box is dirty'; *cannot be used to describe the area circled in Figure 11; i.e., does not mean 'The topmost part of the box is dirty'*

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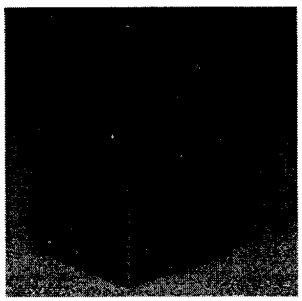

Figure 10. cat and box
(LM Figure 8)

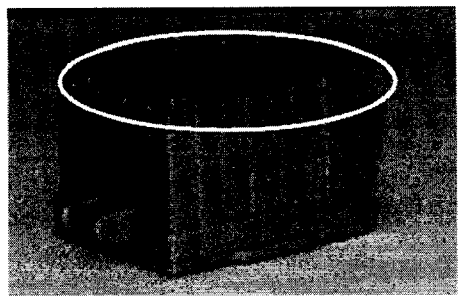

Figure 11. box
(LM Figure 9)

When we force a contrast between the meanings of 'on' and 'on the top (i.e. lid) of',[6] we can see that in fact the relational noun *pakna'* is not functioning by naming a component part of the Ground:

> Even though *pakna'* is syntactically a noun (licensed by the applicative prefix on the verb), in a locative construction like (18a) it asserts a locative relationship between the Figure and the Ground, and does not refer to a component part of the Ground.
>
> Lillehaugen and Munro 2006:6

I present one final paradigm showing that relational nouns in Chickasaw, specifically in this case *pakna'*, do not necessarily derive their meaning from the corresponding referential component part. Consider (18a) where *pakna'* is used to express the location between the cat and the basket. Now note that while (18b) is syntactically well formed, it does not mean anything; i.e. there is no component part of the basket that can be named *pakna'* 'top'. So *pakna'* cannot be functioning by naming a part of the Ground, since there is no part of this Ground (the basket) that can thus named.

The sentences in (18c) and (18d) complete the paradigm, by showing that even if the basket has a named component part, e.g. *nota'* 'underside' in (18c), and the Figure is

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located at or near that component part, as in Figure 12 , the corresponding relational noun *nota'* 'under' may not necessarily be appropriate (18d). We see that (18d) cannot describe Figure 12, because the Figure is not under the Ground, even though the Figure is located at the basket's *nota'* 'underside'.[7]

18. a. Kowi'-at talhpak **pakna'** o-wáyya'a. (Chickasaw)
cat-NOM basket top on-stand
'The cat is on the basket'; √ Figure 12

b. #Talhpak **pakn**-aat litiha. (Chickasaw)
basket top-NOM be_dirty
anomalous because there is no part of the basket called pakna'*; cannot be used to describe the areas circled in Figure 13 or Figure 14*

c. Talhpak **nota'**-at litiha. (Chickasaw)
basket underside-NOM be_dirty
'The underside of the basket is dirty'; *can be used to describe the area circled in Figure 13*

d. #Kowi'-at talhpak **nota'** o-wáyya'a. (Chickasaw)
cat-NOM basket underside on-stand
'The cat is standing on the underside of the basket'; #Figure 12

Figure 12. cat and basket

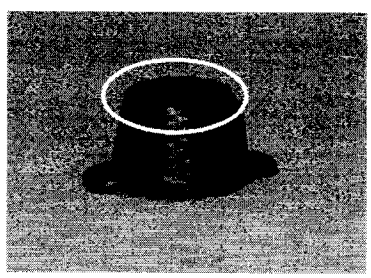

Figure 13. basket I

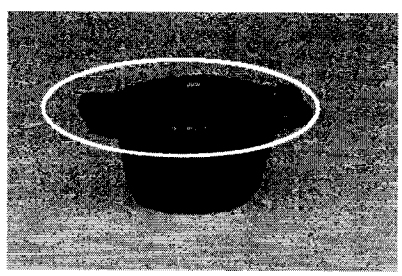

Figure 14. basket II

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[6] For some but not all English speakers, this difference is the same as the contrast between *on the top of the box* and *on top of the box.* However, not all English speakers share the judgment that these phrases differ in meaning.

[7] Mrs. Willmond's usual characterization of a picture like Figure 12 is to say

(a) Talhpak-at lhímpa-t wáyya'a-na kowi'-at **pakna'** o-wáyya'a. (Chickasaw)
basket-NOM be_overturned-PRT stand-CNJ.DS cat-NOM top on-stand
'The basket is standing upside down and the cat is standing on top of it'

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We can see then, that the original hypothesis, that the meaning of relational nouns might correspond directly to the meaning of the related referential nouns is not supported by these data. We can also phrase this in the terms of Levinson (2003), that Chickasaw relational nouns do not necessarily express their locational meaning by naming a component part of the Ground and thereby "defining" a "search domain".

4.3. Conclusions

In this chapter I have shown based on joint work (Lillehaugen and Munro 2006 and in prep.) that the form and function of component part locatives are independent, i.e. the syntactic category and the type of meaning of any particular locative is not deducible from the other. Knowing the syntactic category of a locative will not facilitate in determining the type of meaning it has, and understanding the type of meaning a locative has is not a clue as to its syntactic category. These are two distinct questions.

I have provided data that component part locatives can be syntactically realized as prepositions (TVZ) or relational nouns (Chickasaw). Additionally, they can have meanings that relate directly to the meaning of the referential component part (TVZ *zh:àà a'n* 'at the buttocks of') or meanings that are synchronically unrelated (TVZ *loh* 'on' and Chickasaw *pakna'* 'on' and *nota'* 'under'). This is summarized below in the table below.

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component part locative	syntactic category	Is the meaning of the locative calculated based on the meaning of the referential component part of the Ground?
Chickasaw relational nouns *pakna'* 'top' and *nota'* 'underside'	N	no
TVZ preposition *loh* 'on'	P	no
TVZ preposition *zh:àà a'n* 'at the buttocks of'	P	yes

Table. summary of types of component part locatives presented in this chapter

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CHAPTER 5

Positional Verbs

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5. Positional Verbs

This chapter presents the system of positional verbs employed in Tlacolula Valley Zapotec (TVZ). While in English the copula verb *be* can be used in locative constructions (1), in TVZ there is no one such verb that can be used in this way. Instead, there is a set of positional verbs, such as *zuu* 'is standing' (2a), *zòo'b* 'is sitting' (2b), and *niga'ah* 'is lying' (2c). Unlike the English *be*, these verbs convey information about the shape and position of the Figure.

1. a. The cup **is** on the table.
   b. The woman **is** on the chair.
   c. The boy **is** on the bed.

2. a. Ba's **zuu** loh me'es. (TMZ)
   cup NEU.stand on table
   'The cup is (standing) on the table'

   b. Mnnààa' **zòob** loh guezhi'iilly. (TMZ)
   woman NEU.sit on chair
   'The woman is (sitting) on the chair'

   c. Mnìi'iny **n-iga'ah** loh ca'mm. (TMZ)
   child NEU-lie on bed
   'The child is (lying) on the bed'

In this chapter I describe this class of verbs and present a lexical analysis. I describe the morphological and syntactic behavior of these verbs and analyze their semantic behavior by formalizing the restrictions they put on the Figure (such as the ratio of the horizontal and vertical axes, size, and presence or absence of a flat bottom) and / or the locative relationship between the Figure and the Ground (such as requiring the Figure to be supported by the Ground).

I do not discuss the use of positional verbs in possessive or existential constructions. This use of positional verbs has been described for other Zapotec varieties including

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SLQZ (Munro and Lopez, et al. 1999), San Bartolomé Zoogocho Zapotec (Sonnenschein 2005), and Texmelucan Zapotec (Speck 1994), and I hope to investigate this in TMZ in the future.

5.1. Methodology and data sources

Most of the data presented in this chapter was gathered using the *Picture Series for Positional Verbs* (Ameka, de Witte, and Wilkins 1999, hereafter PosB) as an elicitation stimulus. This book was developed and used at the Max Planck Institute for Psycholinguistics in Nijmegen. I find it very useful in my research. Pictures from this book, such as the one presented below in Figure 1, were used as prompts. (I describe the elicitation process in detail at the end of this section.) When I include pictures from PosB in my text, I will include the following information in the caption: Figure (Ground) (PosB:pg). For example, in Figure 1 the Figure is the bottle, the Ground is the table, and this picture is page 37 in PosB.

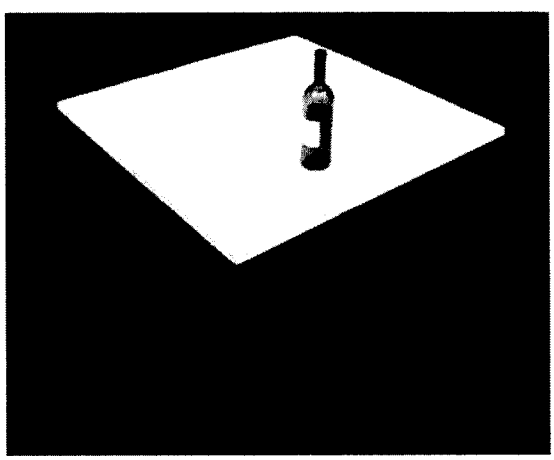

Figure 1. bottle (table) (PosB:37)

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Table 1 is a summary of the pictures from PosB that are included in this Chapter. They are listed by page number in PosB refer the reader to the Figure number.

page number in PosB (Ameka et al. 1999)	Figure number(s) in this chapter
3	Figure 10
7	Figure 11
8	Figure 22
10	Figure 2, Figure 29
11	Figure 14, Figure 25
14	Figure 21, Figure 24
17	Figure 20
19	Figure 16
21	Figure 5, Figure 23
22	Figure 18
24	Figure 17
26	Figure 6, Figure 12, Figure 19, Figure 28
37	Figure 1, Figure 4, Figure 30
43	Figure 15
50	Figure 3
52	Figure 13, Figure 26
56	Figure 27
67	Figure 9

Table 1. list of pictures from PosB cross-referenced to Figure number

The PosB data reported in this chapter is from a pilot study with five speakers of TVZ: two are speakers of TMZ (Roberto Antonio Ruiz and Josefina Antonio) and three are speakers of SLQZ (Victoria Lopez, Felipe Lopez, and Silvia Lopez). I plan to collect more data from speakers of these language varieties in the future, and hopefully from other TVZ language varieties as well. While currently the data is limited, it begins to show a picture of the characteristics of the positional verb system in TVZ.

The type of data I have from each consultant is slightly different: for Mr. Antonio Ruiz (TMZ) and Ms. V. Lopez (SLQZ) I have a full set of data: i.e. I have volunteered sentences and additional grammaticality judgments for every picture in PosB. For Mr.

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Lopez (SLQZ) I have a full set of volunteered sentences for PosB with few additional grammaticality judgments. The volunteered sentences were collected by Pamela Munro, and I was not present for the elicitation. I was able to follow up with him to ask a few grammaticality judgments. For Ms. S. Lopez (SLQZ) and Ms. Antonio (TMZ) I have a partial set of volunteered sentences with a few additional grammaticality judgments. Throughout this chapter, I cite the data I feel is relevant to the immediate discussion. However, there is undoubtedly related data that might be of interest to the reader. Since it would be cumbersome to cite all of the data related to the verb or locative relationship under discussion, I have instead provided a summary of the PosB data from all five speakers in Appendix II. These summaries are listed in tables by the page number (picture number) from PosB and mark the positional verbs that were volunteered (x), accepted (√), or judged as infelicitous (*) by the speaker for each picture. A blank cell indicates that there is no data for that combination. In addition to the individual summaries, Appendix II also contains a summary by language variety and a combined summary, however these later summaries are limited to the PosB pictures presented and discussed in this chapter.

The methodology I used in eliciting the data evolved throughout my work with the elicitation materials, with the later methodology improving on potential problems found with the earlier methodology. Below I will describe the methodologies used, in chronological order.

I first used these elicitation materials with Mr. Antonio Ruiz (TMZ). We began at the beginning of the book, and for the first few pictures, I prompted him verbally in various

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ways. I asked him to describe the picture, but this did not get the kind of responses I was looking for, so I tried narrowing down my question by asking explicitly where the Figure was in English, e.g. "Where is the bottle?", or given a model in English, e.g. "If I were describing this in English I would say: *The bottle is on the table.*" I now feel that modeling the answer in English is best avoided, since it may prime the speaker towards a translation equivalent, or affect the answer in other unexpected ways. In addition, I would now prefer to have the task all done in Zapotec, and not even ask the 'Where is the Figure' question in English or Spanish.

However, after the first few pictures, Mr. Antonio Ruiz quickly learned the elicitation task, and for the vast majority of pictures, the only prompt was the visual presentation of the picture. Thus, overall, the data from Mr. Antonio Ruiz is not a result of a translation task or a question-response task.

After Mr. Antonio Ruiz initially described the picture, I asked if he could think of another way to say it (looking for other possible positional verbs). If he responded with another option, I would ask him again if there were any more ways. When he offered no additional ways, I asked for judgments on some additional positional verbs. I kept track of verbs that were volunteered (marked with "x" in the Appendix), judged grammatical (√), and judged ungrammatical (*). However, I now feel that suggesting alternative verbs for any particular picture, may affect what is volunteered for later pictures.[1]

With Ms. S. Lopez (SLQZ) I began by asking in English 'Where is the Figure?' for the first pictures, and thereafter no verbal prompt was needed or used. I did not ask for

[1] Thanks to Pamela Munro and Aaron Sonnenschein for helpful discussion on this particular methodological issue.

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alternative ways to describe each picture, and rarely did I ask for any judgments on alternative verbs. In a few cases, I did ask judgments on alternative prepositions. I did not elicit the data from Mr. Lopez (SLQZ), but Pamela Munro (p.c.) describes her method to me as similar to that which I just described for Ms. S. Lopez.

When I worked with Ms. V. Lopez (SLQZ) and Ms. Antonio (TMZ) I used a methodology that I feel is much improved. First of all, I used no English. For the first few pictures, I asked in SLQZ *Cu'an* Figure? 'Where is the Figure?', and as in the other cases, after the first few pictures no verbal prompt was needed or used. The other major difference, was that I met with Ms. V. Lopez on two separate occasions. On the first meeting, I did not ask for any grammaticality judgments. After she described the picture, I would ask if there was any other way. When she had told me any alternatives we would just move on to the next picture. Verbs given in this setting are marked with "x" in the Appendix. (Note, then that an "x" for Mr. Antonio Ruiz and an "x" for Ms. V. Lopez mean slightly different things.) On our second session, we went through the book a second time. This time I asked for judgments on other verbs for each picture. Verbs that were judged appropriate are marked with "√" in the Appendix. Those that were judged as ungrammatical are marked with "*". I feel this method is an improvement over that used earlier because I have volunteered responses (in the case of Ms. V. Lopez for the whole book, and in the case of Ms. Antonio for a subset of the book) without any interference from me. I have not yet done any analysis to see if there may be differences in verbs that were truly volunteered versus those that were approved, but with this methodology I will be able to look at that question.

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5.2. More on the basic locative construction

In §1.4 I offered a preliminary definition for the basic locative construction, saying it is a complete sentence which asserts the location of a Figure in relation to a Ground. In this section I will slightly refine my definition of the basic locative construction, because I use the basic locative construction in order to define the class of positional verbs. My definition differs slightly from the definition usually found in the literature, although I believe the spirits of the definitions are the same.

The basic locative construction is often defined as the simplest response to a "Where is the *Figure*?" question, as in the quotations below:

> ...the basic locative construction (BLC), the basic construction used as an answer to a 'where' question
>
> Kutscher and Schultze-Berndt to appear: 2

> We ask, e.g. "where is the cup?", and get the answer "The cup is on the table", the latter exemplifying what we will call the Basic Locative Construction for English.
>
> Levinson 2000: 215

I choose not to define the basic locative construction in these terms, specifically because the basic locative construction in my usage is not exactly the "the basic construction used as an answer to a 'where' question" (Kutscher and Schultze-Berndt to appear: 2). For many languages, including Zapotec and English, the simplest construction that is used in response to 'where is the Figure' questions, e.g. (3a) and (4a), does not include a full noun phrase for the Figure, but rather a pronoun (3c) and (4c), or even more pragmatically normal, only a locational phrase (3b) and (4b). However, for methodological reasons, I want to define the basic locative construction as containing a full noun phrase for the Figure, as in (3d) and (4d).

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3. a. Where is John?
   b. In his room.
   c. He is in his room.
   d. John is in his room.

4. a. Cu'an bèe'ecw? (TMZ)
   Where dog
   'Where is the dog?'

   b. Loh me'es. (TMZ)
   on table
   'On the table'

   c. Bèe'ecw zuu loh me'es. (TMZ)
   dog NEU.stand on table
   'The dog is (standing) on the table'

Therefore, of all the sentences in (3) and (4) above, I only consider (3d) and (4c) to be examples of the basic locative construction for English and Zapotec respectively. Because these are not basic responses to a 'where is the Figure' question, I thus depart slightly from previous definitions of the basic locative construction.[2] However, consider the following, where Kutscher and Schultze-Berndt (to appear) and Kutscher and Genç (to appear) also require their basic locative constructions (in German[3] and Laz, respectively) to contain two full noun phrases:[4]

---

[2] The most basic response to a *where is the Figure* question would usually be (3b) or (4b), and probably in actual conversation only rarely be (3d) or (4d). I do feel that studying pragmatically appropriate responses to *where is* questions is important in learning how a language expresses location.

[3] I did an informal survey, by asking two native German speakers *Wo ist der Stuhl?* 'Where is the chair?' (The speakers were asked the question individually; i.e. they were not together when I asked them.) Both speakers initially responded with the adverbial demonstrative *hier* 'here'. When asked if they could be more specific, both speakers provided prepositional phrases: one said *an der Wand* 'at the wall' and the other said *am Tisch* 'at the desk'. What is relevant here, is that in response to a *Wo ist X* question, neither of them responded with a complete sentence.

[4] Elsewhere in their paper Kutscher and Genç seem to say that the Figure noun phrase is optional: "The Basic Locative Construction (BLC) – that is, the construction being employed in an answer to a 'where is X' question—in Ardesen-Laz consists of an optional NP expressing the Figure followed by the ground NP and the predicate" (to appear: 5).

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> The German Basic Locative Construction (BLC), i.e. the construction that is employed in response to 'where' questions like *wo ist X* 'where is X', consists of a subject noun phrase in the nominative representing the Figure, a locative verb, and a prepositional phrase, where the NP represents the ground, and is in dative case, indicating static location.
>
> Kutscher and Schultze-Berndt to appear: 2

> For Laz, we identified the BLC as consisting of a stative locative verb obligatorily occurring with a preverb and two NPs unmarked for case denoting the Figure and the ground.
>
> Kutcher and Genç to appear: 29

There are two additional conditions I put on my definition of the basic locative construction. First, the basic locative construction should only assert information about the location of the Figure with respect to a Ground. However, in many languages (including Zapotec) it is not possible to do this without also asserting additional information, e.g. the posture of the Figure. Also, the basic locative construction includes only the minimal amount of information necessary to assert the location of the Figure. For example, time and manner adverbs are not part of the basic locative construction, though a language may require certain orientational or directional particles as part of its basic locative construction (as reported for Pima, a Uto-Aztecan language (Smith 2005)). This sentiment also seems to be present in some earlier definitions of the basic locative construction, such as below:

> The BLC… [is] the most basic construction that is ordinarily used in answers to a 'where' question and only conveys the location of an entity…
>
> Kutscher and Schultze-Berndt to appear: 7

Thus, while (5a) is an instance of the basic locative construction in English, (5b) and (5c) are not.

5. a. John is in the computer lab.
   b. John is sitting quietly in the computer lab.
   c. Hopefully, John is in the computer lab.

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Finally, the basic locative construction should be in the tense and aspect that would be appropriate as a response to a *Where is the Figure* question in the given language. Thus, in English, the past tense (6b), present progressive (6c), and future (6d) exclude these examples from being classified as instances of the basic locative construction. The simple present tense is used in the basic locative construction in English (6a).

6. a. Marcus is in his office.
   b. Marcus was in his office.
   c. Marcus is sitting in his office.
   d. Hopefully, Marcus will be in his office.

The definition I will be using for the basic locative construction is as follows: a basic locative construction is a complete sentence which asserts the location of a Figure in relation to a Ground. No additional information should be asserted, unless it is unavoidable to do so in order to assert the location of the Figure. The Figure and the Ground should be full, lexical (i.e. non-pronominal) noun phrases. The tense and aspect should be those which are appropriate in a response to a *Where is the Figure?* question.

The basic locative construction will be useful in Zapotec in defining the class of positional verbs. It can be useful in cross-linguistic and typological work in expressing location by providing a structure for comparison.

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5.3. Positional verbs as a formal class

In many languages, positional verbs can be differentiated from other verbs as a separate morphological class. For example, in Yukatek Maya (YM), there are derivational and morphological features that characterize positional verbs as distinct from other verbs:

> Positionals in YM may be identified according to a number of formal properties. Firstly, positionals form the only root class in YM whose members never surface anywhere in the clause without derivation... And secondly, in addition to the regular resultative derivation of intransitive verbs in *–a'n,* positionals also allow for the formation of the positional resultative *–Vkbal*... the positional resultative in *–Vkbal* is exclusively formed from positional roots.
>
> Bohnemeyer and Stolz in press: 559

Similarly, for Chickasaw Munro (2006a) identifies "seven morphosyntactic characteristics of Chickasaw positional verbs that serve to identify this group as a discrete class within the lexicon" (Munro 2006a:7), which are listed below.

> (1) Positional verbs can appear in locative answers to *–hmano* ['where is the ...'] questions.
> (2) Positional verbs can be used in existential constructions.
> (3) Positional verbs are stative with related active / punctual verbs.
> (4) Positional verbs are transitive.
> (5) Positional verbs have distinct forms for singular, dual, and triplural (greater than two) subjects (figures).
> (6) The non-triplural forms of positional verbs are (aspectual) grade forms.
> (7) Positional verbs may be used in 'have' sentences.
>
> from Munro 2006a

Munro identifies 24 positional verbs in Chickasaw, of which 23 meet all of these criteria.

Unfortunately, it is not clear whether there are any such defining morphological features of the class of positional verbs in TVZ. This is something I hope to pursue in the future. There is one fairly obvious morphological tendency that cannot be left unmentioned: TVZ positional verbs tend to appear in the neutral aspect, although this is

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not true of *rii* (§5.5.4); and they also tend to lack the *n-* prefix usually used for neutral aspect, although this is not true of *niga'ah* (§5.5.2) and *nàa'* (§5.5.5). The tendency to lack the neutral aspect prefix seems to be a relatively new development, as preliminary work on CVZ shows that positional verbs appear with overt neutral aspect markers such as CVZ *naso* and *naço* in (16), which are cognate to modern TVZ *zuu* 'is standing'.

Much work remains to be done on defining the class of positional verbs in TVZ. For now, I will hypothesize that the class of positional verbs are those that can appear in a basic locative construction. Table 2 presents some positional verbs in TVZ, although this is not an exhaustive list. Preliminary glosses are also presented in this table, along with cross-references to later sections in this chapter where the meaning of the positional verb is investigated in more depth.

Munro, in her work on Chickasaw positional verbs, develops the idea of "basic positional verbs" (2006a:12).

> It seems, though, that some of these [24 sets of positional verbs] are more basic than the others. Nine verbs or sets can be identified as "basic" positional verbs, in that they seem to be the minimal set used to specify the location in canonical position of every type of item I've been able to think of.
>
> Munro 2006a:12

Undoubtedly, some TVZ positional verbs are more basic that others. I have not yet identified the basic positional verbs, but I think this is a very worthwhile notion, especially for allowing comparative analysis of positional verb systems.

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TVZ	gloss
bèe'b	'is (located on a flat, elevated surface)'
dêêi'dy (TMZ), dèèi'dy (SLQZ)	'is (positioned across)' §5.5.3
nàa' (TMZ); nàa't (SLQZ; ML:219)	'is lying' §5.5.5
niga'ah (TMZ); nàa'tga'ah, na'ga'ah (SLQZ)	'is lying' §5.5.2
nu'uh	'is (located); is (located inside)'
rii	'are around' §5.5.4'
zèèi'by	'is hanging'
zòob (TMZ); zùub (SLQZ; ML:376)	'is sitting; is located, exists (sitting or projecting'
zugwa'ah (SLQZ; ML:375)	'is standing'
zundii, zuldii (SLQZ; ML:375)	is standing up, is in a standing position
zuu (TMZ) (SLQZ; ML:375)	'is standing' §5.5.1
zu'bga'ah (SLQZ; ML:376)	'is sitting down, is in a sitting position'
zu'ùu'b (SLQZ)	'is (has been placed) (on a flat, elevated surface)'

ML is an abbreviation for Munro and Lopez, et al. 1999. Glosses in double quotes are direct citations from Munro and Lopez, et al. 1999.

Table 2. some TVZ positional verbs

5.4. Positional verbs and their subjects

The basic meaning of positional verbs is based on their use with animate, perhaps human, subjects. These meanings are briefly described in §5.4.1. Their use with inanimate subjects is the main focus of this chapter, and an overview of this is given in §5.4.2.

5.4.1. Positional verbs with animate subjects

The first Zapotec grammar (Córdova 1578a) describes the prominent Zapotec phenomenon of positional verbs (as pointed out by Operstein (2002)):

> Now follow the compounds of *sum*, *est*, *fui*... The second compound is *adsum*, to be present. This is said in many different ways... if I am standing, *naçoa*, if

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seated, *tipeea*. If lying, *naaya*... and thus the differences correspond to the posture or pose of the thing about which they are speaking[5]

Córdova 1578a: 42

Córdova's Zapotec words in the passage above all are verbs with first person subjects. His examples all show the use of positional verbs with animate subjects. (His reference to "the posture or pose of the thing" suggests that inanimate can also be used as subjects, and these will be discussed in more detail below.)

Positional verbs in modern TVZ can also be used with animate subjects, in which cases the meanings of most positional verbs seem to correspond directly with the position of the subject, which is also the Figure, as in (7)below.

7. a. **Zùub** zhye'et loh me'es. (SLQZ; ML:376)
   NEU.sit cat on table
   'The cat is sitting on the table'

   b. **Zuu** zhye'et loh me'es. (SLQZ)
   NEU.stand cat on table
   'The cat is standing on the table'

   c. Bèe'ecw **n-iga'ah** cwe'eh gyiah. (TMZ; Zhat:51)
   dog NEU-lie beside rock
   'The dog was lying beside the rock'

5.4.2. Positional verbs with inanimate subjects

Positional verbs are also used to describe the location of inanimate Figures. However, when positional verbs are used with inanimate Figures their semantics are clearly different than when used with animate Figures, as described in §5.4.1. While it is clear

[5] This is my translation of Córdova's original Spanish: "Siguense agora los compuestos de sum est fuy. . . . El segundo compuesto es. Adsum, estar presente. Este se dize por muchas maneras... Si estoy en pie, naçoa, si assentado, tipeea. Si echado, naaya... y assi los differencias conforme ala postura or asiento de la cosa de que hablan."

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when a person is sitting, or standing, or lying, it is not necessarily obvious when one would say, or even if one could say, that a box, for instance, is sitting, standing, or lying.

When the subject is animate, the positional verb will usually express its posture, whereas when the subject is inanimate the verb can convey its shape or other properties. For example consider (8); in this case, changing the positional verb does not correspond with a change in position of the Figure. Both (8a) and (8b) could be used to describe a cup that is in canonical orientation (i.e. upright).

8. a. Ba's zùu'b loh me'es. (TMZ)
   cup NEU.sit on table
   'The cup is on the table'

   b. Ba's zuu loh me'es. (TMZ)
   cup NEU.stand on table
   'The cup is on the table'

When used with inanimate Figures, positional verbs can put selectional restrictions on the shape of their subject, i.e. the Figure. Consider the examples (9) and (10) below. In each case, the bottle can be used with the positional verb *zuu* 'stand', while the ball cannot. In fact, the verb *zuu* 'stand' is never used with a ball as its subject in my data, hence the "*": I believe these sentences are never grammatical, because a ball cannot *zuu*.

9. a. Bote'iy **zuu** guë'ëhcy gyihah. (TMZ, re Pos:10)
   bottle NEU.stand on rock
   'The bottle is on the rock'; √ Figure 2

   b. *Baloon **zuu** guë'ëhcy gyihah. (TMZ)
   ball NEU.stand on rock
   bad with any meaning; e.g. cannot be used to describe Figure 3

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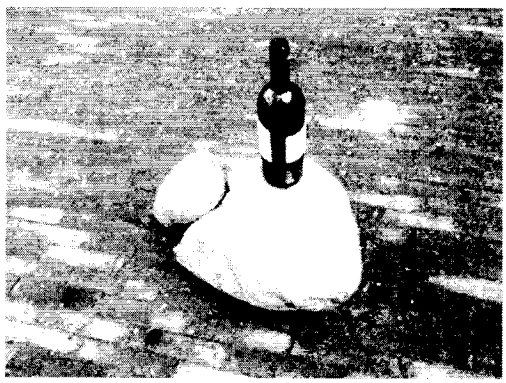

Figure 2. bottle (rock) (PosB:10)

Figure 3. ball (rock) (PosB:50)

10. a. Bote'iy **zuu** loh me'es. (TMZ, re PosB:27)
bottle NEU.stand on table
'The bottle is on the table'; √ Figure 4

b. *Baloon **zuu** loh me'es. (TMZ)
ball NEU.stand on table
bad with any meaning; e.g. #Figure 5

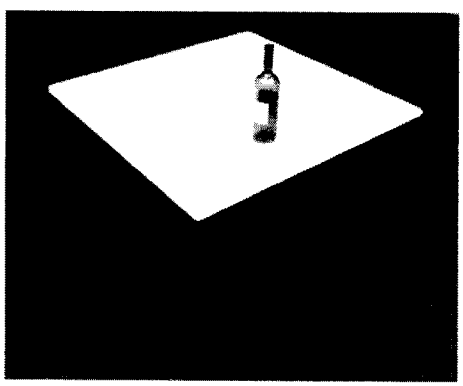

Figure 4. bottle (table) (PosB: 37)

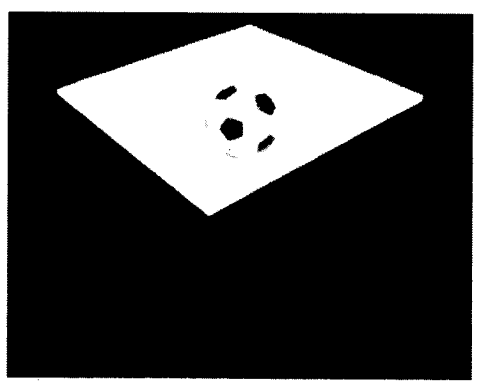

Figure 5. ball (table) (PosB:21)

5.5. Lexical semantics of TVZ positional verbs

So why can a cup both 'sit' and 'stand'? Why can a bottle 'stand' but not a ball? In this chapter I will consider in detail these types of semantic restrictions for some common positional verbs in TVZ. (There are undoubtedly many semantic nuances to the other positional verbs, but I cannot explore those here.)

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5.5.1. *Zuu* 'is standing'

The verb *zuu* is defined in the SLQZ dictionary as "is standing, is located (standing)" (Munro and Lopez, et al. 1999:375), and is identified there as the neutral form of *rzuh* "stands" (Munro and Lopez, et al. 1999:317). In this section I look at what it means for an inanimate to be "located (standing)". We saw above that although a bottle could be used with the verb *zuu* 'is standing', a ball could not. It seems that the verb *zuu* 'is standing' requires that its subject must be in an orientation in which its vertical axis is longer than its horizontal axis. A bottle in its canonical orientation has a longer vertical than horizontal axis, and thus can be used with the verb *zuu* 'is standing'. A ball does not have a vertical axis which is longer than its horizontal axis, so it cannot be used with the verb *zuu* 'is standing' at all, according to my data.

When a bottle is lying on its side, in cannot be used with the verb *zuu* 'is standing', as shown in (11) below. This can be explained since in this orientation it no longer has a vertical axis which is longer than its horizontal axis.

11. a. Bote'iy **n-iga'ah** loh gyihah. (TMZ; 4:168 re PosB:26)
bottle NEU-lie on rock
'The bottle is on the rock'; √ Figure 6

b. Bote'iy **zuu** loh gyihah. (TMZ; 4:168)
bottle NEU.stand on rock
'The bottle is (standing) on the rock'; #Figure 6

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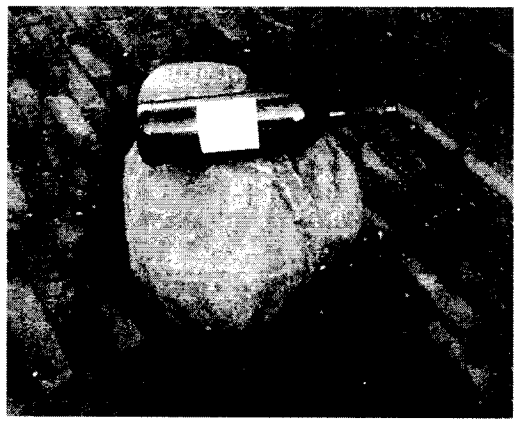

Figure 6. bottle (rock) (PosB:26)

Likewise, *zuu* 'is standing' (12) can be used to describe a book when standing upright, as in Figure 7. However, if the book is lying flat on the table, as in Figure 8, *zuu* 'is standing' cannot be used.

12. Li'ebr **zuu** loh me'es. (TMZ; 4:171, 173)
book NEU.stand on table
'The book is (standing) on the table'; √ Figure 7, #Figure 8

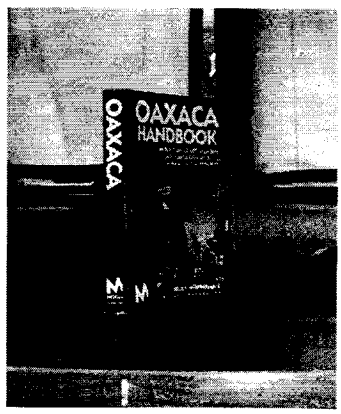

Figure 7. a book standing

Figure 8. a book lying

So far, all of the examples I have provided for *zuu* 'is standing' have Figures which have flat bottoms: is this a requirement of the verb *zuu* 'is standing'? Example (13) shows that even Figures which do not have flat bottoms can be used with *zuu* 'is standing', as demonstrated below, with the unlikely event of an egg standing on its end.

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13. Zë'ty bë'ëhdy **zuu** loh yuhuh. (TMZ; 4:171)
bone chicken NEU.stand on ground
'The egg is (standing) on the ground'; can only be used to describe an egg standing upright, not an egg lying down

However, the verb *zuu* 'is standing' does seem to work differently if the Figure has a flat bottom. Consider (14) below. It seems that if a box in the shape of a perfect cube, i.e. without a longer vertical than horizontal axis, is on a table, the verb *zuu* 'is standing' can be used. According to the behavior of this verb so far, this is unexpected.

14. Ca'j **zuu** loh me'es. (TMZ; 4:171)
box NEU.stand on table
'The box (a perfect cube) is on the table'

Recall from (10b) above that if a ball (a perfect sphere) is on a table, *zuu* 'is standing' cannot be used. In order to account for these differences, I suggest that the positional verb *zuu* puts different restrictions on its Figure depending on the shape of that Figure. If the Figure used with *zuu* 'is standing' has a flat bottom, then it must be in an orientation such that its horizontal axis is not longer than its vertical axis: it can be the same length (e.g. the cube) or it could be shorter (e.g. the bottle). If the Figure does not have a flat bottom, then it must be in an orientation such that its vertical axis is longer than the horizontal axis (e.g. the egg). I summarize these conditions on the verb in Table 3.

TMZ verb	**gloss**		**restriction on shape and orientation of the Figure**
zuu	'is standing'	if the Figure has aflat bottom…	then it must be shaped or oriented in such a way that its horizontal axis is not longer than its vertical axis.
		if the Figure does not have a flat bottom…	then it must be shaped or oriented in such a way that its vertical axis is longer than its horizontal axis.

Table 3. TMZ: *zuu* 'is standing' (version I)

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However, this does not account for all the TVZ data obtained from using the PosB elicitation material. Consider Figure 9. In this case, the use of *zuu* 'is standing' was judged as felicitous in describing the bottle by one SLQZ speaker, and was judged as infelicitous by one TMZ speaker (15). Unfortunately, I only have data from one speaker from each variety for this picture, so I do not know if this is an idiolectal or dialectal variation, yet. For the SLQZ speaker who could use *zuu* to describe Figure 9, the meaning of *zuu* as presented in Table 3 accounts for this use: the Figure (a bottle) has a flat bottom, and it is oriented in such a way that its horizontal axis is not longer than its vertical axis. Thus Table 3 may appropriately characterize the SLQZ usage.

15. a. Bote'iy **zuu** làa'any zhìi'mmy. (TMZ; 4:168)
bottle NEU.stand in basket
The bottle is (standing) in the basket'; #Figure 9

b. Bote'i **zuu** làa'any zhìi'mmy. (SLQZ; 5:20)
bottle NEU.stand in basket
The bottle is (standing) in the basket'; √ Figure 9

To account for the data from the TMZ speaker we will have to say more. In (15a), *zuu* cannot be used to describe the bottle, even though its vertical axis is longer than its horizontal axis.

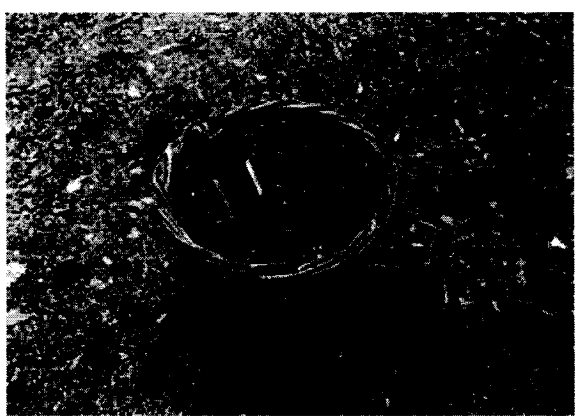

Figure 9. bottle (basket) (PosB:67)

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In order to account for this I need to specify that if the Figure has a longer vertical axis than horizontal axis while in canonical orientation, then the Figure must be in canonical orientation in order to be used with *zuu* 'is standing'. A revised table summarizes the restrictions on *zuu* 'is standing' below.

TMZ verb	gloss	restriction on shape of the Figure	restriction on shape of the Figure	restriction on shape and orientation of Figure
zuu	'is standing'	If the Figure has a longer vertical than horizontal axis in its canonical orientation…		then it must be in canonical orientation (as evidenced by 9a, 10a, #11b, 12, #15a, #19b).
		If not…	if the Figure has a flat base…	then it must be oriented in such a way that its horizontal axis is not longer than its vertical axis (14).
			if the Figure does not have a flat base…	then it must be shaped and or oriented in such a way that its vertical axis is longer than its horizontal axis (*9b, *10b, 13, #17, *18b, #21b).

Table 4. TMZ: zuu 'is standing' for inanimate Figures (version II)

The use of the positional verb *zuu* is attested in CVZ as well. Note that in these examples (16), the verb seems to have an overt neutral aspect marker *na-*.

16. a. alanij toby=ga tomines r-oni=ja gona lao too-tobi=ga beecoogo
item one=each tomines HAB-do=1SG offering face one-one=each altar

nij **na-so**=nij lani yochotoo gueche (CVZ; Co721-2;9)
REL NEU-stand=3 stomach church town

'Also I make an offering of one real to each altar which is (standing) in the town church'

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b. huane poerta **na-co** roa yohio (CVZ; Te616-2;21)
and door NEU-stand mouth house
'and the door (standing) in the doorway'

5.5.2. *Niga'ah* 'is lying'

TMZ *niga'ah* and *naga'ah* are cognate to SLQZ *nàa'tga'ah* and *na'ga'ah* "is lying down, is (located) in a lying position" (Munro and Lopez, et al. 1999:173), which are identified as neutral forms of ràa'tga'ah "lies down, gets into a lying position" (Munro and Lopez, et al. 1999:219). For simplicity, I will use the form *niga'ah* to refer to this verb, as well as any other cognate variants.

The use of *niga'ah* 'is lying' in my data in most cases correlates inversely with the use of *zuu* 'is standing'. There are no cases in my data where both *zuu* 'is stand' and *niga'ah* 'is lying' can be used to describe the same picture from PosB. That is to say, whenever *zuu* 'is standing' can be used felicitously, *niga'ah* 'is lying' cannot; and whenever the conditions to use *niga'ah* 'is lying' felicitously have been met, those to use *zuu* 'is standing' have not. (The negative correlation is not complete, however. So it is not the case that if you cannot use *zuu* 'is standing' that you can automatically use *niga'ah* 'is lying'; nor can you assume that if you cannot use *niga'ah* 'is lying' that you can automatically use *zuu* 'is standing', because there are some Figures for which you can use neither *zuu* 'is standing' nor *niga'ah* 'is lying'.)

Consider first the simple examples below. In (17), *zuu* 'is standing' cannot be used because the Figure (the rope) has a longer horizontal axis than vertical axis. In (18), *zuu* 'is standing' cannot be used because the ball does not have a longer vertical axis than horizontal axis. In (19), *zuu* 'is standing' cannot be used because when in canonical

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orientation, the bottle has a longer vertical axis than horizontal axis, and in this case the bottle is not in canonical orientation. In each of these three cases, it is appropriate to use *niga'ah* 'in lying' as illustrated below.

17. a. Dùùu' **n-iga'ah** loh gyihah. (TMZ; 4:168; re PosB:3)
rope NEU-lie on rock
'The rope is (lying) on the rock'; √ Figure 10

b. Dùùu' **zuu** loh gyihah. (TMZ; 4:168)
rope NEU.stand on rock
'The rope is (standing) on the rock'; #Figure 10

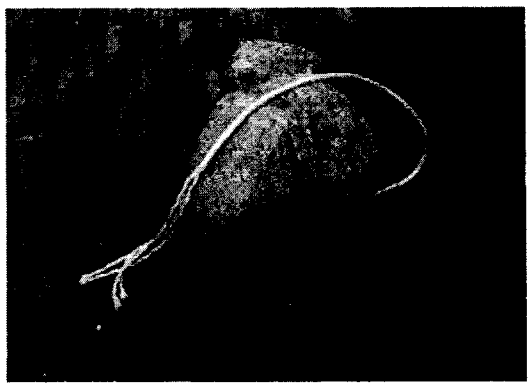

Figure 10. rope (rock) (PosB:3)

18. a. Baloon **n-iga'ah** loh yuhuh. (TMZ; re PosB:7)
ball NEU-lie on dirt
'The ball is on the ground'; √ Figure 11

b. *Baloon **zuu** loh yuhuh. (TMZ; 4:168)
ball NEU.stand on dirt
bad with any meaning; e.g. #Figure 11

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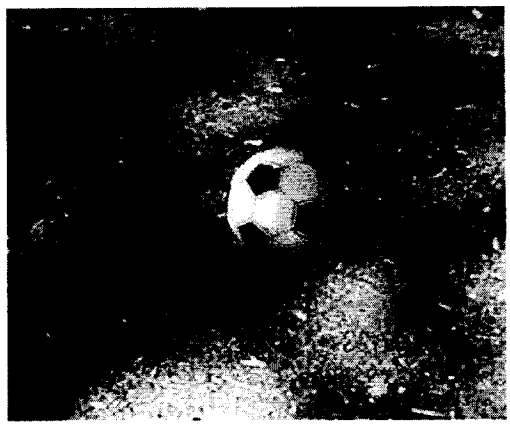

Figure 11. ball (ground) (PosB:7)

19. a. Bote'iy **n-iga'ah** loh gyihah. (TMZ; re PosB:26)
bottle NEU-lie on rock
'The bottle is (lying) on the rock'; √ Figure 12

b. Bote'iy **zuu** loh gyihah. (TMZ; 4:168)
bottle NEU.stand on rock
'The bottle is (standing) on the rock'; #Figure 12

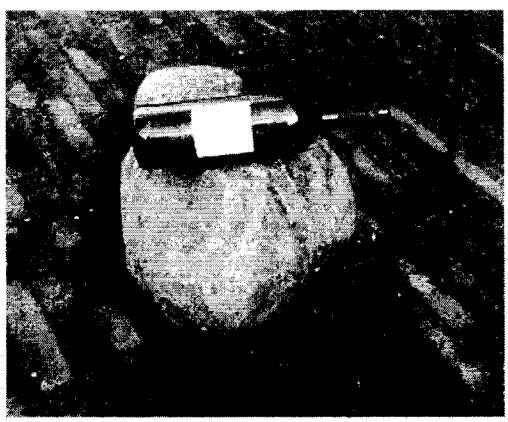

Figure 12. bottle (rock) (PosB:26)

Based on this data, I present a preliminary summary on the restrictions for *niga'ah* 'is lying' in Table 5.

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TMZ verb	gloss	restriction on shape of Figure	restriction on shape and orientation of Figure
niga'ah	'is lying'	If the Figure has a flat base…	then it must be shaped and / or orientated in such a way that its horizontal axis is longer than its vertical axis.
		If the Figure does not have a flat base…	then it must be shaped and / or oriented in such a way that its vertical axis is not longer than its horizontal axis.

Table 5. TMZ: *niga'ah* 'is lying' for inanimate Figures (preliminary)

Preliminary data suggests that there are some cases in TMZ where neither *zuu* 'is standing' nor *niga'ah* 'is lying' can be used, however.[6] Consider the following examples: while in (20) *niga'ah* 'is lying' can be used to describe Figure 13 (which follows from the preliminary summary in Table 5), it cannot be used in (21a) to describe Figure 14. In order to account for this, we must add additional details to the restrictions for *niga'ah* 'is lying'.

20. Da bote'iy **n-iga'ah** loh me'es. (TMZ; re PosB:52)
PL bottle NEU-lie on table
'The bottles are on the table'; √ Figure 13

21. a. Bzìàah **n-iga'ah** loh yuhuh. (TMZ; 4:168)
bean NEU-lie on ground
'The beans are on the ground'; #Figure 14

b. Bzìàah **zuu** loh yuhuh. (TMZ; 4:168)
bean NEU.stand on ground
'The beans are on the ground'; #Figure 14

c. Bzìàah **rii** loh yuhuh. (TMZ; 4:168, re PosB:11)
bean HAB_are_around on ground
'The beans are on the ground'; √ Figure 14

[6] The SLQZ data differs from the TMZ data here. An explanation of the difference must be left for future work.

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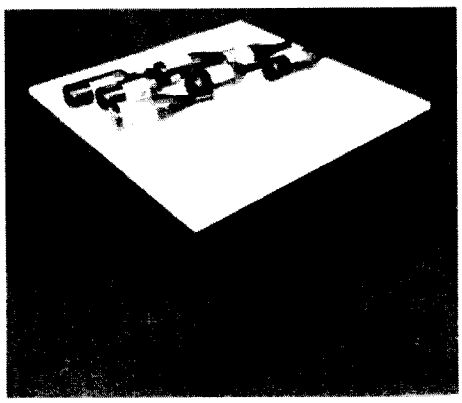

Figure 13. bottles (table) (PosB:52)

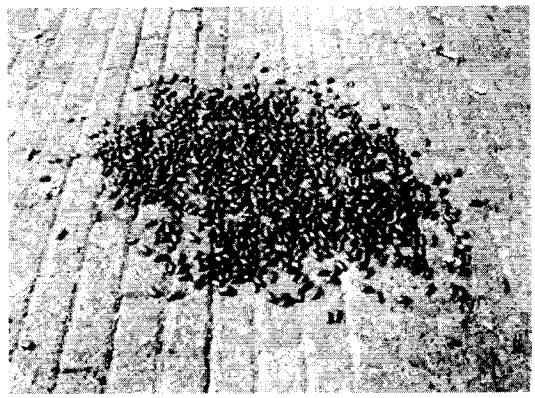

Figure 14. beans (ground) (PosB:11)

It appears that *niga'ah* 'is lying' cannot be used with a Figure that consists of many small items, like the pile of beans in Figure 14. Table 6 below presents the summary of the restrictions on *niga'ah* 'is lying'.

TMZ verb	gloss	restriction on shape and number of the Figure	restriction on shape of the Figure	restriction on shape and orientation of the Figure
niga'ah	'is lying'	The Figure must not consist of many small items (as evidenced by #21a).	If the Figure has a flat base…	then it must be shaped and / or orientated in such a way that its horizontal axis is longer than its vertical axis (11a, 19a, 20).
			If the Figure does not have a flat base…	then it must be shaped and / or oriented in such a way that its vertical axis is not longer than its horizontal axis (17a, 18a).

Table 6. TMZ: *niga'ah* 'is lying' with inanimate Figures

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5.5.3. *Dêêi'dy* 'is (positioned across)'

The verb *dêêi'dy* (or SLQZ *dèèi'dy*) is the neutral form of *rdèèi'dy* 'passes', for which the relevant parts of the SLQZ dictionary entry are given below:

> **rdèèi'dy, rdêêi'dy** 1. crosses (a street or border); passes by, gets by (something); passes (as exam) (tr.)... 2. crosses, goes across, comes across, gets across; passes by, goes by, gets by (intr.)...
>
> Munro and Lopez, et al. 1999:241

For simplicity, I will use the form *dêêi'dy* to refer to this verb and its other cognate variants.

TMZ and SLQZ differ in how the verb *dêêi'dy* 'is (positioned across)' is used, and the SLQZ usage seems to be a proper subset of the TMZ usage, so I will begin by presenting the cases which are acceptable in both SLQZ and TMZ.

In the examples (22) – (24) below, *dêêi'dy* 'is (positioned across)' is used for various Figures positioned across the top of a basket. The ends of the Figure are hanging off either end of the basket. Certain aspects of the Figures seem to be irrelevant: the stick (22) is firm, while the rope (23) and cloth (24) are flexible.

22. a. Gyahg **dêêi'dy** loh zhìi'mmy. (TMZ; 4:110; re PosB:43)
stick NEU.go_across on basket
'The stick is on the basket (positioned across it)'; √ Figure 15

b. Gyahg **dèèi'dy** ru'uh zhìi'mmy. (SLQZ; 4:18; re PosB:43)
stick NEU.go_across at_edge_of basket
'The stick is on the basket (positioned across it)'; √ Figure 15

23. a. Dùùu' **dêêi'dy** loh zhìi'mmy. (TMZ; re PosB:19)
rope NEU.go_across on basket
'The rope is on the basket (positioned across it)'; √ Figure 16

b. Dùùu' **dèèi'dy** ru'uh zhìi'mmy. (SLQZ; 4:181; re PosB:19)
rope NEU.go_across at_edge_of basket
'The rope is on the basket (positioned across it)'; √ Figure 16

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24. a. Lahdy **dêêi'dy** loh zhìi'mmy. (TMZ; re PosB:24)
cloth NEU.go_across on basket
'The cloth is on the basket (positioned across it)'; √ Figure 17

b. Lahdy **dèèi'dy** ru'uh zhìi'mmy. (SLQZ; 4:181; re PosB:24)
cloth NEU.go_across at_edge_of basket
'The cloth is on the basket (positioned across it)'; √ Figure 17

Figure 15. stick (basket) (PosB:43)

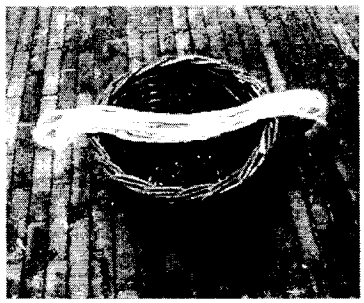

Figure 16. rope (basket) (PosB:19)

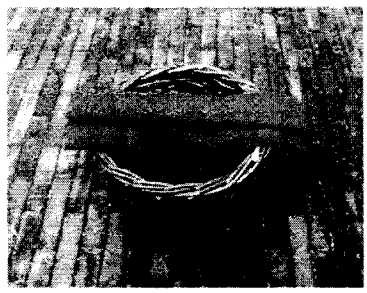

Figure 17. cloth (basket) (PosB:24)

The pictures above could be described with *dêêi'dy* by every TVZ speaker consulted so far. However, there are other configurations where the felicity of the use of *dêêi'dy* was not unanimous, even within language variety. For one scenario, the judgments seem to cut across language varieties, while for the other two scenarios, the use of *dêêi'dy* was judged as ungrammatical by one speaker of SLQZ, while other speakers of SLQZ and of TMZ judged it grammatical. I will address these in turn.

Example (25) below is the scenario for which judgments seem to align along language variety. While the two TMZ speakers accepted (25a) as felicitous in describing Figure 18, the two SLQZ speakers judged (25b) as infelicitous. In this scenario, the Figure (the bottle) is in contact with the Ground (the basket) in two discontinuous places, but the bottle is not completely horizontal. The Figure is also contained within the Ground. It appears that this kind of locative relationship can be described with *dêêi'dy* in

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TMZ, but not in SLQZ. However, I'm not sure at this point if *dèèi'dy* cannot be used in SQLZ because the figure is not horizontal or because the Figure is contained within the Ground (or possible for some other reason).

25. a. Bote'iy **dêêi'dy** làa'any zhìi'mmy. (TMZ; 4:168, re PosB:22)
bottle NEU.go_across in basket
'The bottle is in the basket (positioned across it)'; √ Figure 18

b. Bote'i **dèèi'dy** làa'any zhìi'mmy. (SLQZ; 4:181)
bottle NEU.go_across in basket
'The bottle is in the basket (positioned across it)'; # Figure 18

Figure 18. bottle (basket) (PosB:22)

In the two cases presented below, the locative relationship can be described by at least one speaker of TMZ and one speaker of SLQZ with *dêêi'dy*, but one of the SLQZ speakers judged the use of *dêêi'dy* in describing both of these scenarios as infelicitous. His use of *dêêi'dy* seems to be a subset of the use of *dêêi'dy* by the other SLQZ speakers, which in turn seems to be a subset of the use of *dêêi'dy* in TMZ. Below I present the two scenarios in question, and then summarize this continuum of meaning of *dêêi'dy* in Table 7.

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In the example below, the Figure is on the Ground, but in this case one (or both) of the extreme ends is not in contact with the Ground (unlike the examples above, in which the Figure is in contact with the Ground in two discontinuous places).

26. a. Bote'iy **dêêi'dy** loh gyihah. (TMZ; 4:168, re PosB:26)
bottle NEU.go_across on rock
'The bottle is on the rock (positioned across it)'; √ Figure 19

b. Bote'i **dèèi'dy** loh gyihah. (SLQZ; 4:181)
bottle NEU.go_across on rock
'The bottle is on the rock (positioned across it)'; %Figure 19

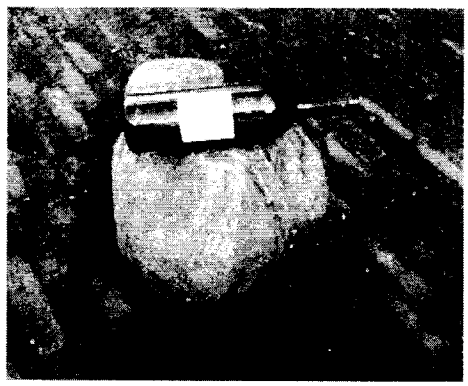

Figure 19. bottle (rock) (PosB:26)

Finally, Figure 20 shows a case in which the Figure is completely horizontal and in continuous contact with the Ground. *Dêêi'dy* 'is (positioned across)' can be used by one speaker of TMZ (27a) and one speaker of SLQZ, but not by another speaker of SLQZ (27b). Compare this with Figure 21: in this case the Figure is also completely horizontal and in continuous contact with the table, but in this case the use of *dêêi'dy* 'is (positioned across)' is judged infelicitous by the same speakers who could use it to describe Figure 20, both in TMZ (28a) and SLQZ (28b).

27. a. Gyahg **dêêi'dy** loh me'es. (TMZ; 4:168, re PosB:17)
stick NEU.go_across on table
'The stick is on the table (positioned across it)'; √ Figure 20

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b. Gyahg **dèèi'dy** loh me'es. (SLQZ; 4:181)
stick NEU.go_across on table
'The stick is on the table (positioned across it)'; % Figure 20

28. a. Lahdy **dêêi'dy** loh me'es. (TMZ; 4:168)
cloth NEU.go_across on table
'The cloth is on the table (positioned across it)'; #Figure 21

b. Lahdy **dèèi'dy** loh me'es. (SLQZ)
cloth NEU.go_across on table
'The cloth is on the table (positioned across it)'; #Figure 21

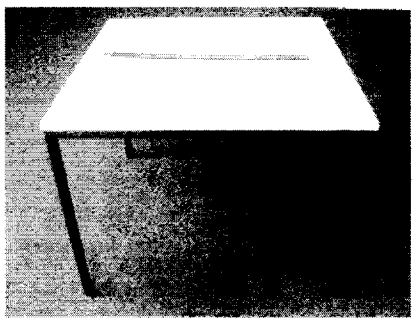

Figure 20. stick (table) (PosB:17)

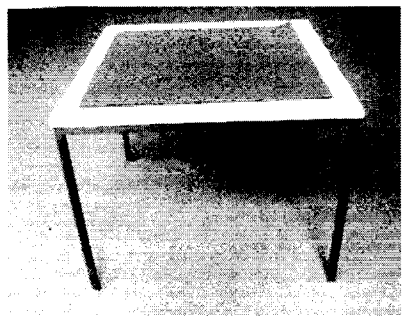

Figure 21. cloth (table) (PosB:14)

Since in these two scenarios the Ground (a table) and the locative relationship between the Figure and the Ground (the Figure is on the Ground, completely supported by it and in both cases the locative phrase *loh me'es* 'on the table' is used) are identical, some additional quality of the Figure must be relevant. I hypothesize that in both speech varieties the verb *dêêi'dy* 'is (positioned across)' can only be used with Figures of a particular shape: long and thin, e.g. like a stick or a piece of cloth folded up long and thin.

In Table 7 I summarize the range of meanings of *dêêi'dy*. It seems to have the broadest range of uses in TMZ. In this language variety it can be used for Figures that are not completely horizontal, as long as they have two discontinuous places of support from the Ground. I don't have enough data yet to determine the constraints involved with this verb in SLQZ, but it might be that SLQZ *dèèi'dy* requires its subject to be horizontal.

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Another hypothesis is that SLQZ *dèèi'dy* disallows its subject to be contained within Ground.[7] And one speaker seems to have an even narrower use of the verb, requiring the Figure to be in contact with the Ground in two discontinuous places.

verb	gloss	restriction on shape of the Figure	restriction on orientation of Figure	restriction on type of contact with Ground
dêêi'dy (TMZ)	'is (positioned across)'	The Figure must be long and thin (as evidenced by #28a).	If the Figure is not oriented such that its long axis is horizontal…	then it must have two discontinuous places of contact and support with the Ground (25a).
			If the Figure is oriented such that its long axis is horizontal…	then it can be in contact with and supported by the Ground in one (26a) or more places (22a, 23a, 24a), or continuously (27a).
dèèi'dy (SLQZ)	'is (positioned across)'	The Figure must be long and thin (#28b).	H1: The Figure must be oriented such that its long axis is horizontal / H2: The Figure cannot be contained within the Ground (#25b)…	and it can be in contact with and supported by the Ground in one (26b) or more places (22b, 23b, 24b), or continuously (27b).
dèèi'dy (conservative? SLQZ)	'is (suspended across)'	The Figure must be long and thin.	H1: The Figure must be oriented such that its long axis is horizontal / H2: The Figure cannot be contained within the Ground (#25b)…	and it must have two discontinuous places of contact and support with Ground (22b, 23b, 24b, #26b, #27b).

Table 7. TMZ *dêêi'dy* and SLQZ *dèèi'dy* with inanimate Figures

[7] Thanks to Pamela Munro for her suggestions on the meaning of this verb.

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The positional verb *dêêi'dy* is also attested in CVZ (29). Note that, as in the previous CVZ example (16), the positional verb seems to have an overt neutral aspect marker (in this case *ni-*).

29. se-tobi cueelayoo **ni-tete** quique layoo xiteni Don Juan
DEF-one planted_field NEU-go_across head land of Don Juan

peres (CVZ; Te610-2;8)
Perez

'another planted field crosses the top of the land of Don Juan Perez'

5.5.4. *Rii* 'are around'

Rii 'are around' is a positional verb that selects for a plural or mass Figure.

> **rii** 1. is around; is there (inan[imate] subj[ect]) {*Rii nnyi'his* "Water is there (collecting in a hold in the ground)"; *Ua's rii zhi'ih* "There's a lot of colds around"}; 2. are around; are there (p[lural] subj[ect]) {*Ua's rii zh:àa'cw ri'cy* "There are really (a lot of) cockroaches there"; *Riie ra bùunny* "People are around"} ... neut. *mbih*...
>
> Munro and Lopez, et al. 1999: 264; italics added, Spanish omitted

Unlike the other positional verbs *rii* seems to be in the habitual aspect. The dictionary entry above lists the neutral form *mbih*. I have not seen this verb form in the responses to PosB. The status of this is important for future investigation of the morphological characteristics of the class of positional verbs.

Rii 'are around' can be used with a Figure that is plural (30) or mass (31). It cannot be used with a singular countable Figure, such as a ball (32) or with a Figure that could be spread out, such as a tablecloth (33).

30. Da baloon cuhnn da pelo't rii loh me'es. (TMZ; 4:168)
PL large_ball with PL sm.ball HAB.are_around on table
'The balls are on the table'; re PosB:8; √Figure 22

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31. Nnyi'ihs **rii** loh yuhuh. (TMZ; 5:168)
water HAB.are_around on ground
'Water is on the ground'

32. Baloon **rii** loh me'es. (TMZ; 4:168)
ball HAB.are_around on table
'Balls are on the table'; # Figure 23

33. Lahdy **rii** loh me'es. (TMZ; 4:168)
cloth HAB.are_around on table
'Cloth is around on the table'; # Figure 24

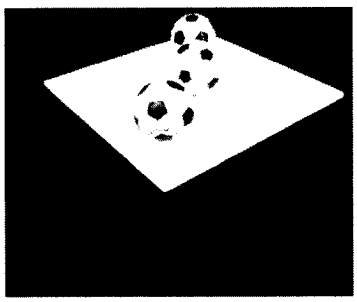

Figure 22. balls (table)
(PosB: 8)

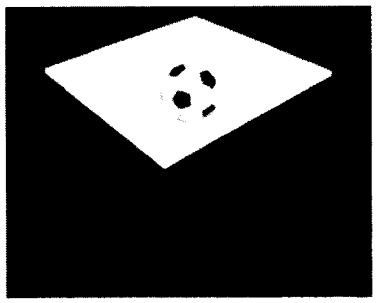

Figure 23. ball (table)
(PosB:21)

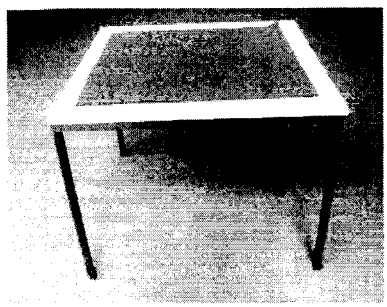

Figure 24. cloth (table)
(PosB:14)

Beyond being plural or mass in number, size, shape and orientation of the Figure does not seem to matter: *rii* can be used with balls, as shown above in (30), with beans, as in (34), and with bottles, as in (35).

34. Bzìàah **rii** loh yuhuh. (TMZ; 4:168; re PosB:11)
bean HAB.are_around on dirt
'The beans are on the ground'; √ Figure 25

35. Da bote'iy **rii** loh me'es. (TMZ; 4:168; re PosB:52)
PL bottle HAB.are_around on table
'The bottles are on the table'; √ Figure 26

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Figure 25. beans (ground) (PosB:11)

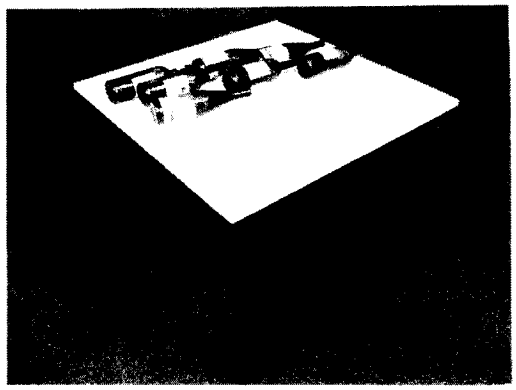

Figure 26. bottles (table) (PosB:52)

While *rii* can be used with plural (and mass) Figures, it is not true that every plural Figure can be used with *rii*. The balls presented in Figure 27 cannot be used with *rii*, as shown in 36.

36.	*Da	baloon	**rii**	làa'any	zhìi'mmy. (TMZ; 4:168)
	PL	ball	HAB.are_around	in	basket

'The balls are in the basket'; #Figure 27

Figure 27. balls (basket) (PosB: 56)

I hypothesize that the ungrammaticality of (36) lies in the fact that the balls are not spread out. This is based on the SLQZ dictionary definition, which offers "are around" as one of

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the definitions. It is also possible that *rii* cannot be used with only two of an object. The summary of these restrictions associated with *rii* are presented below in Table 8.

TMZ verb	gloss	restriction on number of Figure	restriction on locative relationship
rii	are around	must be plural or mass in number (as evidenced by 30, 31, #32, #33, 34, 35)	must be spread out around (30, 34, 35, #36)

Table 8. TMZ *rii* 'are around'

5.5.5. *Nàa'* 'is lying'

At first glance it is not obvious what the SLQZ cognate of the TMZ verb *nàa'* is. There are two verbs which are potentially cognates: *nàa* "1. is; 2. is (located) in, is a part of; exists in" (Munro and Lopez, et al. 1999:171) and *nàa't*, which is the neutral form of *ràa't* "lies down" (Munro and Lopez, et al. 1999:219). Based on its use in the PosB data presented below, I believe that TMZ *nàa'* is cognate to SLQZ *nàa't*.

In the examples below, the bottle can be used with the verb *nàa'* 'is lying' in where it is sideways on the rock, but not when it is upright on the rock (37).

37. Bote'iy **n-àa'** guë'ëhcy gyihah. (TMZ; 4:168)
bottle NEU-lie on rock
'The bottle is (lying) on the rock'; √ Figure 28, #Figure 29

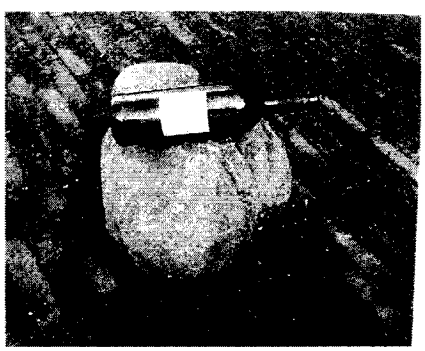

Figure 28. bottle (rock) (PosB:26)

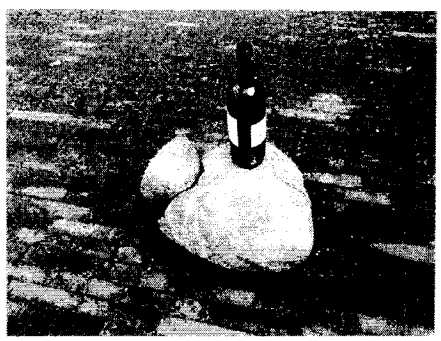

Figure 29. bottle (rock) (PosB:10)

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Nàa' is never used for a bottle that is upright in my data; another examples of this is provided in (38).

38. Bote'ij **n-àa'** loh me'es. (TMZ; 4:168)
bottle NEU-lie on table
'The bottle is (lying) on the table'; #Figure 30

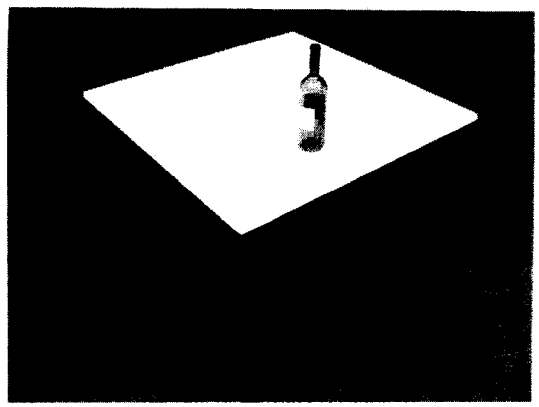

Figure 30. bottle (table) (PosB:37)

In Table 9 I summarized my hypothesis for the restrictions associated with *nàa'*.

TMZ verb	gloss	restriction on shape and orientation of the Figure
nàa'	is lying	the Figure must be shaped and / or oriented in such a way that the vertical axis is not longer than the horizontal axis (as evidenced by 37, #37, #38)

Table 9. Nàa' 'is lying' (TMZ)

5.6. Conclusions

This chapter has presented a brief introduction to positional verbs in TVZ. Much work remains to be done on many aspects of the positional verb system of TVZ, including its syntactic and semantic characteristics, its relationship and interaction with component part locatives, and its relation to other positional verb systems cross-linguistically. For

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example, Levinson offers the following typology of positional verbs, and I hope to examine how the TVZ system fits into this in future work.

> Topological information is also often encoded in verbs... There appear to be two major types of contrastive locative predicates, or verb classes (Ameka and Levinson in preparation): small sets of posture verbs of three to five members, on the one hand, and large sets of 'positional' verbs on the other. The small-set verbs are often drawn from the human posture verbs 'sit', 'stand', 'lie', but also from verbs meaning, for example, 'hang'... The large sets of positional verbs, in contrast, tend not to have sortal presuppositions, but express directly the actual configuration of figure to ground.
>
> Levinson 2003:103

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APPENDIX I

The Frog Story

Zh:àa'at, Cu'unùu', Zh:àa'at? 'Toad, where are you, toad?'
in Tlacolula de Matamoros Zapotec

Told by Roberto Antonio Ruiz, June 4, 2003,
from the pictures in *Frog, Where are You?* (Mayer 1969)

Examples from this narrative are referenced in the dissertation by "(Zhat:#)" where the # refers to the line numbers below.

The audio file and (updated) interlinearized transcription of this text are digitally archived at AILLA (www.ailla.utexas.org) under the code ZAB001R001 and are freely available without a password.

1. Ndèe' nàa to'ohby istoory x:tèe' to'ohby mìi'iny
   this COP one story of one child
   This is a story of a child

2. nih w-ni'ihty zh:àa'at x:tèe'n=nìi';
   REL PERF-lose toad of=3ANAP
   who lost his toad;

3. zuu guë'ëhcy to'ohby gyahg
   NEU.stand on one tree
   standing on a log,

4. ca-bëhzha'=nìi'i,
   PROG-call=3PROX
   he was calling,

5. "Zh:àa'at, cu'un=ùu', zh:àa'at?"
   toad where=2INF toad
   "Toad, where are you, toad?"

6. To'ohby zhihih mìi'iny ca-gyi'eht-nèe zh:àa'at x:tèe'n=nìi';
   one day child PROG-play-with toad of=3ANAP
   One day, the child was playing with his toad,

7. b-lùu'=nìi'i làa'any to'ohby bo't nnyi'his.
   PERF-put=3PRX in one jar water
   and put it in a jar of water.

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8. Chi'c bèe'ecw ca-lùu'uh x:-tro'omp=nìi'
then dog PROG-put POSS-snout=3ANAP
Then the dog was putting his snout

9. làa'any bo't x:tèe' nnyi'his.
in jar of water
in the jar of water.

10. Pehr chih=nìi' w-ta'ihsy mìi'iny,
but when=NÌI' PERF-go_to_sleep child
But when the child went to sleep,

11. zh:àa'at: b-rìia' zh:àa'at z-èe zh:àa'at.
toad PERF-leave toad ZPROG-go toad
the toad came out and the toad was going—the toad.

12. Chih g-wahnny mìi'iny quë'ity=ru' zh:àa'at.
when PERF-wake_up child NEG=anymore toad
When the child woke up, the toad wasn't there anymore.

13. A z-èe zh:àa'at.
already DEF-go toad
The toad already left.

14. Chih b-dìi'lly mìi'iny làa' zh:àa'at
when PERF-look_for child LÀA' toad
Then the child looked for the toad,

15. raa làa'any x:ahb=nìi'
all in POSS.clothes=3ANAP
all in his clothes,

16. raa nehz=te'.
all way=INTSV
everywhere.

17. Chi'c bèe'ecw b-lùu'uh guë'ëhcy=nìi' làa'any bo't biedr
then dog PERF-put head=3ANAP in jar glass
Then the dog put his head in the glass jar.

18. Quë'ity=ru' zh:àa'at.
NEG=still toad
The toad wasn't there.

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19. A z-èe zh:àa'at.
already DEF-go toad
The toad already left.

20. Chi'c b-xàaal mìi'iny venta'n.
then PERF-open child window
Then the child opened the window.

21. B-lèe bèe'ecw guë'ëhcy=nìi' ru'uh venta'n.
PERF-stick dog head=3ANAP mouth window
The dog stuck his head out the window.

22. N-u'uh guë'ëhcy bèe'ecw làa'any bo't bi'edr.
NEU-be head dog in jar glass
The dog's head was in the glass jar.

23. Chi'c=ru' b-iahahb bèe'ecw a'sta' loh yuhuh.
then=still PERF-fall dog until on dirt
Then the dog fell to the ground.

24. Chi'c b-rìia' mìi'iny s-toohby laad
then PERF-leave child DEF-one side
Then the child went out through the other side

25. gw-a'-dèe'az làa' bèe'ecw.
PERF-AND-hug LÀA' dog
and went and hugged the dog.

26. Chi'c bèe'ecw ca-lèe' loh mìi'iny.
then dog PROG-lick face child
Then the dog was licking the child's face.

27. Chih=ru' ca-bëzhtya'ah mìi'iny raa nehz=tèe'
then=anymore PROG-call_for child all way=INTSV
Then the child was calling everywhere

28. du'unn càa nehz r-i-càa' zh:àa'at=neh
in_order_to_see where way HAB-AND-get toad=and
in order to see where he could go and get the toad and went and

29. cantidaa=za' dyee'p zaihby nehz=qui
many=very wasp NEU.fly way=this
many wasps flew through there.

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30. Chih=ru' gw-eheh mìi'iny a'sta' gaht zòob to'ohby gyahg
then=still PERF-go child until where NEU.sit one tree
Then the child went to where there was a tree

31. nih n-u'uh to'ohby guêêë'dy làa'any=nìi'.
REL NEU-be one hole in=3ANAP
that had a hole in it.

32. Ri'cy ca-dìi'lly mìi'iny
There PROG-look_for child
There the child was looking

33. du'unn càa nehz z-èe zh:àa'at làa'any guêêë'dy.
in_order_to_see where way DEF-go toad in hole
in order to see if the toad went in the hole.

34. Per làa'any guêêë'dy=qui b-rìia' to'ohby niilly.
but in hole=this PERF-leave one mole
But a mole came out of this hole.

35. Chi'c g-uhc niilly x:-amiu mìi'iny.
then PERF-be mole POSS-friend child
Then the mole became the child's friend.

36. Chi'c bèe'ecw ca-du'uhx ca-gwi'ih loh to'ohby bteheh.
then dog PROG-bark PROG-look to one hive
Then the dog was barking and looking at the hive.

37. Duur r-du'uhx bèe'ecw.
a_lot HAB-bark dog
The dog was barking a lot.

38. Chi'c b-rìia' cantidaad dyee'p.
then PERF-leave many wasp
Then a lot of wasps came out.

39. Z-èe dyee'p yaàa' sanàall làa' bèe'ecw.
DEF-go wasp up DEF.follow LÀA' dog
The wasps went up and followed the dog.

40. Chi'c làa'any guêêë'dy nih nàa têë'ix gyahg
then in hole REL COP on_side_of tree
Then from the hole which was on the side of the tree

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41. b-rìia' to'ohby da'amm
PERF-leave one owl
an owl came out

42. b-chiiby làa' mìi'iny.
PERF-scare LÀA' child
and scared the child.

43. Chi'c b-iahahb mìi'iny loh yuhuh.
then PERF-fall child to dirt
Then the child fell on the ground.

44. Chi'c b-ni'ìi'by gyahg
then PERF-move tree
Then the tree shook.

45. Chih=nìi' bèe'ecw b-èi'ny gaan b-zh:êë'nny.
then=NÌI' dog PERF-do reward PERF-run
Then the dog won running.

46. Chi'c mìi'iny a gu-hstìi.
then child already PERF-get_up
Then the child got up.

47. B-zhihby da'amm.
PERF-be_scared owl
The owl got scared.

48. Chi'c b-zuh da'amm.
then PERF-fly owl
Then the owl flew off.

49. Z-èe da'amm.
DEF-go owl
The owl went.

50. Chi'c b-yèe'py mìi'iny guë'ëhcy to'ohby gyiah.
then PERF-go_up child on one rock
Then the child went up on a rock.

51. Bèe'ecw n-iga'ah cwe'eh gyiah.
dog NEU-lie beside rock
The dog was lying beside the rock.

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52. Per chih=nìi' b-yèe'py mìi'iny guë'ëhcy to'ohby gyiah,
but when=NÌI' PERF-go_up child on one rock
But the child climbed up on a rock,

53. b-riahah to'ohby bzêëny.
PERF-appear one deer
a deer appeared.

54. Chi'c b-iahahb mìi'iny làa'any x:-ca'ch bzêëny.
then PERF-fall child in POSS-horn deer
Then the child fell into the deer's antlers.

55. B-iahahb mìi'iny.
PERF-fall child
The child fell.

56. Chi'c b-zh:êë'nny bzêëny
then PERF-run deer
Then the deer ran

57. z-àa-nèe làa' mìi'iny làa'any x:-ca'ch=nìi'.
ZPROG-go-with LÀA' child in POSS-horn=3ANAP
and was taking the child in his antlers.

58. Chi'c bèe'ecw ca-du'uhx ca-gwi'ih loh mìi'iny.
then dog PROG-bark PROG-look to child
Then the dog was barking and looking at the child.

59. Chi'c b-zëhnny bzêëny ru'uh schu' barra'annc.
then PERF-arrive deer at_edge_of edge ditch
Then the deer arrived at the edge of the ditch.

60. Chi'c b-ryàa'lly mìi'iny làa'any x:-ca'ch bzêëny.
then PERF-fall_out child in POSS-horn deer
Then the child fell out of the deer's antlers.

61. B-riahahb mìi'iny làa'any barra'annc=neh
PERF-fall child in ditch=and
The child fell into the ditch

62. bèe'ecw b-riahahb làa'any barra'annc.
dog PERF-fall in ditch
the dog fell into the ditch.

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63. Làa'any barra'annc n-u'uh nnyi'his.
in ditch NEU-be water
in the ditch there was water.

64. b-riahahb mìi'iny làa'any nnyi'ihs
PERF-fall child in water
The child fell into the water.

65. B-zêë'b mìi'iny bèe'ecw zh:a'-zhi'i=nìi'.
PERF-put child dog buttocks-nose=3ANAP
The child put the dog on his shoulders.

66. Z-àa-nèe mìi'iny bèe'ecw a'sta' gaht n-u'uh to'ohby tru'unnc.
DEF-go-with child dog until where NEU-be one log
The child took the dog to where there was a log.

67. Chi'c r-a'ihpy mìi'iny làa' bèe'ecw,
then HAB-tell child LÀA' dog
Then the child told the dog,

68. "Bxxx! Zhigah=nìi'!"
shhh quietly=NÌI'
"Shhh! Quiet!"

69. Nadòo' bèe'ecw b-lèe'py mìi'iny guë'ëhcy tru'unnc
first dog PERF-put_up child on log
First the child put the dog on the log.

70. Chi'c=ru' w-èe'py mìi'iny.
then=anymore PERF.AND-get_up child
Then the child went and got up.

71. Tru'unnc z-àa-nèe làa' mìi'iny cuhnn bèe'ecw
log DEF-go-with LÀA' child with dog
The log took the child and the dog

72. a'sta' ru'uh schu' barra'annc.
until at_edge_of edge ditch
to the edge of the ditch.

73. Chi'c=ru' w-nàa mìi'iny loh tyo'p zh:àa'at
then=anymore PERF-see child to two toad
Then the child saw two toads.

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74. Chih b-yèe'py-za'c mìi'iny guë'ëhcy gyahg.
then PERF-get_up-well child on tree
Then the child got up well on the log.

75. Chih=nìi' w-nàa mìi'iny staal zh:àa'at.
then=NÌI' PERF-see child many toad
Then the child saw lots of toads.

76. Chi'c=ru' b-ìe'd mìi'iny.
then=still PERF-come child
Then the child came.

77. Wacàa' mìi'iny to'ohby zh:àa'at bichi'
PERF.take child one toad little
The child took one little toad.

78. z-àa-nèe mìi'iny cuhnn bèe'ecw.
DEF-go-with child with dog
(that) the child and the dog took.

79. Chi'c=ru' raa=tèe da zh:àa'at ca-gwi' loh mìi'iny càa nehz
then=still all=INTSV PL toad PROG-see to child where way
Then all the toads were watching the child (to see) where

80. z-àa=nèe mìi'iny zh:àa'at=e'eh.
DEF-go=with child toad=DIM
the child would take the little toad.

81. A b-lùuzh=nìi'i.
already PERF-finish=3PROX
It's already finished.

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APPENDIX II

Summary of use of positional verbs in PosB data from five TVZ speakers

These summaries are listed by the page number from PosB (Ameka et al. 1999) and mark the positional verbs that were volunteered (x), accepted (√), or judged as infelicitous (*) by the speaker for each picture. Page / picture numbers from PosB in bold are those that are pictured and referenced in Chapter 5. The verbs are listed in simplified spelling, i.e. to save space they follow the orthographic conventions in *Cali Chiu* (Munro, Lillehaugen, and Lopez in prep.) and leave out, among other things, markers of tone and phonation. A blank cell indicates that there is no data for that combination. See §5.1 for a detailed description of the methodology used in eliciting the data. The following table lists the contents of this appendix.

Table	Language Variety	Speaker	type of data	page
2	TMZ	Mr. Antonio Ruiz	complete set of volunteered data, with additional judgments	358
3	TMZ	Ms. Antonio	partial set of volunteered data with some additional judgments	361
4	SLQZ	Ms. V. Lopez	complete set of volunteered data with additional judgments	363
5	SLQZ	Mr. Lopez	complete set of volunteered data with some additional judgments	366
6	SLQZ	Ms. S. Lopez	partial set of volunteered data with a few additional judgments	368
7	TVZ	all five speakers	combined data for all five TVZ speakers for all PosB pictures discussed in Chapter 5	370
8	TMZ	both speakers	combined data for both TMZ speakers for all PosB pictures discussed in Chapter 5	371
9	SLQZ	all three speakers	combined data for all three SLQZ speakers for all PosB pictures discussed in Chapter 5	372

Table 1. Contents of Appendix II

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Table 2. PosB data for Mr. Antonio Ruiz (TMZ)

This is a summary of the data collected from Mr. Roberto Antonio Ruiz (TMZ) using PosB. It corresponds to elicitation sessions in my notebooks 4:103-111; 4:115-124; and 4:168-179.

#	Figure	Ground	**beb**	**dëidy**	**na**	**naga**	**nal**	**niga**	**nu**	**ri**	**zaiby**	**zaibynal**	**zob**	**zu**	**zugwa**
	data from Mr. Antonio Ruiz (TMZ)		is on	passes	is lying	is lying	is hanging	is lying	is	are around	is hanging	is hanging	sits	stands	stands
1	stick	tree							*						√
2	ribbon	basket	√				√								
3	**rope**	**rock**	x	x	√	√		√	x	*			*	*	
4	cloth	table	√		√	x		x	x				*	*	
5	camote	basket							√						
6	stick	table	x	x	x	√		x	x				*	*	
7	**ball**	**ground**	*		x			x	*				*	*	
8	**ball**	**table**	x		√			x / *	x	√			*	*	
9	stick	ground	*						*				√		
10	**bottle**	**rock**	*		*			*	x				x	x	
11	**beans**	**ground**	*		√			*	√	x			*	*	
12	pot	stump	√												
13	stick	basket	√												√
14	**cloth**	**table**	x	*	√			x	x	*			*	*	
15	rope	rock													
16	cloth	basket	√	√				√	√						
17	**stick**	**table**	x	x	√			x	x				*	*	
18	ball	table	x	*	√			x	x	x			*	*	
19	**rope**	**basket**		√				√							
20	stick	ground											√		
21	**ball**	**table**	x		√			x	x	*			*	*	
22	**bottle**	**basket**		√	*				√				*	*	
23	camote	stump	√					√							
24	**cloth**	**basket**	*	√				*	√						
25	beans	table	x	*	√			*	x	x			*	*	
26	**bottle**	**rock**	√	x	√			x	*				*	*	
27	rope	basket								√					
28	bottle	ground													
29	pot	tree				√									
30	cloth	table							√						
31	stick	stump													√

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#	Figure	Ground	beb	dëidy	na	naga	nal	niga	nu	rri	zaiby	zaibynal	zob	zu	zugwa
	data from Mr. Antonio Ruiz (TMZ) cont.		is on	passes	is	is lying	is hanging	is lying	is	are around	is hanging	is hanging	sits	stands	stands
32	cloth	rock	√			√			√						
33	rope	tree					√		√		√				
34	cloth	stump	√					√	√						
35	stick	rock	x	x	√			x					*	*	
36	rope	stump													
37	**bottle**	**table**	*		*			*	√				√	x	
38	stick	stump											√		
39	ball	ground	*		√	x		x	x / *				*	*	
40	pot	stump						√	*				*		
41	rope	table					√				√				
42	camote	ground	*	*	√			x	x / *	√			*	*	
43	**stick**	**basket**		√											
44	ball	tree	*				*		√		*		*	*	
45	rope	stump													
46	bottle	table	√					*	√				*	*	
47	camote	stump	x					√	√						
48	pot	tree	*						√				*		
49	ribbon	table	*				x	*	*						
50	**ball**	**rock**	x		√			x	x				*	*	
51	camote	ground						x	*						
52	**bottle**	**table**	√	*	x			x	√ / *	x			*	*	
53	camote	basket			*			√	x						
54	rope	stump	x		√			x	x				*	*	
55	stick	tree					x		x						
56	**ball**	**basket**	*		*			√ / *	x	*				*	
57	rope	tree	x				*	x	*						
58	bottle	ground	*		*			*	*				x	x	
59	ribbon	tree	x				x								
60	bottle	basket							x				*		
61	stick	stump	x					x	x						
62	bottle	basket	*	*	*			*	x				x	x	
63	rope	basket	x					*	*						
64	cloth	tree	x					*	x						
65	camote	stump							*					√	x
66	stick	tree	x	x		x		√	√						

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#	Figure	Ground	beb	dëidy	na	naga	nal	niga	nu	rri	zaiby	zaibynal	zob	zu	zugwa
	data from Mr. Antonio Ruiz (TMZ) cont.		is on	passes	is	is lying	is hanging	is lying	is	are around	is hanging	is hanging	sits	stands	stands
67	**bottle**	**basket**	*		*			*	√				*	*	
68	ribbon	stump							x						

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Table 3. PosB data for Ms. Antonio (TMZ)

This is a summary of the data collected from Ms. Antonio (TMZ) using PosB (Ameka et al. 1999). It corresponds to elicitation sessions in my notebook 5:110-116.

#	Figure	Ground	beb	deidy	na	naga	nu	ri	zob	zu
	data from Ms. Antonio (TMZ)		is on	is (positioned across)	is lying	is lying	is	are around	is sitting	is standing
1	stick	tree								
2	ribbon	basket								
3	**rope**	**rock**				x				*
4	cloth	table								
5	camote	basket								
6	stick	table								
7	**ball**	**ground**				x				*
8	**ball**	**table**				x		√		
9	stick	ground								
10	**bottle**	**rock**			*				x	x
11	**beans**	**ground**						x		
12	pot	stump				x				
13	stick	basket	x							
14	**cloth**	**table**	x							
15	rope	rock								
16	cloth	basket	√	x						
17	**stick**	**table**	x	√						
18	ball	table	x							
19	**rope**	**basket**	x	√						
20	stick	ground								
21	**ball**	**table**	x							
22	**bottle**	**basket**		√	√	√	x			
23	camote	stump	x							
24	**cloth**	**basket**	x	√						
25	beans	table						x		
26	**bottle**	**rock**			√	x				*
27	rope	basket	x							
28	bottle	ground					x			
29	pot	tree								
30	cloth	table	x							
31	stick	stump								
32	cloth	rock	x							

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#	Figure	Ground	beb	deidy	na	naga	nu	ri	zob	zu
	data from Ms. Antonio (TMZ) cont.		is on	is (positioned across)	is lying	is lying	is	are around	is sitting	is standing
33	rope	tree								
34	cloth	stump	x							
35	stick	rock	x							
36	rope	stump								
37	**bottle**	**table**			*					x
38	stick	stump								
39	ball	ground				x				
40	pot	stump				x				
41	rope	table								
42	camote	ground				x				
43	**stick**	**basket**		√		x				
44	ball	tree								
45	rope	stump	x							
46	bottle	table	x							
47	camote	stump	x							
48	pot	tree							x	
49	ribbon	table	x							
50	**ball**	**rock**	x							?
51	camote	ground				x				
52	**bottle**	**table**				x		√		
53	camote	basket					x			
54	rope	stump	x							
55	stick	tree								
56	**ball**	**basket**			*	√	x			
57	rope	tree					x			
58	bottle	ground								x
59	ribbon	tree								
60	bottle	basket				x				
61	stick	stump								
62	bottle	basket							x	
63	rope	basket	x							
64	cloth	tree	x							
65	camote	stump	x			x				
66	stick	tree								
67	**bottle**	**basket**				x				
68	ribbon	stump								

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Table 4. PosB data for Ms. V. Lopez (SLQZ)

This is a summary of the data collected from Ms. V. Lopez (SLQZ) using PosB (Ameka et al. 1999). It corresponds to elicitation sessions in my notebooks 3:247-258 and 5:15-21.

#	Figure	Ground	**beb**	**deidy**	**liby**	**natga**	**nal**	**nu**	**ri**	**zeiby**	**zu**	**zub**	**zugwa**	**zuldi**
	data from Ms. V. Lopez (SLQZ)		is on	is (positioned across)	is wrapped around	is lying	is hanging	is	are around	is hanging	is standing	is sitting	is standing	is standing
1	stick	tree		*		*		*			x	*	√	x
2	ribbon	basket	√	*		√		X		x	*	*	*	*
3	**rope**	**rock**	X	√		√	√	*		√	*	√	*	*
4	cloth	table	X	*		√	*	√		*	*	√	*	*
5	camote	basket	*	*		√	*	X		*	*	*		
6	stick	table	X	√		X		√			*	√		
7	**ball**	**ground**	*	*		X		*			*			
8	**ball**	**table**	X	*		√		√	x		*	x		
9	stick	ground	*	*		*		*	*		√	X	√	√
10	**bottle**	**rock**	X	*		*		*			x	√	√	√
11	**beans**	**ground**	*	*		√		*	x		*	*		
12	pot	stump	x	*		x		*			*	√	*	*
13	stick	basket	x / *	√		√		√			x	√	√	√
14	**cloth**	**table**	x	*		x		√			*	√		
15	rope	rock	*	*	x	*	*	*			*	*		
16	cloth	basket	√	√		√	√	x		√	*	√		
17	**stick**	**table**	x	x		x		*			*	√		
18	ball	table	x	*		x		*	x		*	√		
19	**rope**	**basket**	x	x		√		*		*	*	√		
20	stick	ground	*	*		*		√			√	x	*	√
21	**ball**	**table**	x	*		√		√			*	√		
22	**bottle**	**basket**	*	*		x		x			*	*		
23	camote	stump	x	*		x		*			*	√		
24	**cloth**	**basket**	x	x		√		*			*	√		
25	beans	table	√	*		*		*	x		*	√		
26	**bottle**	**rock**	√	√		x		*			*	√		

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#	Figure	Ground	beb	deidy	liby	natga	nal	nu	ri	zeiby	zu	zub	zugwa	zuldi
	data from Ms. V. Lopez (SLQZ) cont.		is on	is (positioned across)	is wrapped around	is lying	is hanging	is	are around	is hanging	is standing	is sitting	is standing	is standing
27	rope	basket	x	*		√	√	x / *		x	*	√		
28	bottle	ground	*	*		*		x			*	*		
29	pot	tree	X	*		√	*	√		*	*	X		
30	cloth	table	x	x		√	*	*			*	*		
31	stick	stump	*	*		*		*			√	*	x	x
32	cloth	rock	x	*		x	√	*		√	*	√		
33	rope	tree	x	*		*	√	√		x	*	√		
34	cloth	stump	x	*		x		√			*	√		
35	stick	rock	x	x		x		*			*	√		
36	rope	stump	*	*	x	*	*	√		*	*	*		
37	**bottle**	**table**	x	*		*		*			x	√	√	√
38	stick	stump	*	*		*		√			√	x	√	x
39	ball	ground	*	*		√		*	x		*	*		
40	pot	stump	*	*		x	√	*			*	*		
41	rope	table	x	√		*		*		x	*	√		
42	camote	ground	*	*		x		*	x		*	*		
43	**stick**	**basket**	√	X		√		*			*	√		
44	ball	tree	x	*		√	*	√		*	*	√		
45	rope	stump	√	X		√	*	*			*	√		
46	bottle	table	√	*		*		*	x		*	√		
47	camote	stump	√	*		x		*	√		*	√		
48	pot	tree	√	*		*	*	√			√	√	√	√
49	ribbon	table	√	*		*	√	*		√	*	√		
50	**ball**	**rock**	x	*		√		√			*	√		
51	camote	ground	*	*		√		*	x		*	*		
52	**bottle**	**table**	√	*		x		*	√		*	√		
53	camote	basket	*	*		√		x	√		*	*		
54	rope	stump	√	√		x	*	*		*	*	√		
55	stick	tree	*	*		*	√	*		x	*	*		
56	**ball**	**basket**	*	*		√		x			*	*		
57	rope	tree	√	X		√	√	*		√	*	√		
58	bottle	ground	*	*		*		√			√	x	√	√

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#	Figure	Ground	beb	deidy	liby	natga	nal	nu	ri	zeiby	zu	zub	zugwa	zuldi
	data from Ms. V. Lopez (SLQZ) cont.		is on	is (positioned across)	is wrapped around	is lying	is hanging	is	are around	is hanging	is standing	is sitting	is standing	is standing
59	ribbon	tree	√	√		*	√	*		x	*	√		
60	bottle	basket	*	*		*		x	√		*	*		
61	stick	stump	X	x		√		*			*	*		
62	bottle	basket	*	*		*		√			√	*	√	√
63	rope	basket	√	√		√	√	*		x	*	√		
64	cloth	tree	X	*		√	*	*		*	*	√		
65	camote	stump	*	*		*		*	√		√	*	x	x
66	stick	tree	√	x		√	*	*			*	√		
67	**bottle**	**basket**	*	*		x		√			√	*		
68	ribbon	stump	*	*		√	√	*		x	*	√		

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Table 5. PosB data for Mr. Lopez (SLQZ)

This is a summary of the data collected from Mr. Felipe Lopez (SLQZ) using PosB (Ameka et al. 1999). The volunteered data was collected by Pamela Munro. I collected data on grammaticality judgments, together with Pamela Munro, which corresponds to elicitation sessions in my notebook 4:180-181.

#	Figure	Ground	**beb**	**deidy**	**liby**	**nal**	**natga**	**nu**	**ri**	**zebnal**	**zeiby**	**zu**	**zub**	**zugwa**	**zundi**
	data from Mr. Lopez (SLQZ)		is on	is (positioned across)	is wrapped around	is hanging	is lying	is	are around	is hanging	is hanging	is standing	is sitting	is standing	is standing
1	stick	tree												x	
2	ribbon	basket								x					
3	**rope**	**rock**	*										x		
4	cloth	table	x												
5	camote	basket						x							
6	stick	table	x												
7	**ball**	**ground**					x								
8	**ball**	**table**	x												
9	stick	ground													x
10	**bottle**	**rock**	√												
11	**beans**	**ground**							x						
12	pot	stump													
13	stick	basket												x	
14	**cloth**	**table**	x												
15	rope	rock			x										
16	cloth	basket	x												
17	**stick**	**table**	x	*											
18	ball	table	x												
19	**rope**	**basket**	x	√											
20	stick	ground													x
21	**ball**	**table**	x												
22	**bottle**	**basket**		*				x							
23	camote	stump	x												
24	**cloth**	**basket**	x	√											
25	beans	table							x						
26	**bottle**	**rock**	x	*			x								
27	rope	basket								x					
28	bottle	ground						x							
29	pot	tree	x												
30	cloth	table													
31	stick	stump												x	

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#	Figure	Ground	**beb**	**dëidy**	**liby**	**nal**	**natga**	**nu**	**ri**	**zebnal**	**zeiby**	**zu**	**zub**	**zugwa**	**zundi**
	data from Mr. Lopez (SLQZ)		is on	is (positioned across)	is wrapped around	is hanging	is lying	is	are around	is hanging	is hanging	is standing	is sitting	is standing	is standing
32	cloth	rock	x										x		
33	rope	tree				x									
34	cloth	stump	x										*		
35	stick	rock	x												
36	rope	stump			x										
37	**bottle**	**table**	x												x
38	stick	stump	*												x
39	ball	ground							x						
40	pot	stump					x								
41	rope	table									x				
42	camote	ground					x								
43	**stick**	**basket**	x	√											
44	ball	tree	x												
45	rope	stump	x							*					
46	bottle	table	x					*							
47	camote	stump	x												
48	pot	tree	x												
49	ribbon	table									x				
50	**ball**	**rock**	x												
51	camote	ground					x								
52	**bottle**	**table**	√				x								
53	camote	basket	*					x							
54	rope	stump	x	*									x		
55	stick	tree								x					
56	**ball**	**basket**						x							
57	rope	tree	x								*				
58	bottle	ground						x							
59	ribbon	tree								x					
60	bottle	basket						x							
61	stick	stump	x	*											
62	bottle	basket						x							
63	rope	basket	x	*											
64	cloth	tree	x												
65	camote	stump												x	
66	stick	tree	x												
67	**bottle**	**basket**						x							
68	ribbon	stump								x					

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Table 6. PosB data for Ms. S. Lopez (SLQZ)

This is a summary of the data collected from Ms. Silvia Lopez (SLQZ) using PosB. It corresponds to elicitation sessions in my notebook 2a:85-100.

#	Figure	Ground	**beb**	**deidy**	**nat**	**natga**	**nal**	**nu**	**rirech**	**rrel**	**zeby**	**zub**	**zu**	**zugwa**
	data from Ms. S. Lopez (SLQZ)		is on	is (positioned across)	is lying	is lying	is hanging	is	is spilled	is wrapped around	is hanging	is sitting	is standing	is standing
1	stick	tree												x
2	ribbon	basket	x											
3	**rope**	**rock**								x				
4	cloth	table	x											
5	camote	basket						x						
6	stick	table	x											
7	**ball**	**ground**				x								
8	**ball**	**table**	x											
9	stick	ground						x						
10	**bottle**	**rock**	x											
11	**beans**	**ground**							x					
12	pot	stump	x											
13	stick	basket												x
14	**cloth**	**table**	?			x								
15	rope	rock								x				
16	cloth	basket												
17	**stick**	**table**				x								
18	ball	table	x											
19	**rope**	**basket**	x											
20	stick	ground												
21	**ball**	**table**	x											
22	**bottle**	**basket**				x		√						
23	camote	stump	x											
24	**cloth**	**basket**		x										
25	beans	table							x					
26	**bottle**	**rock**	x			x								
27	rope	basket	x								x			
28	bottle	ground												

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#	Figure	Ground	**beb**	**deidy**	**nat**	**natga**	**nal**	**nu**	**rirech**	**rrel**	**zeby**	**zub**	**zu**	**zugwa**
	data from Ms. S. Lopez (SLQZ)		is on	is (positioned across)	is lying	is lying	is hanging	is	is spilled	is wrapped around	is hanging	is sitting	is standing	is standing
29	pot	tree	x											
30	cloth	table		x										
31	stick	stump												x
32	cloth	rock	x		x	*								
33	rope	tree					x				x			
34	cloth	stump	x			*								
35	stick	rock	x											
36	rope	stump												
37	**bottle**	**table**	x									x	x	
38	stick	stump												
39	ball	ground				x								
40	pot	stump				x						*		
41	rope	table									x			
42	camote	ground				x								
43	**stick**	**basket**		x										
44	ball	tree	*					x						

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Table 7. Summary of PosB data in Chapter 5 for TVZ

#	Figure	Ground	**deidy, dëidy** 'is (positioned across)'	**na** 'is lying'	**naga, natga, niga** 'is lying'	**ri** 'are around'	**zu** 'is standing'
3	rope	rock	√ 2.	√ 1	√ 3.	* 1	* 3.
7	ball	ground	* 1	√ 1	√ 5.		* 3.
8	ball	table	* 1	√ 1	√ 2.; % 1 (TMZ)	√ 3.	* 2.
10	bottle	rock	* 1	* 2	* 2.		√ 3.
11	beans	ground	* 1	√ 1	√ 1 (SLQZ); * 1 (TMZ)	√ 4.	* 2.
14	cloth	table	* 2.	√ 1	√ 3.	* 1	* 2.
17	stick	table	√ 3.; * 1 (SLQZ)	√ 1	√ 3.		* 2.
19	rope	basket	√ 4.		√ 2.		* 1
21	ball	table	* 1	√ 1	√ 2.	* 1	* 2.
22	bottle	basket	√ 2 (TMZ); * 2 (SLQZ)	√ 1 (TMZ); * 1 (TMZ)	√ 4.		* 2.
24	cloth	basket	√ 4.		√ 1 (SLQZ); * 1 (TMZ)		* 1
26	bottle	rock	√ 2.; * 1 (SLQZ)	√ 1	√ 5.		* 3.
37	bottle	table	* 1	* 2	* 2.		√ 5.
43	stick	basket	√ 5.		√ 2.		* 1
50	ball	rock	* 1	√ 1	√ 2.		* 2.; % 1 (TMZ)
52	bottle	table	* 2.	√ 1	√ 4.	√ 3.	* 2.
56	ball	basket	* 1	* 2	√ 2.; % 1 (TMZ)	* 1	* 2.
67	bottle	basket	* 1	* 1	√ 2.; * 1 (TMZ)		√ 1 (SLQZ); * 1 (TMZ)

Key:
√ grammatical (volunteered or accepted)
* ungrammatical
% individual speaker judged both as grammatical and ungrammatical on separate occasions
. includes judgments from both language varieties
dark shading: all judgments = ungrammatical
light shading: some judgments = ungrammatical

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Table 8. Summary of PosB data in Chapter 5 for TMZ

#	Figure	Ground	**dëidy** 'is (positioned across)'	**na** 'is lying'	**naga, niga** 'is lying'	**ri** 'are around'	**zu** 'is standing'
3	rope	rock	√ 1	√ 1	√ 2	* 1	* 2
7	ball	ground		√ 1	√ 2		* 2
8	ball	table		√ 1	√ 1; % 1	√ 2	* 1
10	bottle	rock		* 2	* 1		√ 2
11	beans	ground		√ 1	* 1	√ 2	* 1
14	cloth	table	* 1	√ 1	√ 1	* 1	* 1
17	stick	table	√ 2	√ 1	√ 1		* 1
19	rope	basket	√ 2		√ 1		
21	ball	table		√ 1	√ 1	* 1	* 1
22	bottle	basket	√ 2	√ 1; * 1	√ 2		* 1
24	cloth	basket	√ 1		* 1		
26	bottle	rock	√ 1	√ 1	√ 2		* 2
37	bottle	table		* 2	* 1		√ 2
43	stick	basket	√ 2		√ 1		
50	ball	rock		√ 1	√ 1		* 1; % 1
52	bottle	table	* 1	√ 1	√ 2	√ 2	* 1
56	ball	basket		* 2	√ 1; % 1	* 1	* 1
67	bottle	basket		* 1	* 1; √ 1		* 1

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Table 9. Summary of PosB data in Chapter 5 for SLQZ

#	Figure	Ground	deidy 'is (positioned across)'	natga 'is lying'	ri 'are around'	zu 'is standing'
3	rope	rock	√ 1	√ 1		* 1
7	ball	ground	* 1	√ 3		* 1
8	ball	table	* 1	√ 1	√ 1	* 1
10	bottle	rock	* 1	* 1		√ 1
11	beans	ground	* 1	√ 1	√ 2	* 1
14	cloth	table	* 1	√ 2		* 1
17	stick	table	√ 1 (VL); * 1(FL)	√ 2		* 1
19	rope	basket	√ 2	√ 1		* 1
21	ball	table	* 1	√ 1		* 1
22	bottle	basket	* 2	√ 2		* 1
24	cloth	basket	√ 3	√ 1		* 1
26	bottle	rock	√ 1 (VL); * 1 (FL)	√ 3		* 1
37	bottle	table	* 1	* 1		√ 3
43	stick	basket	√ 3	√ 1		* 1
50	ball	rock	* 1	√ 1		* 1
52	bottle	table	* 1	√ 2	√ 1	* 1
56	ball	basket	* 1	√ 1		* 1
67	bottle	basket	* 1	√ 1		√ 1

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