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Zapotecan Languages

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Summary and Keywords

Zapotecan languages belong to the Otomanguean stock and consist of two major subgroups: Zapotec and Chatino. They are primarily spoken in Oaxaca, Mexico, and elsewhere in diaspora, particularly in California but also in other parts of the United States and Mexico. Zapotecan languages are spoken in a contiguous area and although all are related genetically, many languages exist in regional diffusion zones such that new changes spread areally. Similarly, individual Zapotecan “languages” often consist of dialect continua.

Zapotecan languages are tonal and also have contrastive phonation types, such as a contrast between modal (V), checked (VP), and rearticulated (VPV) vowels. Some Valley Zapotec languages also have breathy voice, partially due to contact with Mixe. Vowel nasalization is a prominent feature of Chatino and a marginal feature of some Zapotec languages. Consonants usually fall into two contrastive series in Zapotec, commonly termed “fortis” and “lenis,” though the phonetic realizations of these vary from language to language. The historical loss of unstressed vowels is common in many Zapotecan languages, though there are individual Zapotec and Chatino languages that retain them. A stress shift from the final syllable (retained in Chatino) to the first (usually penultimate) syllable of the root (in Zapotec) makes the languages with vowel loss more dissimilar from each other, since a different syllable survives in Chatino versus Zapotec.

Zapotecan languages are head-initial languages with VSO order and are typically head-marking. Common morphology includes pre-posed TAM markers and post-posed person markers on the verb, and derivational prefixes on nouns. An emergent class of prepositions is developing out of what were historically relational nouns. Stative forms of verbs are more common than true adjectives, while numerals have many verbal properties.

Like other Meso-American languages, Zapotecan languages are currently experiencing both a golden age and a moment of unprecedented peril. There is an ever-increasing number of linguists who are native speakers of these languages, and the community of

language activists, including students and educators, is growing stronger in Oaxaca and Mexico at large, and indeed worldwide, including where Zapotecan languages are spoken by immigrants. At the same time, the intense political and socioeconomic pressure on communities to shift to Spanish is greater than ever before, and the number of communities where children speak Zapotecan languages is ever shrinking. Children in communities where children speak Zapotecan languages at home are often chastised for doing so in school, which poses a continual threat. Zapotecan languages historically have been in contact with other Meso-American languages such as Nahuatl, Mixtec, Chontal, Mixe, Huave and Chinantec, among others. Today the vast majority of speakers of Zapotecan languages are at least bilingual in their language and Spanish, and many also speak English and/or other Meso-American languages. Zapotecan languages mostly show lexical borrowings from these other languages, and occasional grammatical borrowings. Regional varieties of Spanish show a Zapotecan substrate with numerous calques and interference on every level of the language from phonetics to pragmatics.

Keywords: Zapotec, Chatino, Zapotecan, Otomanguean, fortis/lenis, tone, VSO, diffusion

1. Overview of Zapotecan Languages

Zapotecan languages belong to the Otomanguean stock. Internally the Zapotecan family divides into Zapotec proper and Chatino. The 2010 Mexican Census counted 495,440 speakers of Zapotecan languages over the age of five, including 45,019 speakers of Chatino languages (INEGI). In linguistics, Zapotecan languages are usually identified by a combination of a place name and the linguistic label of either "Zapotec" or "Chatino," for example, *San Lucas Quiaviní Zapotec*, *Yaitepec Chatino*, *Isthmus Zapotec*. In the languages themselves, Zapotec languages usually have a name that combines the word meaning "word" or "language" with either an ethnonym (e.g., Isthmus Zapotec *didxa-za* "Zapotec word") or a regional denomination (e.g., Cajonos Zapotec *didza-xhon* "Cajonos word").

The number of discrete Zapotecan languages is unknown because of lack of research in some Zapotecan-speaking areas and because of the difficulty of counting languages where there are dialect continua and other sociolinguistic factors at work. Partly because of the inherent difficulties in counting Zapotecan languages, estimates of how many Zapotecan languages exist vary wildly. Some people use the terms "Chatino" and "Zapotec" as if they refer to one language each. This is often out of ignorance but for some can be an attempt to normalize linguistic differences and create a unified linguistic and cultural identity where a regional and local identity is usually stronger. The

Ethnologue splits more than it lumps, and recognizes 6 Chatino and 57 Zapotec languages. Adding up the estimates given by other regional specialists can produce a number of languages half this size. Specialists on Chatino generally recognize 3 living Chatino languages (Cruz and Woodbury, 2014: 493) rather than 6, but the Eastern Chatino language has a great amount of dialect diversity and is counted as multiple languages in the Ethnologue. There are at least 15 and probably twenty-some Zapotec languages. The Ethnologue lists 17 languages for the Southern Zapotec area alone, but a more conservative estimate is that there are 8 Southern Zapotec languages (Beam de Azcona, 2014: 645).

Zapotecan languages are head-initial. Noun phrases usually begin in nouns (exceptions include quantifiers and plural markers), clauses typically begin in verbs, with canonical VSO order of the verb and its arguments (though different orders are possible for topic and focus marking).

(1) Tlalolula Valley Zapotec (Munro, 2014: 680)

Gw-àa'izy	Jwaany	Beed.
PERF-hit	Juan	Pedro
'Juan hit Pedro.'		

(2) Miahuatlec Zapotec (Beam de Azcona et al., 2013: 206)

Yáa	ñá
tree	DEM
'That tree'	

Zapotecan languages are head-marking languages. Verbs take TAM-marking prefixes, while enclitics on verbs mark person, number, and adverbial concepts including negation.

(3) Zaniza Zapotec (Munro, 2014: 694)

Bi-xetka'-ya-losa'=bi=y.
COMP-grab-hand-RECP=PL=3M
'They grabbed each other's hands.'

Zapotecan languages have nonsegmental contrasts, which include tone, different voicing modalities, and nasalization (Arellanes Arellanes, 2009; Beam de Azcona, 2004A, 2008, 2013; Campbell, 2014; Chávez-Péón, 2010; Cruz & Woodbury, 2006; McIntosh, 2015; Munro & López et al., 1999; Sicoli, 2007; Sullivant, 2015; Sullivant & Woodbury, 2012). For example, Tataltepec Chatino has five tones, and vowels can be long or short, oral or nasal. Syllables can be open or end in glottal closure. Along with a high and low tone, the language has a “relaxed” tone, which falls, and two other contour tones that are both rising-falling but with a different “height” of maximum fundamental frequency. Tone is not represented in this orthography, as seen in (4). Across Zapotecan languages tone either goes unrepresented or else is represented by diacritics or superscript letters or numbers in the various orthographies that have been proposed.

(4) Tones of Tataltepec Chatino (Sullivant and Woodbury, 2012)

Tone	Contour	Example	Gloss
High	+↑	Nxkwa	's/he is lying down'
Low	+↓	Nxkwa	's/he lies down'
Relaxed	↑↓	nskwa?	'maize'
High-relaxed	+↑+	nxkwa	'you lie down'
High-low	↓↑	nxkwa	'I am lying down'

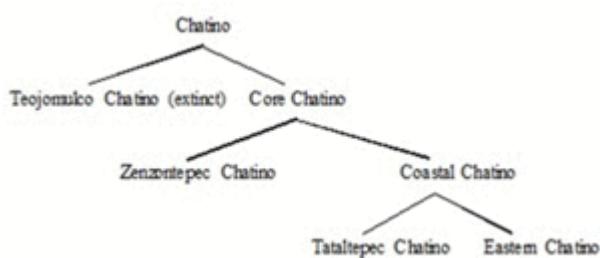
The topics covered in the remainder of this article are the genetic classification of Zapotecan languages (§2), their phonology (§3), morphology (§4), and syntax (§5). The discussion ends with observations about the endangerment status of Zapotecan languages (§6).

2. Classification

The Zapotecan family, itself an internal division of Eastern Otomanguean, is composed of two main language groups, Zapotec proper and Chatino. The question of time depth for any language family can be a controversial one, but we might make an educated guess that Zapotecan is roughly three thousand years old. The Zapotec(an) glyptic writing

system is attested from at least 450 BCE (Urcid Serrano, 2001: 21). Key differences in the diversification of Zapotec and Chatino after the Proto-Zapotecan period are the loss of nasalized vowels and a shift from traditional Otomanguean final stress to stem-initial stress in Zapotec (Kaufman, 1993–2014; Campbell, 2013A).

Chatino today consists of at least three mutually unintelligible languages, one of them, Eastern Chatino, with considerable dialectal diversity. Campbell (2013A) established the relationship between Tataltepec and Eastern Chatino as members of a subgroup called Coastal Chatino. Sullivant (2015 and IN PRESS) identifies the extinct Teojomulco Chatino as a fourth and more divergent branch of Chatino that has now been lost.



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Figure 1: Internal diversification of Chatino.

The most thorough and influential classification of Zapotec languages is that of Smith Stark (2007), who divided the Zapotec languages into six internal subgroupings. One of these, the extinct Soltec language, has now been absorbed into Western Zapotec, since the features that were thought to have made Soltec distinct have now been found in living varieties of Western Zapotec by Mark Sicoli (2015). The five subgroups of Zapotec, along with Chatino, are shown in Figure 2.



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Figure 2: Subgroups of Zapotecan (following Smith Stark, 2007, with a modification by Sicoli, 2015).

Smith Stark (2007) has Western Zapotec branching off first as the most divergent subgroup of Zapotec, distinct from Northern, Central, Southern, and Papabuco Zapotec, which together constitute a group he calls “Core Zapotec.” However, the various groupings are not uniform in nature.

Central Zapotec is essentially a dialect chain stretching from the Valley of Oaxaca to the Isthmus of Tehuantepec, though there may be certain features that distinguish Valley varieties from Isthmus varieties. We can understand this as the original state of affairs for Zapotec and probably Zapotecan, with all the other groupings representing outward migrations from the Valley of Oaxaca. Even the Isthmus varieties represent a migration but a relatively recent one, dating to the 1440s (Oudijk, 2008:104).

In order of time depth, Chatino, Western Zapotec, and Papabuco Zapotec are genuine genetic subdivisions of Zapotecan that came into existence via migration out of the Proto-Zapotec(an) homeland in the Valley of Oaxaca. Each of these three groups is small, with no more than three separate languages apiece (by intelligibility standards).

Northern Zapotec and Southern Zapotec are best thought of as diffusion zones. These are not genetically homogenous groupings but rather regional groupings of languages that have come to resemble each other through centuries of contact as neighbors. Of course, all the languages in each group are related as Zapotec languages, but rather than originating in singular migrations out of the Valley of Oaxaca, there were multiple migrations to each of the respective Sierras at different points in time and probably from different points of origin. Oudijk (2012) establishes that earlier migrations were military expansions based on the political and economic success of the Zapotec capital, Zaachila, while later migrations were attempts to flee from Zaachila’s political and economic collapse in the mid-15th century. Hypothetically, from a purely genetic perspective, it’s possible that individual northern languages could be more closely related to individual southern languages than to other languages nearby in the north. Smith Stark (2007) identifies four groupings in the Northern Sierra: Sierra Juárez, Cajonos, Rincón, and Choapan. Beam de Azcona (2014) recognizes eight Southern Zapotec languages that fall into three genetic groupings: Macro-Coatecan (earliest migration, five languages), Miahuatecan (second migration, two languages), and Cisyautepecan (last migration, one dialect continuum).

3. Phonology

Proto-Zapotecan (Kaufman, 1993-2014) had nasalized vowels, mostly open syllables that could nevertheless end in a glottal stop, tone, and a contrast between single consonants

and geminate ones, which were apparently the result of underlying clusters. Only the tonal contrast, which has not yet been reconstructed at the Proto-Zapotecan level due to the complexity of the task, survives in every Zapotecan language. These other salient contrasts of Zapotecan phonology each survive in some Zapotecan languages and not others.

3.1 Consonants

Proto-Zapotecan is reconstructed (Kaufman, 1993–2014) as having a contrast between single and geminate consonants. The geminate consonants are thought to be historically and/or underlyingly clusters (Swadesh, 1947:223), given that geminate consonants surface where clusters are formed morphologically, such as with inflectional marking on verbs. Long consonants, sometimes still analyzed as clusters, are described in languages such as Tataltepec Chatino (Sullivant, 2015), Sierra Juárez Zapotec, and Isthmus Zapotec. Valley Zapotec varieties have short and long contrasting sonorants, and some Southern Zapotec varieties do marginally. Within Zapotec, the former geminate/single contrast is now more often referred to as a fortis/lenis contrast for modern languages. Generally, fortis consonants are voiceless if they are obstruents, and they tend to be long and/or aspirated. Lenis consonants generally have a greater degree of allophony such that it can be difficult to recognize a dominant phone (Arellanes Arellanes, 2009; Chávez-Péón, 2010) among the allophones, which may be voiced and voiceless, plosive and fricative.

3.2 Laryngeals

Zapotec languages have contrasts between different laryngeal features on vowels. These can include modal (plain) vowels, vowels that are either creaky voiced or rearticulated [V?V] (in Spanish referred to as *vocales quebradas* or “broken vowels”), vowels that are checked [V?] (in Spanish *vocales cortadas* or “cut vowels”), and breathy voiced vowels. Of these categories the breathy voiced vowels are the least frequent and seem to have developed from low tone in areas adjacent to the Mixe area, where post-vocalic aspiration is commonly heard (Hiroto Uchihara, personal communication). All Zapotec languages have a contrast at least between modal vowels and some type of laryngealization. The checked and rearticulated vowels can either be phonetic variations on a single phonological category or else can contrast with one another, depending on the language.

In Chatino languages, unlike in Zapotec languages, the glottal stop counts as an independent segment (Campbell, 2014; Cruz, 2011; McIntosh, 2011; Rasch, 2002; Villard, 2008) rather than a vowel feature. However, its phonotactics are different than for other

consonants. For example, the glottal stop is the only consonant that can occur syllable-finally in Chatino (Sullivant, 2015).

3.3 Nasalization

Proto-Zapotecan (Kaufman 1993–2014) had contrastive vowel nasalization, as Chatino languages do still. In Chatino, nasalization is used to make both lexical and grammatical contrasts. Vowel nasalization occurs marginally in a few Zapotec languages.

Interestingly, the Zapotec languages known to have vowel nasalization all border the Chatino region: Papabuco (Belmar, 1901), Soltec (Sullivant, IN PRESS, the Coatlán variety of Coatec (Beam de Azcona, 2004A), and the San Bartolomé Loxicha variety of Miahuatlec (Beam de Azcona et al., 2013). In at least the latter two languages, nasalization occurs mostly as part of first-person marking, a category also marked through nasalization in Chatino.

3.4 Tone

Zapotecan languages, like all Otomanguean languages, are tonal. The functional load of tone in Zapotecan languages varies; in some cases this seems linked to the relative functional load of laryngeal contrasts, such as the voicing modalities found in Valley Zapotec varieties. In Valley Zapotec some linguists have argued that between voicing modality and tone only one contrast is primary and gives rise to the other (notably Munro & López et al., 1999), while others have found that both tone and phonation types contrast separately but that there may be some restrictions as to which combinations of a particular tone with a particular phonation type are possible (Chávez-Peón, 2010, 2011). Individual Zapotecan languages can have as few tones as Isthmus Zapotec (Pickett et al., 1978) or San Agustín Mixtepec Zapotec (Beam de Azcona, 2004B), each with only low, high and rising, or more tones than this, all the way up to the 14 tone classes found in the San Juan Quiahije variety of Eastern Chatino (Cruz and Woodbury, 2014:498).

In both Zapotec and Chatino tone makes both lexical and grammatical contrasts. Paradigmatic tonal alternations frequently occur on verbs marked for the potential mood and on both nouns and verbs marked for the first-person singular. These alternations have been analyzed as resulting from a floating high tone (Bickmore and Broadwell, 1998). Processes of sandhi have been observed in which particular underlying combinations of tones over the course of an utterance can produce surface changes in the tone of individual words (Cruz and Woodbury, 2006; Sullivant & Woodbury, 2012).

4. Morphology

Most of the complex morphology in Zapotecan languages is found on nouns and verbs. Prefixation is the most common means of marking, but there is also fusional morphology involving paradigmatic segmental alternations as well as suprasegmental changes including tonal processes. The main inflectional categories marked on verbs are tense, aspect, and mood. Person-marking can involve suprasegmental morphology but mostly occurs in the form of enclitics, which fall more in the realm of syntax. Nouns may include animacy markers and can be marked when possessed. Many nouns and verbs are formed through compounding. Adjectives are not a robust class in Zapotecan languages, but derived stative forms of verbs function adjectivally.

4.1 Verbs

The verb itself is headed by a verb root, which is obligatorily marked with a TAM prefix. Attached to the end of the verb root may be other roots, such as an additional verb root in a bare or nonfinite form or an incorporated noun root. Following this sequence of TAM-ROOT-(ROOT) there may be enclitics to denote negation, adverbial categories, subject markers, and sometimes object markers.

4.1.1 TAM marking on verbs

Chatino languages mark four TAM categories: potential, habitual, completive, and progressive. Zapotec languages have most of these, though not all languages have a dedicated progressive marker. The progressive marker *ka-* is strongly associated with Central Zapotec (Broadwell, 2015). Additionally Zapotec languages usually have such other forms as an imperative, irrealis, certain future, and some languages have developed andative and venitive aspects with prefixes that are reduced forms of the verbs “go” and “come.”

Zapotecan languages mark TAM categories mostly through segmental prefixes and tonal processes, but some historical phonological processes also create fusional morphology on the segmental level, described in more detail following.

4.1.2 Inflectional classes of verbs

Kaufman (1989) posits four classes of verbs for Proto-Zapotec: A-D (see Table 1). All of these except for class D are also present in Chatino. Individual languages have subclasses of these.

Table 1. Kaufman's Proto-Zapotec verb classes

	class A	class B	class C	class D
potential	* <i>ki</i> +	* <i>ki</i> +	* <i>k</i> +	* <i>k</i> +
completive	* <i>kwe</i> +	* <i>ko</i> +	* <i>ko</i> +	* <i>ko</i> +
replacives	NO	NO	NO	YES
begin with	V	C	V,C	V,s

Class A originally had a labiovelar completive prefix **kwe*-, which remains labiovelar in Chatino and Western Zapotec but which has become bilabial in the other languages.

Class A includes many causative verbs. In Chatino (Sullivan, 2015) and in Coatec Zapotec (Beam de Azcona, 2004A & IN PRESS) the causative marker **u*- survives as *w*- in the potential prefix seen on some class A verbs.

Class B displays palatalization in certain forms (principally the potential and habitual) in some Chatino (Sullivan, 2015; Campbell, 2011) and Southern Zapotec (Beam de Azcona, 2004A, 2009, IN PRESS) languages. In other Zapotec languages it is distinguished from class A by the completive marker **ko*- and its reflexes, and from classes C and D by the potential marker **ki*- and its reflexes.

Class C consists mostly of vowel-initial stems. It differs from class B by the vowel-less potential marker **k*-, which has the reflex *g*- in many Zapotec languages.

Class D exists only in Zapotec, not Chatino, and is characterized by irregular stem morphology, with different stem-initial consonants in different paradigmatic forms. This is known as replacive morphology and is described in more detail following.

4.1.3 Historical clusters

Modern Zapotecan verbs may show paradigmatic segmental alternations resulting from earlier clusters via the concatenation of TAM markers and verb stems.

Consonant clusters, for example where the potential marker **k*- was added to a consonant-initial stem in class D, rendered surface geminates in Proto-Zapotec, which in modern Zapotec languages gives way to the “fortis” series of consonants. Thus a modern Zapotec verb of class D may have a fortis consonant in the potential but the corresponding lenis consonant in the habitual.

Chatino languages have consonant clusters in different forms than in Zapotec languages. Proto-Zapotec had underlying consonant clusters on verbs mostly in the potential form of class D, but class D is absent in Chatino. Instead, new consonant clusters are formed because of syncope, which turns CV- TAM markers into C- markers, which may be added to consonant-initial stems. Syncope also affects the initial syllable of verb stems in some Chatino languages, such that a -CVCV stem ends up as a -CCV stem. With the addition of C- prefixes the result is many complex clusters.

Vowel clusters are mostly absent in the surface phonology of Zapotecan languages. In Zapotec, would-be underlying vowel clusters resulting from the concatenation of CV- TAM markers and vowel-initial stems produce paradigmatic alternations in surface vowels because only one of the two adjacent vowels can surface, either the TAM marker vowel or the stem-initial vowel. Kaufman (1989) suggests that a phonological vowel hierarchy predicts when the marker vowel vs. the stem vowel will delete, while Beam de Azcona (1999) states that a morphological generalization is more concise in Coatec Zapotec, with the prefix vowel surfacing in the completive and imperative (across verb classes) and the stem vowel surfacing in all other TAM forms (this generalization appears to hold for many other Zapotec languages). Such paradigmatic alternations have transformed what was once concatenative morphology into fusional morphology.

4.1.4 Replacive morphology

Zapotec languages have a class of verbs (Kaufman's class D) which is characterized by a paradigmatic alternation known as "replacive" morphology (Kaufman, 1989). Under Kaufman's analysis, verbs of this class have vowel-initial roots but mostly consonant-initial stems, which are formed by the addition of a derivational prefix called a "replacive." Two main replacive consonants alternate, or *replace* one another within the paradigm. One of these, found in the completive, is always a coronal consonant while the other, found in the habitual, is usually a non-coronal consonant. The potential contains the fortis counterpart of the replacive that is found in the habitual, as described under *Historical Clusters*. Table 2 shows partial paradigms with replacive prefixes in bold.

Table 2. Class D verbs across four Southern Zapotec languages

	Coatec	Amatec	Miahuatec	Cisyautepecan
	'explode'	'break'	'put'	'push'
Potential	k-iích	k-ich	k-o	kw-iín
Habitual	<i>nd-y-ich</i>	<i>n-g-ich</i>	<i>n-g-óo</i>	<i>r-b-in</i>
Completive	<i>ngw-d-i'ch</i>	<i>m-d-ich</i>	<i>mb-l-ó</i>	<i>b-r-in</i>

Kaufman's (1989) class D is absent in Chatino (Sullivant, 2015:318; Campbell, 2011:223), suggesting it may be a Zapotec innovation. However, considering the marked and irregular nature of replacive morphology, another possibility is that Chatino may have lost it due to a process of regularization.

4.1.5 Suprasegmental morphology

In Zapotec languages tonal changes can mark potential mood (and related forms), completive aspect, and first-person singular. The marking of potential and first-person singular often involves a floating high tone (Beam de Azcona, 2004A&B; Bickmore & Broadwell, 1998; Sicoli, 2007:97–98) or some sort of tone raising, while the marking of the completive may involve a lowering of pitch. A change in the glottal status (either glottalization or deglottalization) of a root vowel is also involved in the marking of these three categories, with deglottalization in the potential and first person-marked forms and glottalization in the completive of some verbs (Beam de Azcona, 2004A&B & IN PRESS).

In Chatino a verb's underlying tone is found in the completive form. Another tone may be found in the potential and habitual, as part of the marking of those categories. In Tataltepec Chatino (Sullivant, 2015) tone is sometimes the only marking that indicates a TAM category. Campbell (2013B) finds that selection of the segmental TAM markers is independent of tonal alternations found on verbs in Zenzontepec Chatino, that is, TAM categories can be marked both segmentally and tonally, with the two processes being independent of one another.

In Tataltepec Chatino, verbs with second-person singular subjects display changes to their tone class (Sullivant, 2015). In the Mixtepec variety of Cisyautepecan Zapotec (Hunn et al., n.d.) stem changes that include tone, glottalization, and palatalization mark a verb for first-person singular and/or plural subjects. Nasalization of a stem-final vowel can mark a first-person subject or possessor on nouns and verbs in at least Miahuatec (Beam

de Azcona, 2009) and Coatec Zapotec (Beam de Azcona, 2004A) and in at least Coastal Chatino (McIntosh, 2015; Sullivant, 2015) all in the Southern Sierra Madre.

4.1.6 Verbs with incorporation

Verbs in Zapotecan (as well as other Otomanguean) languages generally constitute a closed class. New verb roots are not formed. Rather, novel ways of indicating states and actions involve light verb constructions (sometimes using borrowed Spanish infinitives) and compounds and idioms. Many compounds involve incorporation of patients and instruments. However, it is also the case that particular combinations of verbs and arguments render a lexical meaning without fusing into a single word. Sometimes these two morphosyntactic options can be ambiguous. For example, many verbal expressions involve a noun meaning “liver” (traditionally) or “heart” (through European influence), viewed as the seat of emotions. When this nominal element follows a verb root it can be ambiguous as to whether it is acting syntactically as the subject of that verb or whether it has been incorporated into the verb itself. Likewise, a noun phrase that follows this element could either be its possessor or else the subject of a compound verb. In some cases disambiguation is possible with tests such as the placement of adverbial clitics that generally attach outside the verb (Beam de Azcona & Cruz Santiago, IN PRESS).

4.1.7 Person marking

Separate from the syntactic realization of subjects, which is done through pronominal enclitics or independent NPs, person-marking on verbs in Zapotecan languages is achieved variously through tonal changes, nasalization, laryngealization, palatalization, changes in vowel quality, and through suppletion, although many verbs have stems that are invariable with respect to person-marking. The person most often marked through morphology is the first-person singular, which is marked on at least some verbs throughout Zapotecan languages. The second-person singular is marked tonally in Chatino (Sullivant, 2015) and the first-person plural is marked in a variety of ways in the Mixtepec variety of Cisyautepecan Zapotec (Hunn et al., N.D.)

4.2 Nouns

Nominal morphology is not as complex as verbal morphology in Zapotecan languages. Nouns can be marked for possession and animacy. Some Zapotecan languages mark plural nouns while others only indicate number through independent numerals and quantifiers. Noun roots can be strung together to form nominal compounds. Some nouns with generic semantics function as noun classifiers.

4.2.1 Number

Marlett and Pickett (1986) identify different ways of marking plurality in Zapotec. A plural-marking proclitic is found on nouns in languages belonging to all regional groupings of Zapotec, though in the Southern group it is found only in Coatecas Altas, which borders the Valley Zapotec region. In some Northern Zapotec varieties and in Chichicapan in the Valley of Oaxaca, a prefix or a floating clitic attaching to a verb may indicate plurality of verbal arguments. This strategy may exist in addition to plural-marking on nouns or instead of it. In Teotepec Eastern Chatino (McIntosh, 2015) tonal changes on verbs help to mark plural subjects.

4.2.2 Possession

Zapotecan languages distinguish between alienable and inalienable possession. A common strategy (Sullivant, 2015; Beam de Azcona, 2004A) is for inalienable possession to be indicated through juxtaposition and for alienable possession to involve an intervening relational noun or preposition between the possessor and possessor. A prefix consisting of or beginning in a voiceless sibilant, usually a palato-aveolar or retroflex segment often spelled *x*-, or in Chatino sometimes also *s*-, occurs on some possessed nouns. In Tataltepec Chatino (Sullivant, 2015) and Coatec Zapotec (Beam de Azcona, 2004A) the prefix occurs fossilized on a subset of inalienable possessed nouns. In Isthmus Zapotec (Pickett et al., 1998) it instead occurs productively on alienable possessed nouns. Many Zapotec languages that use this prefix productively have stem-initial consonant fortition when the prefix is added; for example, the Mixtepec variety of Cisyautepecan Zapotec has the unpossessed form *dìʔdž* “word,” which becomes *ʃ-tìdž* when possessed (Antonio Ramos, 2008). In other varieties fortition itself appears to be a remnant of this process even when the prefix is no longer productive itself.

Possessed nouns may also be suprasegmentally marked depending on the person category of the possessor. First person–possessed nouns are marked with nasalization in Chatino as well as in some varieties of Coatec Zapotec and Miahuatec Zapotec. There are also tonal changes affecting nouns possessed by the first person in most Zapotecan languages. In Chatino the second-person singular can also induce tonal changes in nouns it possesses.

4.2.3 Animacy

A Proto-Zapotecan prefix **kwe*-, mostly realized in Chatino as *kw(i)*- and in Zapotec as *pe*-, *be*-, or *b*- is found on animate nouns, mostly animals but also supernatural beings like saints. Marcus and Flannery (1978) suggested that this prefix might come from the word for “air,” since living beings breathe and in the general Meso-American worldview air is considered the essential life force. A variant allomorph of the animacy prefix is **ko*-, in

many modern languages *go-*, found on such words as Colonial Valley Zapotec *coqui* “lord” and *Cocijo*, the name of the all-important Zapotec Lightning deity.

In Southern Zapotec languages the animacy marking prefixes have become prenasalized sequences *mb-* and *ngw-*, and in some cases reduced to mere nasals. Beam de Azcona (2004A) proposes that the nasal part of the sequence is a reduced form of the noun classifier *má* “animal” and possibly in a few cases *meé* “human.” Historical evidence for this is found in Córdova’s (1578) Colonial Valley Zapotec dictionary, which lists syntactic strings for which equivalent concatenative morphology is found in Southern Zapotec, for example, “bird” *màni pi-guijní* (animal ANIM-bird) which is *m-b-yin* in Coatec Zapotec and “coatimundi” *màni pi-xijcho* (animal ANIM-coatimundi) which is *m-p-xi’z* in Miahuatèc Zapotec. Information about independent classifiers is found under Syntax.

4.3 Stative adjectives

Chatino has some morphologically simple adjectives. Completive forms of verbs are sometimes used as adjectives, and many color terms begin in *n-*, which is cognate with the Zapotec stative *na-*. There are also adjectives beginning in the fossilized prefixes *l-*, *t-*, and *ty-* (Sullivant, 2015). Zapotec uses verbs more than adjectives. There are very few morphologically simple adjectives, though they do exist. More common are stative adjectives derived from verbs, mostly beginning in the prefix *na-* but some languages have a labiovelar stative prefix *kw-*, for example “cold” is *nal* in Miahuatèc Zapotec but *kwal* in Coatec Zapotec.

5. Syntax

Zapotecan languages have left-headed syntax, including default VSO word order. A topic that has received a good deal of attention is the analysis of body-part terms used locatively as either prepositions or relational nouns. Different types of clitics express pronominal and adverbial categories as well as grammatical concepts like negation. While not all lexical categories will be mentioned here, classifiers and discourse markers are included here as special types of words found in Zapotecan languages.

5.1 Head-initial syntax

The main word order that occurs in natural speech is VSO, although SVO often occurs in clauses elicited in or translated from English and Spanish. SVO and rarely OVS are also possible when the argument that occurs pre-verbally is focused or topicalized, or is an interrogative pronoun. Other phrase types are mostly head-initial including (non-quantified) noun phrases and prepositional phrases.

5.2 Prepositions

In Zapotecan languages, as in many Otomanguean languages, words are used prepositionally that clearly have a history as relational nouns, especially body parts. Whether a given word functions as a preposition or a noun is partly a question of analysis, and individual linguists sometimes disagree on this account, but it is also true that cognates can have a more or less grammaticalized status as prepositions when comparing one language to another, and even in a single language it is not necessarily the case that this whole class of words behaves the same way. Some words may have taken on prepositional qualities while other words are still behaving as relational nouns (for more on this topic see, for example, Lillehaugen, 2014; Lillehaugen & Foreman, 2009; Lillehaugen & Munro, 2008; Lillehaugen & Sonnenschein, 2012).

5.3 Clitics

Zapotecan languages typically have two sets of pronouns: independent forms and clitic forms. In some cases the clitic forms are reduced forms of the independent forms. Conversely, some independent forms are formed by adding the clitic forms to a base, in Valley Zapotec the focus marker (Munro & López et al., 1999:23). Some languages also have different forms for subjects and non-subjects, though this is not always straightforwardly case-marking. In Tataltepec Chatino the non-subject pronouns contain a fossilized relational noun (Sullivan, 2015:294). In all cases the bound forms of pronouns are not agreement suffixes as in Spanish but instead count as NPs. They are absent if some other instantiation of the referent, such as a full NP subject or possessor, is present.

Enclitics are more common than proclitics in Zapotecan languages (although Kaufman, 1989 analyzes the TAM markers as proclitics), but proclitics that attach to verbs in some languages mark grammatical categories like negation and plurality. Many adverbs occur

as second position clitics, which with default VSO order typically attach to the verb but can alternatively attach to other elements when pre-posed.

5.4 Classifiers

Noun classifiers show up in Zapotecan languages in toponyms and in names of plant species. For example, tree names begin in the noun classifier “tree” followed by a morpheme that denotes the species. Many town names likewise begin in the word “town” followed by a morpheme that specifies the place in question. It can be difficult to determine whether such strings count as noun phrases or noun-noun compounds.

Numeral classifiers were found in Colonial Valley Zapotec (Córdova, 1578). Tataltepec Chatino has what Sullivant (2015:289–293) terms a “pseudoclassifier,” which acts like a calque of a classifier in neighboring Tututepec Mixtec but which is a lone morpheme, not one of a set of several that divide the lexicon into various classes.

5.5 Information structure

Zapotecan languages mark focus by realizing arguments in marked pre-verbal position. Using this marked word order is enough on its own to mark focus, but a focus marker something like *lë'* or *la'* (Lillehaugen, 2006:42–44) often occurs prior to the focused argument in Zapotec languages. Topic is marked similarly and in some languages *la'* may be more of a topic marker than a focus marker.

In negative constructions the negative marker may be realized as an adverbial enclitic attached to the verb or as a pre-posed marker (perhaps also a clitic) occurring clause-initially, or both.

Interrogative constructions begin with an interrogative marker that may be an interrogative pronoun. Another type of interrogative marker exists in at least Southern Zapotec and takes various, non-cognate, forms in different languages but serves to turn the statement that follows it into a polar question. In Southern Zapotec Spanish this is calqued using the Spanish complementizer *que*. For example, *¿Que le gusta la piña?* means simply “Do you like pineapple?”

6. Endangerment

Today all Zapotecan languages are under a political and economic threat from Mexico's colonial language, Spanish. Speakers of indigenous languages in Mexico are stigmatized by the politically, economically, and socially dominant mestizo society. In order to avoid this stigma many parents discourage their children from speaking their own native languages. Economic pressures that incentivize migration out of Zapotecan communities and into larger mestizo cities as well as the Mexican diaspora in the United States contribute to language shift by weakening speech communities, removing speakers from contexts in which they might use their language frequently, and relocating them to social contexts in which there are few other speakers of these languages.

Although many Zapotecan communities do have "bilingual" schools, there are numerous problems with how bilingual education is implemented in many Zapotecan communities. Some teachers are bilingual themselves but do not speak the language of the community they have been assigned to work in. Many languages do not even have adequate linguistic descriptions available, much less a standardized orthography or printed educational materials. Still today there are frequent anecdotes of children being punished for speaking Zapotec or Chatino in school.

On July 14, 2014, the Mexican president, Enrique Peña Nieto, signed into law the Ley Federal de Telecomunicaciones y Radiodifusión. The law states that community and indigenous radio stations in part exist in order to preserve indigenous languages. However, activists complain about several provisions of the law that limit community and indigenous radio stations' ability to broadcast. Since this law took effect the government has made a show of closing some community radio stations. Considering that these local radio broadcasts are an important social context in which Zapotecan languages are used, there is the potential for further reducing the space in which these languages are allowed to exist, depending on how the law continues to be implemented over time. As is the case with the bilingual schools, public policy on telecommunications is another relevant example of how government policies may either support communities that want to preserve their languages or stand in their way of doing so.

While the situation in some ways appears bleak, more native speakers of Zapotec and Chatino languages are professional linguists or are otherwise employed in language activism than ever before. Grass-roots efforts led by community members, activists, educators, linguists, and anthropologists to promote and maintain Zapotecan languages are slowly starting to fill the void left by governmental policies that historically have contributed to the decline rather than the maintenance of these languages, notably with

the Hispanization efforts of José Vasconcelos (Secretary of Public Education in the 1920s) but continuing to the present day in one form or another.

Ultimately though, no linguist, teacher, or governmental program can be credited with “saving” a language. The fact that these languages have survived this long is thanks to the generations of Zapotecan families who have spoken these languages to their children, despite centuries of social, political, and economic pressure to abandon Zapotecan languages and shift to Spanish. Hundreds of thousands of Zapotecan parents and grandparents are the true custodians of Zapotecan languages.

Links to Digital Materials

Electronic archives provide recordings and other documentation of Zapotec and Chatino languages. Users need to register for some of these but in most cases the process is simple and quick:

- Ticha is a collection of Colonial Zapotec resources including transcribed texts, translations, and linguistic analyses.
- The Archive of the Indigenous Languages of Latin America, based at the University of Texas, Austin, has a wealth of materials on Zapotec and Chatino.
- The Endangered Languages Archive is based at the School of Oriental and African Studies in London and has resources on Zapotec, Chatino, and endangered languages from around the world.
- The Max Planck Institute for Psycholinguistics hosts a repository of days' worth of recordings made in most varieties of Zapotec and Chatino. While not the most user-friendly system, the data available is worth the effort.

Further Reading

The following suggestions include the most important published works on Zapotecan languages and representative works that give the reader a general sense of the kind of research that exists for this family of languages:

Beam de Azcona, Rosemary Grace, Francisco Arellanes Arellanes, Mario Ulises Hernández Luna, Miriam Itzel Manzano Corona, Sofía Gabriela Morales Camacho, & Carlos de Jesús Wagner Oviedo. (In press.) Umlaut (armonía vocálica) en el desarrollo

histórico de las lenguas Zapotecas. In Lucero Meléndez, & Marcela San Giacomo (Eds.), *Debates en torno a la lingüística histórica indomexicana*. México: IIA-UNAM.

This paper argues that Proto-Zapotec had only one back vowel phoneme */o/, with allophones ranging from [o] to [u]. While several past authors have made whole reconstructions of Proto-Zapotec, the foreseeable future of Proto-Zapotec research will probably be composed of papers like this one, which make one or two adjustments to previous reconstructions rather than making a new reconstruction from scratch.

Broadwell, Aaron B. (2015). The historical development of the progressive aspect in Central Zapotec. *IJAL*, 81, 151–185.

This is a recent article that combines colonial Zapotec philology, modern morphosyntactic description, and a comparative viewpoint in order to establish the progressive marker *ka-* as an important isogloss for Central Zapotec. In many ways this article gives the reader a sense of the kind of work being done in the Zapotecanist community today.

Campbell, Eric. (2013). The internal diversification and subgrouping of Chatino. *International Journal of American Linguistics*, 79(3), 395–420.

This paper gives the reader a sense of how Chatino languages relate to one another and also the kinds of evidence used to classify these languages.

Cruz, Emiliana, & Anthony C. Woodbury. (2014). Finding a way into a family of tone languages: The story and methods of the Chatino Language Documentation Project. *Language Documentation and Conservation*, 8, 490–524.

This article is extremely user-friendly and readable but also introduces the reader to the complex world of Chatino tone, with discussion of fieldwork and analytical methodology.

Fernández de Miranda, María Teresa. (1995). *El protozapoteco*. Michael J. Piper, & Doris A. Bartholomew (Eds.) México: El Colegio de México-INAH.

This reconstruction of Proto-Zapotec made in the 1960s was not published until 1995 because of the author's untimely death. Details of the reconstruction are sometimes controversial and have been improved upon over the years, but this reference is invaluable for the hundreds of cognate sets provided.

Smith Stark, Thomas C. (2007). Algunas isoglosas zapotecas. In Cristina Buenrostro et al. (Eds.), *Clasificación de las lenguas indígenas de México: Memorias del III Coloquio Internacional de Lingüística Mauricio Swadesh* (pp. 69–133). Mexico: Universidad Nacional Autónoma de México-Instituto Nacional de Lenguas Indígenas

This is the classification of Zapotec languages most cited by Zapotecanists. It also includes summaries of all previous classifications.

Sullivan, John Ryan. (2015). *The phonology and inflectional morphology of Chá?knyá, Tataltepec de Valdés Chatino, a Zapotecan language*. PhD diss., UT Austin.

An excellent grammatical description of a Chatino language.

Swadesh, Morris. (1947). The phonemic structure of proto Zapotec. *International Journal of American Linguistics*, 13, 220-230.

This was the first reconstruction made of Proto-Zapotec. Many of the issues still being discussed today were already being addressed by Swadesh in 1947, such as the geminate/single origin of the fortis/lenis contrast.

References

- Antonio Ramos, Pafnuncio. (2008). Los posesivos atributivos en el zapoteco de San Pedro Mixtepec (ZSPM). In Z. Estrada, & A. Munguía (Eds.), *Memorias del IX Congreso Internacional de Lingüística en el Noroeste* (pp. 463-490). Hermosillo: Universidad de Sonora.
- Arellanes Arellanes, Francisco. (2009). *El sistema fonológico y las propiedades fonéticas del zapoteco de San Pablo Güilá. Descripción y análisis formal*. PhD diss., México, D.F.: El Colegio de México.
- Beam de Azcona, Rosemary G. (1999). Armonía y elisión de vocales, un caso de ablaut en el zapoteco de Coatlán y Loxicha. In María del Carmen Morúa Leyva and Gerardo López Cruz (Eds.), *Memorias del V Encuentro Internacional de Lingüística en el Noroeste, Tomo II*. Hermosillo: Universidad de Sonora.
- Beam de Azcona, Rosemary G. (2004a). *A Coatlán-Loxicha Zapotec grammar*. PhD diss., UC Berkeley.
- Beam de Azcona, Rosemary G. (2004b). Introducing San Agustín Mixtepec Zapotec. In Carmen Jany (Ed.), *Proceedings of the 7th Annual Workshop on American Indigenous Languages*. Santa Barbara, CA: UC Santa Barbara.
- Beam de Azcona, Rosemary G. (2008). Un estudio comparativo de los tonos del zapoteco sureño. In A. de Avila, A. López Cruz, V. Marcial, & M. Swanton (Eds.), *Memorias del Coloquio Francisco Belmar: Las lenguas otomangues y oaxaqueñas ante el siglo XXI*.

Oaxaca: Fondo Editorial IEEPO/INALI/Universidad Autónoma “Benito Juárez” de Oaxaca/Fundación Alfredo Harp Helú.

Beam de Azcona, Rosemary G. (2009). Clasificación de verbos en el zapoteco miahuateco de San Bartolomé Loxicha. In Victor de la Cruz, & Ausencia López Cruz (Eds.), *Cuadernos del Sur*. (Volume in memory of Thomas C. Smith Stark).

Beam de Azcona, Rosemary G. (2013). Problems in Zapotec tone reconstruction. In Anti Zhenya, Charles B. Chang, Clare S. Sandy y Maziar Toosarvandani (Eds.), *Proceedings of the 33rd annual meeting of the Berkeley Linguistics Society: Special Session on Languages of Mexico and Central America*. Berkeley, CA: Berkeley Linguistics Society.

Beam de Azcona, Rosemary G. (2014). Algunos rasgos lingüísticos del zapoteco sureño. In Rebeca Barriga Villanueva, & Esther Herrera Zendejas (Eds.), *Lenguas, estructuras y hablantes: Estudios en homenaje a Thomas C. Smith Stark*, Vol. 2. (pp. 643–660). México, D.F.: Colegio de México.

Beam de Azcona, Rosemary G. (In press). Southern Zapotec verb classes. In Timothy Feist, & Enrique Palancar (Eds.), *Inflectional complexity and verb classes: a view from the Oto-Manguean languages of Mexico*. Berlin: Language Science Press.

Beam de Azcona, Rosemary G., Abdón Cruz Cortés, & Lázaro Díaz Pacheco. (2013). El hombre que conoció a Cocijo. *Tlalocan*. Mexico: Instituto de Investigaciones Filológicas, UNAM

Beam de Azcona, Rosemary G., & Emiliano Cruz Santiago. (In press). Los compuestos verbales y las expresiones idiomáticas en el zapoteco miahuateco de San Bartolomé Loxicha. In Francisco Arellanes, Mario Chávez-Peón, & Rosa María Rojas Torres (Eds.), *Lenguas Zapotecas*. México: UNAM.

Belmar, Francisco. (1901). *Breve noticia del idioma papabuco del pueblo de Elotepec*. Oaxaca: Imprenta del Comercio.

Bickmore, Lee S., & George A. Broadwell. (1998). High tone docking in Sierra Juárez Zapotec. *International Journal of American Linguistics*, 64, 37–67.

Broadwell, Aaron B. (2015). The historical development of the progressive aspect in Central Zapotec. *IJAL*, 81, 151–185.

Campbell, Eric. (2011). Zenzontepec Chatino aspect morphology and Zapotecan verb classes. *International Journal of American Linguistics*, 77(2), 219–246.

Campbell, Eric. (2013a). The internal diversification and subgrouping of Chatino. *International Journal of American Linguistics*, 79(3), 395–420.

Campbell, Eric. (2013b). *Towards an account of tonal complexity in Zenzontepec Chatino (Otomanguean) verbal inflection* (Paper presented at the meeting of the Society for the Study of the Indigenous Languages of the Americas).

Campbell, Eric. (2014). *Aspects of the phonology and morphology of Zenzontepec Chatino, a Zapotecan language of Oaxaca, Mexico*. PhD diss., University of Texas, Austin.

Chávez-Peón, Mario E. (2010). *The interaction of metrical structure, tone and phonation types in Quiaviní Zapotec*. PhD diss., University of British Columbia, Canada.

Chávez-Peón, Mario E. (2011). . In *Memorias del V Congreso de Idiomas Indígenas de Latinoamérica*, UT Austin..

Córdova, Fr. Juan de. (1578). *Vocabulario del idioma zapoteco*. México: En casa de Pedro Balli.

Cruz, Emiliana. (2011). *Phonology, tone, and the functions of tone in San Juan Quiahije Chatino*. PhD diss., UT Austin.

Cruz, Emiliana, & Anthony C. Woodbury. (2006). El sandhi de los tonos en el Chatino de Quiahije. In *Las memorias del Congreso de Idiomas Indígenas de Latinoamérica-II*. Archive of the Indigenous Languages of Latin America.

Cruz, Emiliana, & Anthony C. Woodbury. (2014). Finding a way into a family of tone languages: The story and methods of the Chatino Language Documentation Project. *Language documentation and conservation*, 8, 490–524.

Hunn, Eugene, Baron, Roger Reeck, Meinardo Hernández Pérez, & Hermilo Silva Cruz. (N.d.). *A sketch of Mixtepec Zapotec grammar*. Unpublished manuscript available at

Kaufman, Terrence. (1989). *The phonology & morphology of Zapotec verbs*. ms.

Kaufman, Terrence. (1993–2014). *Proto-Zapotec(an) reconstructions*. ms.

Lewis, M. Paul, Gary F. Simons, & Charles D. Fennig (Eds.). (2015). *Ethnologue: Languages of the World*, 18th ed. Dallas, TX: SIL International. Online version:

Lillehaugen, Brook Danielle. (2006). *Expressing location in Tlacolula Valley Zapotec*. PhD diss., UCLA.

Lillehaugen, Brook Danielle. (2014). Los usos y significados de loh “cara” en el zapoteco del valle colonial. In Rebeca Barriga Villanueva, & Esther Herrera Zendejas (Eds.), *Estructuras, lenguas y hablantes: Estudios en Homenaje a Thomas C. Smith Stark* (pp. 417–449). Mexico, D.F.: El Colegio de México.

Lillehaugen, Brook Danielle, & John O. Foreman. (2009). Body parts and the encoding of THING and PLACE in Zapotec. In Lilián Guerrero, Sergio Ibáñez-Cerda, & Valeria A. Belloro (Eds.), *Studies in Role and Reference Grammar* (pp. 203–230). México: Universidad Nacional Autónoma de México.

Lillehaugen, Brook Danielle, & Pamela Munro. (2008). Hacia una tipología de locativos de partes. In Rosa María Ortiz Ciscomani (Ed.), *Memorias: IX Encuentro Internacional de Lingüística en el Noroeste, Tomo 2* (pp. 231–252). Hermosillo, Sonora: Editorial Unison.

Lillehaugen, Brook Danielle, & Aaron Huey Sonnenschein (Eds.). (2012). *Expressing location in Zapotec*. LINCOM Studies in Native American Linguistics 61. Lincom Europa: Muenchen.

Marcus, Joyce, & Kent V. Flannery. (1978). Ethnoscience of the sixteenth-century Valley Zapotec. In Richard I. Ford (Ed.), *The Nature and Status of Ethnobotany, Anthropological Papers No. 67*. Ann Arbor: Museum of Anthropology, University of Michigan.

Marlett, Stephen A., & Velma B. Pickett. (1986). Pluralization in Zapotec languages. In Mary C. Marino, & Luis A. Pérez (Eds.), *Proceedings of the 1985 meeting of the Linguistic Association of Canada and the United States*. Revised web version:

McIntosh, Justin Daniel. (2011). *Grammatical sketch of Teotepec Chatino*. Master’s thesis, UT Austin.

McIntosh, Justin Daniel. (2015). *Aspects of phonology and morphology of Teotepec Eastern Chatino*. PhD diss., UT Austin.

Munro, Pamela. (2014). Oraciones recíprocas en zapoteco. In Rebeca Barriga Villanueva, & Esther Herrera Zendejas (Eds.), *Lenguas, Estructuras y Hablantes: Estudios en Homenaje a Thomas C. Smith Stark, Vol. 2* (pp. 679–712). México, D.F.: Colegio de México.

Munro, Pamela, Felipe H. Lopez, Olivia V. Méndez, Rodrigo Garcia, & Michael R. Galant. (1999). *Di’csyonaary x:tèe’n dìi’zh sah sann Lu’uc: San Lucas Quiaviní Zapotec dictionary*. 2 vols. Los Angeles: University of California, Los Angeles Chicano Studies Research Center.

- Oudijk, Michel. (2008). The Postclassic Period in the Valley of Oaxaca: The archaeological and ethnohistorical records. In J. Blomster (Ed.), *After Monte Albán: Transformation and negotiation in Oaxaca, Mexico* (pp. 95–118). Boulder: University Press of Colorado.
- Oudijk, Michel. (2012). Poblando la Sierra: una ruta de migración zapoteca. In Ana Laura Peña Mondragón (Comp.), *Los zapotecas serranos* (pp. 15–46). Ixtlán de Juárez, Oaxaca, Mexico: Universidad de la Sierra Juárez.
- Pickett, Velma, et al. (Comp.). (1978). *Vocabulario Zapoteco del Istmo, Vocabularios Indígenas 3*. México, D.F.: ILV.
- Pickett, Velma B., Cheryl Black, & Vicente Marcial Cerqueda. (1998). *Gramática popular del Zapoteco del Istmo*. Juchitán, Mexico: Centro de Investigación y Desarrollo Binnizá.
- Rasch, Jeffrey Walter. (2002). *The basic morpho-syntax of Yaitepec Chatino*. PhD diss., Rice University.
- Sicoli, Mark. (2007). *Tono: A linguistic ethnography of tone and voice in a Zapotec region*. PhD diss., University of Michigan.
- Sicoli, Mark A. (2015). Agency and verb valence in a West Zapotec language. In Natalie Operstein, & Aaron Huey Sonnenschein (Eds.), *Valence changes in Zapotec: Synchrony, diachrony, typology*. Philadelphia: John Benjamins.
- Smith Stark, Thomas C. (2007). Algunas isoglosas zapotecas. In Cristina Buenrostro et al. (Eds.), *Clasificación de las lenguas indígenas de México: Memorias del III Coloquio Internacional de Lingüística Mauricio Swadesh* (pp. 69–133). Mexico, D.F.: Universidad Nacional Autónoma de México, Instituto Nacional de Lenguas Indígenas.
- Sullivant, John Ryan. (2015). *The phonology and inflectional morphology of Chá?knyá, Tataltepec de Valdés Chatino, a Zapotecan language*. PhD diss., UT Austin.
- Sullivant, John Ryan. (In press). “Reintroducing Teojomulco Chatino.” *International Journal of American Linguistics*.
- Sullivant, John Ryan, & Anthony C. Woodbury. (2012). El tono y el sandhi del tono en el chatino de Tataltepec de Valdés. In *Las memorias del Congreso de Idiomas Indígenas de Latinoamérica-IV*. Archive of the Indigenous Languages of Latin America. Available online at:
- Swadesh, Morris. (1947). The phonemic structure of proto Zapotec. *International Journal of American Linguistics*, 13, 220–230.

Urcid Serrano, Javier. (2001). *Zapotec hieroglyphic writing*. Washington, DC: Dunbarton Oaks Research Library and Collection.

Villard, Stephanie. (2008). Los tonos del chatino de San Marcos Zacatepec. In *Las memorias del Congreso de Idiomas Indígenas de Latinoamérica-III*. Archive of the Indigenous Languages of Latin America. Available online at:

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