

UCLA

UCLA Previously Published Works

Title

Grammar and grammaticalization in Zapotec

Permalink

<https://escholarship.org/uc/item/30k956pn>

Journal

Language Typology and Universals, 77(1)

ISSN

1867-8319

Author

Operstein, Natalie

Publication Date

2024-04-01

DOI

10.1515/stuf-2024-2001

Peer reviewed

Grammar and grammaticalization in Zapotec

Natalie Operstein

The present study contributes to the empirical basis of grammaticalization theory by presenting a grammaticalization profile of Zapotec, a language family of Mesoamerica. The discussion centers around co-grammaticalization of lexemes and constructions, polygrammaticalization, interdependence between syntactic and prosodic conditioning of grammaticalization, and mutual feedback between grammaticalization and morphosyntactic typology.

KEYWORDS: positional verbs, body-part locatives, classifiers, associated motion, associated posture, generic nouns, polygrammaticalization, Mesoamerican languages

1. Introduction

The Oxford Handbook of Grammaticalization, recently reissued in paperback (Narrog and Heine 2021),¹ reaffirms the multiplicity of the ways in which grammaticalization is understood by the field's practitioners. The definitions of grammaticalization in the volume range from general ("the coding of a function within the grammatical system of the language"; Frajzyngier 2021: 625) to specific ("the diachronic change which gives rise to linguistic expressions which are coded as discursively secondary"; Harder and Boye 2021: 63). The definition that dominates the discussion, however, is the one where grammaticalization is understood as "the change whereby lexical items and constructions come in certain linguistic contexts to serve grammatical functions and, once grammaticalized, continue to develop new grammatical functions" (Hopper and Traugott 2003: xv). By its twin emphasis on the lexical items and the surrounding constructions, this approach – and the large body of empirical research that underpins it – provides an insightful framework for understanding the major grammaticalization phenomena in Zapotec, a language family of Mesoamerica.

The study of grammaticalization in Zapotec poses methodological challenges that are common to languages with under-developed written record. In languages with lengthy written traditions, a student of grammaticalization can rely on the philological study of texts from different historical periods and, if the texts are digitized, on corpus-based research (cf. Hilpert 2021 on Germanic). Although Zapotec has been documented since the colonial period, the historical documentation is of limited usefulness for grammaticalization research due to its relatively shallow depth – the earliest documentation dates from the second half of the sixteenth century (Feria 1567; Córdova 1578a, 1578b) – and narrow stylistic and geographical range. These limitations induce reliance on internal reconstruction and synchronic cross-family comparison as the main methods of recovering grammaticalization processes. With the bulk of the evidence supplied by layering (in the sense of coexistence of original and grammaticalized functions in the same form),² which is typical of the less advanced stages of grammaticalization, and by cross-linguistic morphosyntactic variation among cognate forms, the recoverable grammaticalization processes are comparatively recent in historical terms. The lexical sources of the markers whose grammaticalization is advanced, such as the primary TAM prefixes, remain

¹ See Operstein (2022).

² This is the sense in which the term *layering* is used in Hopper and Traugott (2003: 124-126). In the grammaticalization literature, this term is also used to describe coexistence of older and more recent exponency in a functional domain (Hopper 1991: 22ff).

opaque with the methods at hand. Nevertheless, owing to their cyclical nature, the grammaticalization processes that are still transparent can afford a window on the origin of these older markers as well. For example, recent expansion of the TAM system in some contemporary varieties offers valuable indirect evidence as to the likely sources of the older TAM prefixes.

Some of the grammaticalization phenomena recoverable from the Zapotec data confirm the tendency toward renewal of grammatical structures through repeated grammaticalization of lexical material in the same structural slots (Hopper and Traugott 2003: 124; Kuteva and Heine 2008: 224). Such grammaticalization cycles are encouraged by diachronic stability of the constructions, with their respective attractor positions (“slots which attract linguistic items in order to grammaticalize them”) (Bisang 1998: 20, 36; Gisborne and Patten 2021: 103). Although articulated in a different areal and structural context, Bisang’s (1998) notion of constructional slots appears well-suited for capturing some of the typical grammaticalization paths in Zapotec. Additional cross-linguistically recurrent features of grammaticalization illustrated by the Zapotec data include polygrammaticalization – the use of the same items in different syntactic positions – and the key role of prosody in conditioning phonetic erosion of the grammaticalizing forms (Robert 2004; Wichmann 2021). The erosion affects the grammaticalizing items cyclically in the same structural slots, highlighting the inherent interdependence between the syntactic and prosodic conditioning of grammaticalization.

The bulk of the primary grammaticalization phenomena examined in this paper take place in two types of constructions. Following a brief preliminary outline of Zapotec in Section 2, Section 3 examines constructions of the type $X_{gr}Y$. In these, the grammaticalizing element X_{gr} develops from a prosodically free form into a prefix, with one or more intermediate stages between the end points of the cline, and various attested degrees of grammaticalization. In the verb, this construction type serves as the source of motion, aspectual, verbalizing and valence-altering markers (auxiliaries, proclitics, compound constituents or prefixes). In the noun, it supplies classifiers, nominalizers, body-part locatives, articles and alienable possession markers. Section 4 looks at constructions of the type XY_{gr} . In these, the grammaticalizing element Y_{gr} may develop from a prosodically free form into a clitic or suffix (Section 4.1) or a compound constituent (Section 4.2). Constructions of the first type generate pronominal clitics (argument clitics on verbs, possessor clitics on nouns), demonstratives, definite articles and modal particles; and those of the second type supply bound reflexive, reciprocal, gender and evaluative markers, as well as derivational formatives. Section 5 addresses the sources of equational copulas. Finally, Section 6 closes the paper by summarizing the main features of the examined phenomena.

2. Zapotec

Zapotec forms the larger of the two branches that compose the Zapotecan language family and is spoken mainly in the Mexican state of Oaxaca. The number of separate Zapotec languages is unsettled: Kaufman (2016) considers the figures reported in the successive editions of the *Ethnologue*³ – consistently upwards of fifty – “monstrously inflated” and prefers to speak in terms of five internally differentiated “language areas or virtual languages”.⁴ These are Northern, Central, Southern, Western and Papabuco. In this paper, I adhere to the common practice in the Zapotecanist literature and treat these as genealogical branches (Smith Stark 2007; Operstein

³ Most recently Eberhard et al. (2022).

⁴ See also Kaufman (2006: 119).

2012; Kaufman 2016), while referring to the ethnolinguistic groups identified by the *Ethnologue* as varieties.⁵

In common with other Otomanguean languages, Zapotec is left-headed, prefixing, and VSO (Kaufman 2006: 121; Campbell, Kaufman and Smith-Stark 1986: 547). There is only one accent per phonological word, with phonological contrasts tending to neutralize in unstressed syllables (Uchihara and Gutiérrez 2020: 15; Hernández 2021; Beam de Azcona and Cruz 2022). Bound morphology on the noun is limited to fossilized classifier prefixes, a small number of derivational prefixes and, in selected varieties, a possessed noun prefix and evaluative suffixes. The most morphologically complex part of speech is the verb. It minimally consists of a stem followed by a pronominal subject clitic (see 1a), or a bare stem if the subject is not pronominal (see 1b). More often, the stem is preceded by a TAM marker (shown in 1c-d).⁶

- (1) Zaniza Zapotec (P)⁷
- a. *zu=ã*
 STAT:stand-1SG
 ‘I am at home’ (Operstein 2015: 100)
- b. *zu tib æz*
 STAT:stand one possum
 ‘There was a possum’ (Operstein 2015: 31)
- Isthmus Zapotec (C)
- c. *bi-ree*
 COMP-come.out
 ‘Come out!’ (Pickett et al. 2001: 66)
- d. *bi-ree=be*
 COMP-come.out=3
 ‘S/he came out’ (Pickett et al. 2001: 66)

A range of additional morphemes may occur to the left or the right of the verb stem; the majority of these are placed between the TAM marker and the stem, or between the stem and the subject clitic (if present). Individual Zapotec varieties may differ considerably in the size of a maximal verb template,⁸ which correlates with their respective positions on the analyticity/syntheticity scale (Antonio 2015: 38; López Nicolás 2016: 123). The diagram in (2a) shows the structure of a “fully loaded verb” in Zoogocho Zapotec, a Northern variety; an illustrative verb with most of the template slots filled in is given in (2b) (from Sonnenschein 2004: 118).

⁵ The internal classification of Zapotec is subject to ongoing revision as new fieldwork data and new comparative analyses become available. See, most recently, Beam de Azcona (2023).

⁶ The abbreviations and symbols used in the glosses are explained at the end of the paper.

⁷ The capital letter in parentheses identifies the branch of Zapotec: N = Northern, C = Central, S = Southern, W = Western, P = Papabuco.

⁸ Verb templates have been provided, e.g., for Quiavini Zapotec (C) (Lee 2003: 51), Albarradas Zapotec (C) (Adam 2003: 55), Isthmus Zapotec (C) (Pérez Báez and Kaufman 2016: 5), Zoochina Zapotec (N) (López Nicolás 2016: 152-153), Lachirioag Zapotec (N) (Solá-Llonch 2021: 15), Zoogocho Zapotec (N) (Sonnenschein 2004: 118), Texmelucan Zapotec (P) (Speck 1978: 25, 1984: 140), Zaniza Zapotec (P) (Operstein 2015a: 28) and San Pedro Mixtepec Zapotec (S) (Antonio 2015: 39-41).

- (2) a. Aspect - Andative/Venitive - Secondary Aspect - Plural - Causative - VERB - Incorporated Noun - Primary Adverbial Suffix - Secondary Adverbial Suffix = Clitic Pronoun (Subject) = Clitic Pronoun (Object)
- b. *b-edey-ey-os-ban-tont-tek=e=nda'*
 COMP-VEN-FREQ-CAUS-live-fool-really=3.FORM=1SG
 'He keeps on coming and causing me to foolishly wake up'

The sentences in (3) illustrate the more analytic quality of Papabuco and Southern Zapotec in comparison with Northern Zapotec. Owing to this typological difference, some of the loose syntactic constructions in the more analytic varieties correspond to tight morphological structures in the more synthetic ones. In the context of grammaticalization, this difference is essential in that it allows us to recast the synchronic typological distinction into a probable diachronic sequence.

- (3) a. Texmelucan Zapotec (P) (Speck 2012: 243)
Zu kjup ju feɲ nu=j bikj ju
 STAT:stand two 3.M young with=3.M brother 3.M
 'There were once a young man and his brother'
- b. Quiégolani Zapotec (S) (Black 1994: 64)
Chu tank zob giblew ne r-len nis za
 belly tub STAT:sit faucet that HAB-bear water warm
 'In the middle of the tub sits a faucet that bears warm water'

The primary TAM categories on the verb are aspect and mood. Their number varies; for example, Zochina Zapotec (N) distinguishes five such categories (López Nicolás 2016: 190), and Tlacolula Valley Zapotec (C) distinguishes seven (shown in 4; see Munro 2006: 174-175).

- | | | | |
|-----|-------------|------------------|--------------------------------|
| (4) | Habitual | <i>ra'ahcw</i> | 'puts on (a shirt)' |
| | Potential | <i>ga'acw</i> | 'will put on (a shirt)' |
| | Completive | <i>gwua'ht</i> | 'put on (a shirt)' |
| | Irrealis | <i>nya'ahcw</i> | '(if...) had put on (a shirt)' |
| | Progressive | <i>caya'ahcw</i> | 'is putting on (a shirt)' |
| | Stative | <i>naa'cw</i> | 'is wearing (a shirt)' |
| | Definite | <i>za'ahcw</i> | 'will surely put on (a shirt)' |

The shapes of one or more of the TAM markers have traditionally been used as a basis for dividing Zapotec verbs into inflectional classes. The most comprehensive classification, proposed in Kaufman (2016) (and earlier drafts of this important work), is based on the Proto-Zapotec shapes of the potential mood and completive aspect markers.⁹ This classification scheme distinguishes four verb classes (see Table 1). Classes A through C are identified solely by the allomorphs of the TAM markers, whereas class D, whose TAM markers are identical with those

⁹ The scheme has been successfully tested on a number of languages, including Zaniza Zapotec (P) (Operstein 2015a: 38-40), Isthmus Zapotec (C) (Pérez Báez and Kaufman 2016) and Southern Zapotec (Beam de Azcona 2019).

of Class C, additionally uses a suppletive stem in the completive aspect (see also Operstein 2017: 372-374).

Table 1. Zapotec verb classification (after Kaufman 2016)

	Class A	Class B	Class C	Class D
Potential mood marker	*ki-	*ki-	*k-	*k-
Completive aspect marker	*k ^w e-	*ko-	*ko-	*ko-

An essential typological feature of Zapotec are positional verbs. These come in sets of varying sizes, with, e.g., seven such verbs reported for Quiaviní Zapotec (C), eleven for Texmelucan Zapotec (P), fifteen for Zoogocho Zapotec (N), eighteen for Yalálag Zapotec (N) and twenty for Zochina Zapotec (N) (Lillehaugen and Sonnenschein 2012: 25-26; Speck 2012: 241; Alonso Ortiz 2020: 83). Positional verbs are used as predicates in locative, possessive and existential constructions, the latter two uses resulting from grammaticalization (Maisak 2005: 268). Selected positional verbs have developed additional lexical meanings, such as ‘stand’ > ‘live’ or ‘hang, float’ > ‘owe’;¹⁰ and/or additional grammatical functions, such as ‘stand’ > ‘be’ or ‘be inside’ > ‘be’ or ‘must’. In most contemporary varieties, positional verbs form a special morphological class in that they tend to appear in a zero-marked stative form. By contrast, in sixteenth-century Zapotec zero-marked statives alternate with overtly marked ones (López Nicolás 2016: 421-423; Foreman and Lillehaugen 2017: 278-283).

3. Preverbal and pronominal elements

The overarching feature of the grammaticalizing constructions considered in this section is juxtaposition of two elements in which the first carries functional and the second lexical information. The constructions may display various degrees of bonding, with varying degrees of morphosyntactic autonomy of the elements and semantic bleaching of the functional element. The location of the stress on the second (lexical) element forces the first (functional) element into a prosodically weak position, leading to its phonetic erosion. The latter may be manifested as neutralization of tonal or featural contrasts, or tonal or segmental loss.

3.1 Preverbal markers

In the verbal constructions, the grammaticalizing element is a semantically basic verb (Viberg 1993: 350; Bybee et al. 1994: 5, 9-10). The typical starting point for the grammaticalization is a biclausal structure in which each verb is independently marked for TAM and has an independent subject (shown schematically in 5a). Same-subject constructions of this type may evolve into monoclausal structures in which the two verbs share a subject and only the functional verb is independently marked for TAM. Depending on the degree of bonding between the verbs, the subject may intervene between them, or it may be placed after the second (lexical) verb (see 5b). The scheme in (5c) shows the end point in the evolution of this construction. At this stage, the functional verb is realized as a prefix on the lexical verb. Same-subject constructions of this type

¹⁰ “It used to be that money would be hung from the rafters in small ceramic containers” (Sonnenschein 2004: 251).

include associated motion and posture, modal, aspectual, preverbal negation and hortative constructions. The different-subject construction is represented by the periphrastic causative.

- (5) a. [TAM-V₁ SUBJ] [TAM-V₂ SUBJ]
 b. [TAM-V₁ SUBJ V₂] ~ [TAM-V₁ V₂ SUBJ]
 c. [TAM-V₁-V₂ SUBJ]

With a nominal lexical component, the starting point for the grammaticalization is as shown in (6a), and the end point as shown in (6b). At this last stage, the functional verb is realized as a prefix on the erstwhile nominal component. This construction is the source of verbalizers.

- (6) a. [TAM-V₁ SUBJ NOM] ~ [TAM-V₁ NOM SUBJ]
 b. [TAM-V₁-NOM SUBJ]

3.1.1 Associated prior motion

Associated motion is “a verbal grammatical category [...] whose function is to associate [...] translational motion (spatial displacement / change of location) to a (generally non-motion) verb event” (Guillaume and Koch 2021: 3; see also Maisak 2005: 147-154). In Zapotec, associated motion constructions consist of (or derive from) the verbs *come* and *go* followed by a complement verb. The sense of the associated prior motion construction is movement toward or away from a deictic center prior to the action described by the lexical verb. In some varieties, the deictic center in question is described as the location of the speaker (cf. Long and Cruz 2000: 437 for Zoogocho Zapotec (N)), in others as that of the speaker’s home or village (cf. Lyman 2007: 87 for Choapan Zapotec (N)); while in Texmelucan Zapotec (P), it has been analyzed as an abstract Base (see below). The terms by which this verbal category is referred to in the Zapotecanist literature include *andative* (‘go and verb’) and *venitive* (‘come and verb’) (Kaufman 2016), as well as *verbos de desplazamiento* ‘displacement verbs’ or *aspectos de desplazamiento* ‘displacement aspects’ (Butler 1986: 38; Lyman 2007: 87).

The degrees of bondedness between the motion verb and the lexical verb vary. In the looser, phrasal construction shown schematically in (7a), the lexical verb is decategorized (in the sense of Heine and Kuteva 2002: 2) by failing to independently inflect for TAM; instead, it takes either a non-finite form or a fixed TAM form, such as the potential mood form (Speck 1978: 30; Beam de Azcona 2004: 206, 212; Lyman 2007: 88). In the construction schematized in (7b), the motion verb is decategorized in its turn by failing to take an independent subject. The construction in (7b) is variously analyzed as a phrase or a compound, and may be ambiguous between the phrasal and compound interpretations. For instance, Speck and Pickett (1976: 59) note that in Texmelucan Zapotec the motion verbs “are compounded with another verb stem” and write the motion verb-lexical verb combinations as one word with an internal morpheme break; by contrast, in Speck (1978: 30) the motion verb is written separately and referred to as an auxiliary.

In the tighter construction in (7c), the stem of the motion verb is realized as a prefix on the lexical verb; its location is between its own TAM marker and the stem of the dependent verb. By inheriting the TAM marker of the motion verb, the verb form so created also inherits its inflectional class. The tightening of the bond between the motion verb and the lexical verb is driven by the former being in a prosodically weak position, and may be accompanied by

phonetic erosion, including tonal or featural neutralization or segmental loss.¹¹ Compare, for example, the prefixes *a-* (andative) and *d-* (venitive) with the verb roots *iagh* ‘go’ and *id* ‘come’ in Lachirioag Zapotec (N) (Solá-Llonch 2021: 57).¹²

- (7) a. TAM–motion.verb (=) subject lexical.verb (phrase)
 TAM–motion.verb lexical.verb (=) subject
 b. TAM–motion.verb(–)lexical.verb (=) subject (phrase ~ compound)
 c. TAM–motion.prefix–lexical.verb (=) subject (verb form)

The two variants of the phrasal construction schematized in (7a) are illustrated below with examples from Southern Zapotec. In Quiegolani Zapotec, the complement verb takes what is described as the base form. In Coatec Zapotec, the complement verb appears in a non-finite form which may be morphologically related to the potential (Beam de Azcona 2004: 211, 213).

- (8) a. Quiegolani Zapotec (S) (Black 1994: 271)
Tsa noo wii gyooow roo
 POT:go I.EX CMPL:see river big
 ‘I’ll go see the big river’
- b. Coatec Zapotec (S) (Beam de Azcona 2004: 211)
Yá yǎz mǎ=y
 POT:go CMPL:plant 3.RESP=3.INAN
 ‘S/he’s going to plant it’

The construction schematized in (7b) is illustrated below with forms from Texmelucan Zapotec (P) (Speck and Pickett 1976: 63; Speck 1978: 30, 145). The left-hand column shows the basic TAM forms (potential, habitual and completive) of the lexical verb *go* inflected with the third person masculine subject clitic. The forms on the right illustrate the same verb functioning as a motion auxiliary. The dependent verb invariably takes what is synchronically analyzed as the potential mood form. As noted above, the constructions are ambiguous between a phrase and a compound.

- (9) $\widehat{t}j\text{a}=\text{j}$ ‘he will go’ $\widehat{t}j\text{a } j\text{ic}=\tilde{\text{a}}$ ‘I will go to do’
 $\text{rza}=\text{j}$ ‘he goes’ $\text{rza } j\text{ic}=\tilde{\text{a}}$ ‘I go to do’
 $\text{g}^{\text{w}}\text{a}=\text{j}$ ‘he went’ $\text{g}^{\text{w}}\text{a } j\text{ic}=\tilde{\text{a}}$ ‘I went to do’

For a fuller appreciation of the construction in (9), it should be noted that in Texmelucan Zapotec the verbs translatable as ‘come’ and ‘go’ come in pairs (see 10). The verbs within each pair are distinguished semantically by whether the movement is toward or away from a Base (“the place where the person in motion normally or expectedly returns”) (Speck and Pickett 1976: 61). This

¹¹ See Wichmann (2021) on the role of prosody in conditioning phonetic erosion of grammaticalizing items; and Beam de Azcona (2007: 3), Sonnenschein (2004: 35-36), Rojas Torres (2007: 62-53), Black (2012: 79), López Nicolás (2016: 73-74, 227), Uchihara and Gutiérrez (2020: 15) and Uchihara (2021: 359-360) on the location of stress and stress-driven phonological neutralization in Zapotec.

¹² It would appear that the periphrastic and unverbated constructions coexist in Zochina Zapotec (N) (López Nicolás 2016: 383-384, 393-394).

distinction is preserved in the associated prior motion constructions with these verbs (Speck and Pickett 1976: 59). In Quiévolani Zapotec (S), two *go* verbs have been described in such constructions as well, glossed as ‘go to base’ and ‘go to non-base’ in Black (1994: 270). According to Pickett (1976: 162), the concept of a Base is absent from Isthmus Zapotec (C) and is likely to be absent from Valley Zapotec; MacLaury (1989: 137-138 fn. 7), for his part, reports conflation of the two *go* verbs in Ayoquesco Zapotec (C). A comparison of the shape of the venitive prefix (*ede-*) with the root of the verb ‘come’ (*id*) in Zoogocho Zapotec (N) (Long and Cruz 2000: 438) hints at the likelihood of prior existence of two ‘come’ verbs in that variety. Additionally, Pickett (1976: 164) notes that Isthmus Zapotec’s only verb meaning ‘come’, *eeda*, is cognate with the Texmelucan verb indicating movement toward a Base.

(10)	<i>go (toward a Base)</i>	<i>go (away from a Base)</i>
	gya	tʃa
	rya	rza
	bya	g ^w a
	<i>come (toward a Base)</i>	<i>come (away from a Base)</i>
	gyed	kid
	ryeed	ryiid
	byeed	biid

The construction schematized in (7b) was present already in the oldest recorded form of Zapotec (Córdova 1578a: 58-59). The essential features of the construction in Córdova’s Zapotec are the same as in contemporary Zapotec, though there is greater variety in the formation of the dependent verb form (Smith Stark 2008: 412-413; see 11).

(11)	Córdova’s Zapotec (Smith Stark 2008: 413)	
	zele queago=a	‘I come to eat’ (Sp. vengo a comer)
	cha queago=a	‘I will go to eat’ (Sp. yre a comer)

The construction schematized in (7c) is illustrated below with forms from Choapan Zapotec (N) (Lyman 2007: 87-88). The lexical verb takes what is synchronically analyzed as the potential mood form.

(12)	a.	<i>r-a-chisa=ro=n</i>
		HAB-ANDA-raise=1PL.INCL=3.INAN
		‘we are going far to raise it’ (Sp. vamos lejos a levantarlo)
	b.	<i>r-ade-chisa=ro=n</i>
		HAB-ANDA-raise=1PL.INCL=3.INAN
		‘we are coming from afar to raise it’ (Sp. venimos de lejos a levantarlo)

In summary, Zapotec associated motion constructions display cross-family differences in (i) the degree of bondedness between the motion and lexical verbs, (ii) the degree of phonetic erosion of the motion verb, (iii) the morphological form of the dependent verb, (iv) the number

of the participating motion verbs and (v) the contours of the deictic center in relation to which the motion is construed. All Zapotec varieties preserve the lexical meaning of the motion verbs.

3.1.2 Associated concurrent motion and associated posture

A related type of construction combines a lexical verb with a motion or positional verb, and captures the motion or posture of the (animate) subject during the action of the lexical verb (Maisak 2005: 272ff).¹³ A variegated range of such constructions is attested in Córdoba's Zapotec (C), where the participating motion verbs include *come*, *go* and *walk*; among the positional verbs, *stand*, *lie*, *sit* and *be inside* all feature in Córdoba's discussion (1578a: 59). The motion or positional verb in this construction lacks an independent subject. The lexical verb usually takes the form of a pure stem in the case of consonant-initial stems, and adds a *y-* in the case of vowel-initial ones (Smith Stark 2008: 414-416). The forms in (13), culled from Córdoba (1578a: 59) and Smith Stark (2008: 415-416), provide an illustration. Córdoba's translations, which are supplied in parentheses, suggest that some of the constructions may have been further grammaticalized into progressives.¹⁴ The extent of desemantization of the positional verbs varies. For example, while *noo* 'be inside' and *çoba* 'sit' appear to be bleached of their positional sense, Córdoba's translations of the constructions with *zoo* 'stand' and *naa* 'lie' clearly contain both a progressive and a postural component. Cross-linguistic studies suggest that constructions with positional verbs and the nondirected motion verb *walk* are a frequent source of progressives (Kuteva 1999; Maisak 2005: 262ff, 367ff).

(13)	zele	'come'	zèle zàbi=a	'I come flying' (Sp. venir bolando)
	zaa	'go'	huazaa yago=a	'I go eating' (Sp. ir comiendo)
	cana	'walk'	cana yago=a	'I walk eating' (Sp. andar comiendo)
	na-zoo	'stand'	nazoo yago=a	'I stand eating' (Sp. estar en pie comiendo)
	n-aa	'lie'	naa yaci=a	'I lie sleeping' (Sp. estar echado dormiendo)
	n-oo	'be inside'	noo yago=a	'I am eating' (Sp. estoy comiendo)
	na-çoba	'sit'	naçoba peeza=ya	'I am waiting' (Sp. estoy esperando)

In contemporary Zapotec, constructions of this type have been noted in Southern Zapotec (Beam de Azcona 2004: 140, 143, 208; Black 1994: 285, fn. 10; Huhn et al. n.d.; Antonio 2015), Central Zapotec (Smith Stark 2008) and Northern Zapotec (López Nicolás 2015: 61-62), with varying degrees of grammaticalization both within and across the varieties (see 14). In Zochina Zapotec (N), the construction is generally biclausal. The construction with *zo* 'stand' in that variety is grammaticalized further than the others in being monoclausal (the auxiliary takes no independent subject and the complement takes a specific form) and in marking inceptive aspect (López Nicolás 2015: 61-63, 2016: 205-206). San Juan Mixtepec Zapotec (S) (Huhn et al. n.d.) has the progressive aspect prefix *nó-*, as in *nó-lílàdz* (*lílàdz* 'believe'), which is cognate with the auxiliary *noo* 'be inside' in Córdoba's Zapotec seen in (13). In Coatec Zapotec (S), the most common progressive auxiliary derives from the verb meaning 'sit' (Beam de Azcona 2004: 207, fn. 6). In San Pedro Mixtepec Zapotec (S), the positional verb *kié* 'hang' shows two layers of grammaticalization in that it functions as an auxiliary in periphrastic progressives and as a prefix

¹³ The term *associated posture* is borrowed from Guillaume (Forthc).

¹⁴ Due to the use of *ir*, *andar* and *venir* as aspectual auxiliaries in Spanish, Córdoba's translations are ambiguous between the aspectual and motion readings.

in morphological ones: compare *kié nà wgít* ‘I am playing’ with *kié-gít nà* ‘id.’ (Antonio 2015: 276-277, 286-292).

In Chichicapan Zapotec (C), the progressive construction employs a range of positional verbs including *stand*, *be inside*, *be stuck on* and *be heaped* (Smith Stark 2008: 416-417). Smith Stark (2008: 417) emphasizes this variation by providing alternative ways of expressing ‘they are opening it’: with *nu* ‘be inside’, *ka* ‘be stuck on’ and *ri* ‘be heaped’. The example in (14c) illustrates an associated posture construction in the same variety.¹⁵ The considerable lexical variation among the progressive auxiliaries in Chichicapan (C) and Coatec Zapotec (S) points to the comparatively low degree of grammaticalization of the construction in these varieties as compared, e.g., to Quiegolani Zapotec (S), which employs only two verbs for the purpose: *sit* and *stand* (Black 1994: 270; see Lamiroy and De Mulder 2021: 305-306).

- (14) a. *Nzöb* *yêtz* *mě*
 HAB:sit INF:sleep 3.RESP
 ‘S/he is sitting asleep’ (Coatec (S))
- b. *W-on* *men* *w-zob-tsaá* *te* *maa*
 COMP-hear 3 COMP-sit-shout one 3.ANIM
 ‘He heard an animal sitting shouting’ (Quiegolani (S))
- c. *Zobá* *y-awu* *bwítshi* *bága* *nin* *g-útxi*
 STAT:sit GER-eat buzzard cow REL COMP-die
 ‘The buzzard is sitting eating the cow that died’ (Chichicapan (C))

An advanced degree of grammaticalization is reached by the progressive aspect prefix of the general shape /ka-/ in Central Zapotec (see 16). The list of TAM categories in Tlacolula Valley Zapotec, repeated for convenience in (17), shows that this marker is treated by the analysts as a regular, obligatory TAM category, comparable to such pan-Zapotec categories as the potential, habitual and completive. Smith Stark (2008: 417) hypothesized that this marker derives from the stative form of the positional verb meaning ‘be stuck on’. Broadwell (2015), who views the progressive with /ka-/ as diagnostic of membership in Central Zapotec, has documented this construction in colonial Zapotec texts from the sixteenth century onwards. Apart from its restricted dialectal distribution,¹⁶ the relatively recent origin of /ka-/ is suggested by the maintenance of its vowel in varieties in which unstressed vowels are regularly dropped (Uchihara 2021: 382).

- (16) a. Isthmus Zapotec (C) (Pickett et al. 2001: 53)
Xi *ca-yúni=tu*
 what PROG-do=2PL
 ‘What are you doing?’

¹⁵ From Broadwell (2015: 168), who references Smith Stark's unpublished manuscript as his source.

¹⁶ “[T]he smaller the taxonomic group united by a particular characteristic, the more recent the characteristic in question” (Lorenz 1977: 181).

- b. Güilá Zapotec (C) (López Cruz 1997: 88; cited after Broadwell 2015: 164)
Gèt cà-cwáà=nú
 tortilla PROG-throw=1PL
 ‘We are making tortillas’

(17)	Habitual	<i>ra'ahcw</i>	‘puts on (a shirt)’
	Potential	<i>ga'acw</i>	‘will put on (a shirt)’
	Completive	<i>gwua'ht</i>	‘put on (a shirt)’
	Irrealis	<i>nya'ahcw</i>	‘(if...) had put on (a shirt)’
	Progressive	<i>caya'ahcw</i>	‘is putting on (a shirt)’
	Stative	<i>naa'cw</i>	‘is wearing (a shirt)’
	Definite	<i>za'ahcw</i>	‘will surely put on (a shirt)’

Unlike motion auxiliaries, whose stems are squished between their own TAM markers and the stem of the dependent lexical verb, in the case of /ka/ the auxiliary verb's stem itself gets grammaticalized into a TAM marker. This difference may stem from the tendency of positional verbs to dispense with overt TAM marking (Foreman and Lillehaugen 2017: 278-283).

Isthmus Zapotec (C) possesses a form which Pickett et al. (2001: 54) label *progresivo ambulativo* and describe as “movimiento durante la acción” [movement during the action] (see 18). Its marker, *cana*, is undoubtedly cognate with Córdoba’s *cana* ‘walk’, shown in (13), which, already in Córdoba’s time, was used in the associated motion construction without an overt TAM marker (Smith Stark 2008: 416).

- (18) *Ti gunaa cana-yubi xheela'*
 a woman PROG.AMB-look.for husband
 ‘A woman is looking for a husband’

3.1.3 Modal and phasal aspect auxiliaries

In this type of construction, the auxiliaries form a restricted set of verbs which includes modal verbs like ‘can’, ‘must’ and ‘should’; and phasal aspect verbs (*begin*-class verbs; Newmeyer 1975) like ‘begin’ and ‘finish’ (Sonnenschein 2004: 215; Munro 2006: 183-188; López Nicolás 2015: 38, 2016: 207-208, 381). Unlike non-auxiliary two-verb constructions, these typically show some morphosyntactic bonding between the two components. The auxiliaries are marked for TAM, while the shared subject follows the complement verb (Sonnenschein 2004: 264; Munro 2006: 183-184; López Nicolás 2015: 38, 2016: 381ff; but see Antonio 2015: 74). Depending on the auxiliary, the complement verb may agree with it in TAM, show up in a different but compatible TAM form, or occur in a fixed form such as potential or irrealis (Sonnenschein 2004: 215-216; Munro 2006: 185-186) (see 19). Some auxiliaries appear only in a fixed TAM form (López Nicolás 2016: 207). The sentence in (19c) illustrates negation of an auxiliary construction in Mitla Zapotec (C) by means of a discontinuous negative morpheme consisting of a preverbal negator and a negative clitic hosted by the auxiliary (cited after Black 1994: 195). The auxiliaries can typically also occur as autonomous verbs (López Nicolás 2016: 381ff). The auxiliary verb may have a different meaning when used outside the auxiliary construction: thus, Munro (2006: 187) notes that in Tlacolula Valley Zapotec *rahc* means ‘can,

be able to, be allowed to’ when used as an auxiliary and ‘be’ when used as a main verb (see Section 5).

- (19) a. *dx-ak dx-on=o' shinh*
 HAB-can HAB-make=2SG work
 ‘You can work’ (Zoogocho Zapotec (N))
- b. *R-quìì'ny ny-a'uw=a'*
 HAB-need IRR-eat=1SG
 ‘I should have eaten’ (Tlacolula Valley Zapotec (C))
- c. *Di g-ac=di g-un Juan=ni*
 NEG POT-can=NEG POT-do Juan=3
 ‘Juan cannot do it’ (Mitla Zapotec (C))

3.1.4 Verbalizers

Nominals (nouns and adjectives) may be verbalized by means of light verbs. In Córdoba’s Zapotec (C), these are *aca* ‘be; be made, become’ and *oni* ‘make’ (Smith Stark 2008: 386); and in Zaniza Zapotec (P), they are /jah/ ‘become’, /ah/ ‘be’ and /itʃ/ ‘do/make’ (Operstein 2015: 41, 47). The first two of the Zaniza Zapotec verbs are cognate with Córdoba’s *aca*; their lexical meanings are reflected in their proposed Proto-Zapotec reconstructions, *akka ‘to be possible; to happen’ and *y-akka ‘to get well’.¹⁷ The examples in (20) illustrate the verbalizing constructions with examples from Coatecas Altas Zapotec (S) (Benton 2015: 131-132).

- (20) a. *G-ak nakao lo ngubiz*
 POT-be dark face sun
 ‘The sun will be darkened’
- b. *Mi-li wen ja' da*
 COMP-do good 3HUM 1SG.EXP
 ‘S/he healed me’

Even closely related varieties may display different degrees of grammaticalization of the verbalizers. For example, the verbalizers conveying the meanings of ‘entrance into a state’ and ‘being in a state’ show greater phonetic and morphological erosion in Texmelucan than in Zaniza Zapotec (P) (see 21). While in the latter variety, the nominal forms a compound with the light verb, in the former, the /a-/ of /a-rit/ ‘be thin’ is analyzed as a prefix (Speck 1978: 33). López Nicolás (2016: 175-176) discusses the situation when the nominal has ceased to exist outside the verbalizing construction.

- | | | |
|------|-------------------------|--|
| (21) | Zaniza Zapotec (P) | Texmelucan Zapotec (P) |
| | /jah-nap/ ‘become good’ | /ja-nap/ (< /jak/) ¹⁸ ‘get fixed’ |
| | /ah-ʎa’/ ‘be bitter’ | /a-rit/ (< /ak/) ‘be thin’ |

¹⁷ Here and below, the reconstructions are cited after Kaufman (2016).

¹⁸ Note that Speck (1978: 32) derives /ja-/ from /ja/ ‘go’ rather than /jak/ ‘become’.

The verbalizing constructions are additionally employed as a vehicle for integrating Spanish loan verbs (Beam de Azcona 2017). In some languages, only *do/make* is used for this purpose, while in others the stative verbalizer is used as well, with corresponding differences in transitivity (e.g., only *un* in Quiegolani Zapotec (S) versus both *ùn* and *àk* in Güilá Zapotec (C)) (Black 1994: 270-271; Calderón Corona 2021: 51-55). The loan verb may form a compound with the light verb, or may be separated from it by the arguments, as in (22) (from Black 1994: 271).

- (22) *R-un* *men* *inbitar* *y-ra* *x-kompanyer* *men*
 HAB-do 3 invite POT-all POSS-companion 3
 ‘They invite all their companions [over]’ (Quiegolani (S))

Compounding with light verbs may also be used for causativization of native verbs. This usage is illustrated below with forms from Tilquiapan Zapotec (C) (from Merrill 2008).

- (23) *rac-rsa* ‘drive’ (*rsa* ‘carry’)
rac-naya ‘make clean’ (*naya* ‘be clean’)
run-ráxh ‘make lazy’ (*ráxh* ‘be lazy’)
run-racxuu ‘make ill’ (*racxuu* ‘be ill’)

The verb *do/make* is also used as an auxiliary in syntactic causatives, cf. the Macuiltianguis Zapotec (N) example in (24a) (Foreman 2006: 138) and Coatecas Altas Zapotec (S) example in (24b) (Benton 2015: 128). The use of the same formal device to verbalize nominals, causativize native verbs and integrate loan verbs has ample cross-linguistic parallels, including the use of the second measure for the three functions in Arabic (Smeaton 1973: 38). Syntactic causatives may also be formed with other auxiliaries, such as ‘let’, ‘put’ and ‘give’, to express various degrees of causation (Operstein 2015b: 41-42; López Nicolás 2016: 364-366).

- (24) a. *B-eeni=ja'* *kè'* *g-o'o=nà=nà*
 COMP-make=1SG of POT-buy=3SG=3.INAN
 ‘I made him buy it’ (Macuiltianguis)
- b. *Ni-lt=n* *g-au* *f-me'd=a* *jet*
 HAB-do=1SG POT-eat POSS-child=1SG tortilla
 ‘I make my child eat tortillas’ (Coatecas Altas)

3.1.5 Other preverbal markers

3.1.5.1 Stative

Several branches of Zapotec possess a stative form marked by the prefix *na-*, of nonuniform productivity. For example, in Isthmus Zapotec (C) it derives statives from about half the verbs, as well as stative verb forms from some nominals (Pickett et al. 2001: 58) (see 25). Various observers trace the origin of this prefix to the (nearly) homophonous copula (Lee 2003: 238-239; Uchihara 2021: 382-383).

- (25) beza ‘live’ na-beza ‘live’ (stative)
 bata ‘wide’ na-bata ‘be wide’
 beñe ‘mud’ na-beñe ‘be muddy’

3.1.5.2 *Passive*

Zapotec is characterized by the prevalence of valence- and transitivity-increasing derivation (Operstein and Sonnenschein 2015). Against this background, Papabuco stands out in possessing a productive passive/anticausative prefix *du-* (Speck 1978: 32; Operstein 2015a: 45). In Zaniza Zapotec, the resulting verb form is invariably inflected with class B TAM markers, which suggests that the prefix has a class B verb as its source (see 26).

- (26) *u-du-ʌub=ɲ*
 COMP-PASS-sweep=3.INAN
 ‘It has been swept’

3.1.5.3 *Causative*

The causative morpheme reconstructed by Kaufman (2016) as *(s)se- is attested as a class A auxiliary in Southern (Coatec and Miahuatéc) Zapotec, where it combines with the infinitive of the complement verb (Beam de Azcona 2015: 153-155). In Central and Northern Zapotec, this morpheme is reflected as a prefix (Operstein 2015b: 34-35).

3.1.5.4 *Exhortative*

Several Central and Northern Zapotec varieties have an exhortative marker derived from the verb ‘go’. In Mitla Zapotec (C) and Zochina Zapotec (N), this is an unbound morpheme (see 27a); in the former variety, it also functions as the (archaic) first person imperative of ‘go’. In Yalálag, Zoogocho and Yatzachi El Bajo Zapotec (N), it is realized as a prefix on the lexical verb (see 27b) (Long and Cruz 2000: 219; Operstein 2002: 59; López and Newberg 2005: 16; López Nicolás 2016: 212-213). Grammaticalization of the exhortative marker out of a verb of motion conforms to the well-known cross-linguistic pattern and is attested elsewhere in Otomanguean (Maisak 2005: 177-179; Aikhenvald 2010: 346-349).

- (27) a. *do'o gui-dauu*
 EXH POT-eat
 ‘let’s eat’ (Mitla Zapotec (C))
- b. *do-kwe'e*
 EXH-POT:sit
 ‘let’s sit’ (Yalálag Zapotec (N))

3.1.5.5 *Negators*

Some of the markers negating declarative verbal clauses have their origin in negative existential predicates (Croft 1991; Veselinova 2013: 127-133). Anderson and Lillehaugen (2016: 407) hypothesize that the Quiaviní Zapotec (C) construction in (28a) may have developed out of a biclausal structure (compare 28a with 28b). The cognate negative morpheme in Teotitlán del Valle Zapotec (C) functions only as a negative existential (Gutiérrez 2018; see 28c).

- (28) a. *Que'ity=di' mnì'iny y-zh:ùu'nny mnì'iny*
 NEG=PCLE child POT-run child
 'The child will not run'
- b. *Que'ity=di' mnì'iny*
 NEG=PCLE child
 'There is no child' / 'There are no children' / 'The child is not here'
- c. *Kěty nis nna'dxi*
 NEG.EX water today
 'There is no water (service) today'

Córdova's Zapotec, as well as other Valley Zapotec writings from the colonial period, display four negative morphemes: *aca*, *yaca*, *ya* and *qui* (Anderson and Lillehaugen 2016). The forms *aca* and *yaca* appear to have descended from a negative existential, and *yaca* at least is polysemous between existential and sentential negation. The phrase *yaca xàba=ni* in (29), from Feria (1567), has the structure of a negative possessive clause translatable as 'his clothes do not exist' (cited after Anderson and Lillehaugen 2016: 399). The Córdova Zapotec forms *aca* / *yaca* appear to be cognate with the negative existentials in Lachixío Zapotec (W) (*leca*) and Texmelucan Zapotec (P) (*sak*) (Persons et al. 2009: 22; Speck 2012: 249).

- (29) *co-c-aca=lo leçaa=lo, chi na-zie=ni,*
 COMP-CAUS-get.dressed=2SG fellow.man=2SG when STAT-be.naked=3
- chi yaca xàba=ni*
 when NEG clothes=3
 'Clothe your fellow man when he is naked, when he has no clothes'

It is probable that some of the prohibitive negators are likewise of verbal origin (see the Macuilianguis Zapotec example below; Foreman 2006: 113).

- (30) *bittu guttsa'nàá'=lù'*
 NEG POT:get.married=2Sg
 'Don't get married'

3.1.5.6 Secondary aspects

The verbal origin of the markers of the so-called secondary aspects, repetitive (*ey) and frequentative (*ese),¹⁹ is suggested by their location between the primary TAM markers and the verb stem. An example of each from Córdova's Zapotec is given in (31) (after Smith Stark 2008: 389-391). Cross-linguistically possible lexical sources for such markers include verbs with the meanings 'turn' and 'return' (Maisak 2005: 246-247). The secondary aspect forms may become lexicalized: cf. the pair *un* 'give' / *eyun* 'return' ('give again') in Choapan Zapotec (N) (Lyman 2007: 92).

¹⁹ Also known under other labels (see Smith Stark 2008: 389; López Nicolás 2016: 203-204).

(31)	ti-zàbi=a	‘fly’	t-e-zàbi=a	‘fly again’	(repetitive)
	t-ago=a	‘I eat’	t-àce-àgo=a	‘eat again’	(frequentative)

3.2 Prenominal elements

The grammaticalizing elements considered in this section are, with one exception, all nouns. This includes generic nouns (Sections 3.2.1–3.2.3 and 3.2.6) and body-part terms (Section 3.2.4).

3.2.1 Noun classifiers

Zapotec varieties possess a type of binomial lexeme in which the first noun is generic and the second specific (Beam de Azcona 2004: 265, 2012; Operstein 2003: 167-168, 2015a: 21; Antonio 2015: 440ff; López Nicolás 2016: 303ff). Zapotec shares this type of lexeme, and/or its fully grammaticalized classifier-noun descendants, with other Otomanguean languages, including Mixtecan (de León 1988), Amuzgo (Smith Stark and Tapia García 1984: 212), Mazatecan (Kaufman 2006: 122) and Popolocan (Veerman-Leichsenring 2004). The generic nouns may include such items as ‘person’, ‘animal’, ‘thing’, names of materials and substances such as ‘wood’ and ‘water’, and the botanical terms ‘tree’, ‘vine’, ‘herb’, ‘medicinal plant’, ‘leaf’, ‘flower’ and ‘fruit’. This type of lexeme is productive in the names of plants, where the second noun – the semantic head of the lexeme²⁰ – is a hyponym of the first, which names the life-form (Hunn 1998; Beam de Azcona 2012: 262; de Ávila 2010). Depending on their degree of grammaticalization, the generic nouns may function synchronically as both autonomous nouns and classifiers; their obligatoriness as classifiers varies from one lexical item to another (Beam de Azcona 2012: 262; Operstein 2003: 168, 2015a: 21; Aikhenvald 2000: 89) (see 32). In common with other reported classification systems of this type, the classifiers occur with only a portion of the eligible vocabulary (Aikhenvald 2000: Ch. 3; Seifart 2010). A curious usage is noted in Zochina Zapotec (N), where the classifier for inanimates means ‘late’ or ‘deceased’ when used with nouns denoting humans (López Nicolás 2016: 289).

(32)	a.	Coatec Zapotec (S) (Beam de Azcona 2013: 262)		
		yà yèd	‘pine’	(‘tree pine’)
		yà zôn	‘guarumbo’	(‘tree guarumbo’)
	b.	Zaniza Zapotec (P) (Operstein 2015: 21)		
		/jag gɨj/ ~ /gɨj/	‘box’	(‘wood box’)
		/gid ngu/ ~ /ngu/	‘testicle’	(‘skin testicle’)
	c.	Córdoba’s Zapotec (C) (Córdoba 1578b) ²¹		
		mani cogo	‘hoopoe’	(mani ‘animal’)
		mani pechi	‘quail or partridge’	
		mani peete	‘skunk’	
		mani misto	‘cat’	

²⁰ The syntactic head of the classifier-noun lexeme is apparently the classifier (Aikhenvald 2003: 90).

²¹ Here and below, the forms from Córdoba (1578b) are cited after the digitized version (Oudijk 2015).

Synchronic descriptions suggest that the above lexemes vary in status between phrases and compounds, and that the degree of grammaticalization of the classifiers is nonuniform. For example, in Coatec Zapotec (S) tonal contrasts are usually neutralized on the unstressed first member of a compound, with the unstressed syllable assigned a high tone. Beam de Azcona (2012: 263) notes that, while the ‘animal’ classifier takes the default high tone, the classifiers for ‘person’ and ‘tree’ retain their lexical tones, which appears to suggest that the binomial lexemes are compounds in the first case and phrases in the second. Nonetheless, the ‘person’ and ‘animal’ classifiers both show segmental reduction (see 33).

- | | | | | |
|------|------|---|-----|----------|
| (33) | mǎn | > | má | ‘animal’ |
| | mě̃n | > | mě̃ | ‘person’ |

The outcomes of an earlier cycle of what would have been the same type of lexeme formation are completely lexicalized. By way of illustration, the forms in (34) (from Hunn and Vásquez 2001: 27 and Beam de Azcona 2004: 266, 2012: 263) contain the historical animacy prefix *k^we-. The Coatec Zapotec (S) forms feature two adjacent animacy prefixes resulting from two successive cycles of binomial lexeme formation, while the San Juan Mixtepec (S) prefix appears to result from an earlier sequence *m-b-. Marcus and Flannery’s (1978: 57-59) proposed derivation of the historical animacy prefix from the noun meaning ‘wind’, ‘breath’ or ‘spirit’ is plausible in light of the noun-to-classifier developmental pathway detailed in this section.

- | | | | | |
|------|--------------------------|-------------------------|-----------------------|---------|
| (34) | <i>Córdova’s Zapotec</i> | <i>Mixtepec Zapotec</i> | <i>Coatec Zapotec</i> | |
| | pi-guijni | m-gũn | m-b-yìn | ‘bird’ |
| | pi-ciña | m-z̃n | m-b-zìn | ‘mouse’ |
| | pi-chìna | m-dzìn | m-b-zhìn | ‘deer’ |

3.2.2 Nominalizers

Some of the generic nouns that serve as the sources of noun classifiers can also function as, or evolve into, nominalizers. This usage has been reported, e.g., for Texmelucan Zapotec (P) (Marlett 1985: 96), Zaniza Zapotec (P) (Operstein 2015a: 23) and various Northern Zapotec varieties. The Choapan Zapotec and Yatzachi El Bajo Zapotec forms shown in Table 2 function as both nouns and nominalizers (Butler 1980: 211; Lyman 2007: 24). The Zoogocho Zapotec forms function as nominalizers and differ from the corresponding generic nouns *binh*, *benh* and *danh* in lacking the word-final fortis nasal (Sonnenschein 2004: 262-263). The San Andrés Yaa Zapotec forms *beene’* ‘person’ and *no’ol* ‘woman’ function as both nouns and nominalizers, while *bi’*, *be’* and *da’* are proclitic nominalizers (Galant 2007: 32).²²

²² In López Nicolás (2016: 338), the constructions with adjectives are analyzed as relative clauses rather than nominalizations.

Table 2. Nominalizers in Northern Zapotec²³

	YATZACHI EL BAJO	SAN ANDRÉS YAÁ	ZOOCHINA	CHOAPAN	ZOOGOCHO
‘person’	<i>benə'</i>	<i>beene'</i>	<i>béné</i>	<i>ben'</i>	
‘woman’	<i>no'olə</i>	<i>no'ol</i>			
‘child’	<i>bi'i</i>	<i>bi'</i>	<i>bi'</i>		<i>bi</i>
‘animal’	<i>bia</i>	<i>be'</i>	<i>bé</i>	<i>bia</i>	<i>be</i>
‘thing’	<i>de'e</i>	<i>da'</i>	<i>dá'</i>	<i>ta</i>	<i>da</i>

The examples below, from San Andrés Yaá Zapotec, show the nominalizer for inanimates with an adjective in noninitial predicative position, where it agrees with the subject in class (in 35a); and with deictic enclitics (in 35b-c). Just as in Mixtec (cf. de León 1988: 151-152, 159), the forms with deictic enclitics function as demonstrative pronouns; Butler (1980: 205, 214) views this as yet another instance of the nominalizing function of these forms. The presence of the nominalizer in (35a) is necessary to prevent attributive reading of the adjective and induce its predicative reading (Galant 2007: 25).

The form *da'=na'* in (35c) is grammaticalized further into a relative pronoun agreeing with the antecedent in class. In Zoogocho Zapotec, the generic nouns *benh*, *danh* and *binh* introduce relative clauses and agree with the head noun in class (Sonnenschein 2004: 258) (cf. Marlett 1985: 108). In Choapan Zapotec, the generic noun/nominalizer for inanimates *ta* can introduce relative clauses with antecedent inanimate nouns (in 35d), as well as purpose clauses (in 35e).

(35) San Andrés Yaá Zapotec (N) (Galant 2007: 25, 30; 2008: 323)

- a. *Liibr=i da'=ya'a*
 book=DEM NOM.INAN=green
 ‘This book is green’
- b. *Da'=ni dzh-o't=een kukaraach*
 NOM.INAN=DEM HAB-kill=3INAN cockroach
 ‘This kills cockroaches’
- c. *Boteey da'=na' b-niit=a'=na' n-aak=en che*
 bottle NOM.INAN=DEM COMP-lose=1SG=DEM STAT-be=3.INAN POSS

Beed=a'
 Pedro=DEM
 ‘The bottle that I lost was Pedro’s’

Choapan Zapotec (N) (Lyman 2007: 44-45, 132)

- d. *du'bi' ta naca culuri žna*
 feather thing/that is color red
 ‘feathers that are red’

²³ The forms are cited after Butler (1980: 211), Sonnenschein (2004: 262-263), Lyman (2007: 24), Galant (2007) and López Nicolás (2016: 309, 556); see also Marlett (1985: 108-109). In the following cases, the glosses in the source publications differ from the ones given in the table: *bi'* in San Andrés Yaá Zapotec is used for humans, *bi* in Zoogocho Zapotec is used for small things regardless of animacy, and *bi'* in Zochina Zapotec is for informal use.

- e. *Bi nezi-jë'* *bi* *rmedio* *hue-jë'* *quie* *huë'*
 NEG know-3PL.RESP what remedy will:do-3PL.RESP POSS wound
- ta* *bi* *gu'dzo-n*
 thing/so.that NEG will:rot-3INAN
 'They don't know how to cure a wound so it does not become infected'

The varying degrees of grammaticalization of the classificatory nominalizers in Northern Zapotec, coexistence of lexical and grammatical functions in some of the forms, and the fact that comparable forms have not been described for Central Zapotec (cf. Munro 2011: 23-28 for Quiaviní and Córdova's Zapotec) indicate that this is a relatively recent innovation. López Nicolás (2016: 316-317) relates these forms to the use of generic nouns in binomial compounds of the generic-specific type.

The abstract noun nominalizer reconstructed by Kaufman (2016) as *kella? is likewise of nominal origin. In Córdova (1578b), *quela* is recorded as an autonomous noun with such meanings as “modo vso o costumbre de qualquier cosa” [way, manner or custom of anything], “propiedad o ser de qualquier cosa” [characteristic or essence of anything] and “vsança o vso de qualquier tierra en la habla en el modo y costumbres” [manner or custom of any land in speech, manners and customs]. Compounds with *quela* in the modifier position, such as *peni-quela* “ombre bien criado cortes de buenas costumbres de estofa de linaje” [a well-bred, courteous, respectable, noble man of quality], further clarify its semantics. A large number of compounds contain *quela* as the initial element, including *quela huago* ‘food’, *quela cozaa* ‘departure’ and *quela nagola* ‘old age’. In contemporary Zapotec, this morpheme appears to function only as a nominalizer. Its productivity, combinability and degree of fusion with the form being nominalized are nonuniform across the varieties: it is analyzed as a prefix in Lachixío Zapotec (W) (Persons 2009: 7), as a proclitic in Tlacolula Valley Zapotec (C) (Munro 2011: 25-27), and as a free form in Choapan Zapotec (N) (Lyman 2007: 24) and Zochina Zapotec (N) (López Nicolás 2016: 221). Its productivity in Tlacolula Valley Zapotec is limited, particularly when contrasted with its robust documentation during the colonial period²⁴ (Munro 2011: 25-27). In Choapan Zapotec (N), it productively derives abstract nouns from verbs, participles, adjectives, nouns and noun phrases; its productivity in Yatzachi El Bajo Zapotec (N) is equally high (Butler 1980: 205ff). The Choapan Zapotec forms in (36) illustrate some of these uses (Lyman 2007: 25).

- (36) *yela' neban* ‘life’ (*neban* ‘lives’)
yela' guti ‘death’ (*guti* ‘who has died’)
yela' zi'i ‘weight’ (*zi'i* ‘heavy’)
yela' huë ‘illness’ (*huë* ‘wound’)
yela' ben' huen ‘honesty’ (*ben' huen* ‘good person’)

3.2.3 Alienable possession markers

Zapotec varieties differ in the complexity of the expression of attributive possession (Marlett 2010). Three types of constructions are distinguished, illustrated below with examples from

²⁴ E.g., the Junta Colombina dictionary contains about thirty pages of lexical entries headed by *guela-* (Whitecotton and Whitecotton 1993: 75-106).

In the Zapotec varieties with alienability distinction, the construction in (37) is limited to kinship, body-part and relational nouns. The emergence of alienability distinction due to grammaticalization of a more explicit possessive construction for alienable possession and specialization of the older construction for inalienable possession has ample cross-linguistic parallels. It has been suggested, moreover, that the alienability distinction represents a transitional stage where the older construction lingers on in limited contexts (Claudi and Heine 1989: 7; Koptjevskaja-Tamm 1996: 261; Heine 1997: 172-183; Dahl 2009: 43-44).

The advanced stage of grammaticalization of the possessed noun prefix prevents tracing its lexical source; Kaufman (2016) reconstructs it as a proclitic or prefix *xi-. The possessive markers, on the other hand, are of nominal origin. In Choapan Zapotec (N), the marker *quie* seen in (38b) is a noun glossed as *posesión de* ‘possession of’ (Lyman 2007: 21, 26-28, 41-42). Its cognates in other Northern Zapotec varieties, including Macuiltianguis Zapotec (*què’ ~ qui’*) and Zoogocho Zapotec (*che ~ chi*), are analyzed as prepositions (Sonnenschein 2004: 134, 170; Foreman 2006: 183, 212). In Choapan, Zoogocho and Zochina Zapotec (N), this marker also introduces dative and benefactive complements (López Nicolás 2016: 326). In Macuiltianguis Zapotec, it additionally functions as a complementizer (Foreman 2006: 183, fn. 50).

In Córdoba’s Zapotec (C), the possessive marker *xi-tini* consists of the possessed noun prefix *xi- and a noun reconstructed by Kaufman (2016) as *tin ‘possessed thing’. In Córdoba (1578a: 13), *xitini ~ xiteni* is defined as “la parte o lo que pertenece” [part or that which belongs]. In Córdoba (1578b), *(xi)tini ~ (xi)teni* is glossed as ‘cosa’ [thing], as in *xiteni angel* ‘angelical cosa’ [angelic thing], *xiteni pezelao* ‘diabolica cosa’ [diabolic thing], *teni=a* or *xiteni=a* ‘mia cosa’ [my thing]. Its cognate in San Pedro Mixtepec Zapotec (S), *chěn*, can be used as an autonomous noun with the meanings ‘thing’ or ‘belongings’. The possessive construction with *chěn* is possible only when the possessum is inanimate, a sign of its relatively recent grammaticalization (Antonio 2015: 383, 395-396). In Quiavini Zapotec (C), the possessive marker *x:-tee’n* is analyzed as a dummy possessed noun (Lee 2003: 10). In Ocotlán Zapotec (C) and Coatec Zapotec (S), this marker is further along the noun > preposition cline, being either prepositional or on the way to becoming a preposition (Beam de Azcona 2004: 304-305; Marlett 2010: 10-12). As noted in Kuteva et al. (2019: 350), and confirmed by the Zapotec data on hand, the development from a noun meaning ‘thing’ or ‘property’ to a possessive marker involves reinterpretation of an appositive construction as a possessive one.

3.2.4 Body-part locatives

In Zapotec, the meaning of selected anatomical terms is extended to conceptually equivalent parts of objects and the adjacent locations. The development of locatives out of body-part terms has received the most attention in the study of grammaticalization in Zapotec, both for its areal aspect – Campbell, Kaufman and Smith-Stark (1986: 545-546) include relational nouns among the diagnostic features of the Mesoamerican linguistic area – and its universal cognitive appeal (MacLaury 1989; Stolz 1992; Stolz and Stolz 2001).

The number of the anatomical terms grammaticalized in any given variety is nonuniform. For example, in Ayoquesco Zapotec (C) less than a dozen out of 128 recorded human body-part terms are grammaticalized as relational nouns (MacLaury 1989: 121). MacLaury (1989: 120-135) has argued persuasively that the lexical and grammatical extensions of these terms are based on the mental image of a human (as opposed to animal) body and reflect the spatial configuration in which “the head is always highest”, “the feet lowest” and “the back posterior”.

Table 3 displays a representative selection of body-part locatives together with their typical literal and extended meanings.²⁷ Individual varieties may grammaticalize additional terms, such as ‘buttocks’ > ‘under’ or ‘chest’ > ‘beside’. The body-part locatives are used both in the stationary sense in locative constructions, and in the directional sense with verbs of motion (Jensen de López 2012: 100-104).

Table 3. Selected body-part locatives

LEXICAL MEANING	LOCATIVE MEANING	CHOAPAN ZAPOTEC	ZOOGOCHO ZAPOTEC	AYOQUESCO ZAPOTEC	TLACOLULA DE MATAMOROS ZAPOTEC
‘face, eye’	‘in front of, on, to’	lao	lao	lō	lohoh
‘mouth, lips’	‘at the edge of’	ru'a	dxoa	ro'o	ru'uh
‘head’	‘on top of, over’	gitfo	yichgh	gìk	guè'èhcy
‘side’	‘next to, beside’	k ^w eta	kwit	ko'o	cwe'eh
‘belly’	‘inside’	lɛ'ɛ	lee	la'ayn	lâa'any
‘back’	‘behind’	ʃkudzo	kuzhe	tīč	dehts
‘foot’	‘at the foot of, under’	ni'a	nia	ye'e	ni'ih

In published descriptions, body-part locatives function as possessives in possessive constructions. Since body-part terms and relational nouns are generally identical and use the same type of possessive construction (see Section 3.2.3), their lexical and locative senses are not differentiated formally, leading to potentially ambiguous surface structures like the ones recorded in (40) (from Sonnenschein 2005: 130).

- (40) a. *sh-na=ba kuzhe=ba*
 CONT-look=3.ANIM back/behind=3.ANIM
 ‘It_i is looking at its_j back’
 ‘It_i is looking behind it_j’ (Zoogocho Zapotec (N))
- b. *Nâa' ca-cwaà=a' làa'iny yudòò'*
 1SG PROG-paint=1SG belly/in church
 ‘I am painting the inside of the church’
 ‘I am painting in the church’ (Guelavía Zapotec (C))

Different body-part terms have typically attained different degrees of grammaticalization, both within and across the varieties (Lillehaugen and Sonnenschein 2012: 22). A study of a corpus of over 2,000 clauses in Zoogocho Zapotec (N), reported in Sonnenschein (2005: 120), suggests that the most grammaticalized body-part term in that variety is *lao* ‘eye’ (< *lawo), followed by *zxa* ‘buttocks’ and *kuzhe* ‘back’; while *ni* ‘foot’ and *dxoalao* ‘face’ are the least grammaticalized. In general, ‘face/eye’ tends to be more grammaticalized than the other terms. In Choapan Zapotec (N), it has an impressive array of spatial and temporal senses that include ‘to, on, in, into, upon, over, in front of, up, into, during’, and also introduces indirect object complements (Lyman 2012: 292). In Ayoquesco Zapotec (C), the use of ‘face/eye’ with indirect

²⁷ From Lyman (2007: 137) for Choapan Zapotec (N), MacLaury (1989: 121) for Ayoquesco Zapotec (C), Lillehaugen and Sonnenschein (2012: 6-7) for Zoogocho Zapotec (N) and Tlacolula de Matamoros Zapotec (C).

objects is found only after verbs of speaking and showing (MacLaury 1989: 140-141), while, e.g., in Chichicapan (C) and Coatecas Altas Zapotec (S) this use is not so restricted (Benton 2012: 69-72). Other reported uses of ‘face/eye’ are as a marker of agents in passive constructions (Quiégolani Zapotec (S)) and as a standard of comparison marker (Quiavini Zapotec (C)) (Galant 2004: 72; Black 2012: 87). Some of the extended uses of ‘face/eye’ in Quiavini Zapotec (C) are illustrated in (41) (after Galant 2004: 73 and Sonnenschein 2005: 130).

- (41) a. *B-zhùu'azh=a' gueht loh bèe'cw*
 COMP-tear=1SG tortilla face/for dog
 ‘I tore up the tortilla for the dog’
- b. *Loh Jwaany b-zi=a'=ih*
 face/from Juan COMP-buy=1SG=3.PROX
 ‘I bought it from Juan’
- c. *Zyùua'll-ru Lia Oliieb loh Rrodriiegw*
 tall-more Ms. Olivia face/than Rodrigo
 ‘Olivia is taller than Rodrigo’

Grammaticalization of body-part locatives may be accompanied by their phonological divergence from the corresponding nouns. Thus, Adam (2012: 50-51) reports that ‘face’ and ‘mouth’, when used prepositionally, are phonologically reduced in certain contexts in Albarradas Zapotec (C); and Black (2012: 82) reports similar reduction for ‘mouth’ and ‘insides’. The grammaticalization is accelerated when the source body-part term shifts its meaning or disappears altogether, as is the case of *kwe* ‘beside’ in Albarradas Zapotec (C), whose cognates in closely related varieties refer to ‘(anatomical) side’ (Adam 2012: 47-48). Another indication of the degree of grammaticalization is token frequency. Benton (2012: 64) reports that, in his corpus of Chichicapan Zapotec (C) texts, the word for ‘face’ occurs 8% of the time as a body-part term and 70% of the time as a preposition,²⁸ whereas in a (shorter) corpus of Coatecas Altas Zapotec (S) it occurs 85% of the time as a preposition and never as a noun.

In Choapan Zapotec (N), selected body-part terms serve as locative adverbs when supplied with a suffix (Lyman 2007: 112-113; see 42). Two of these – *lahue-le* ‘above, in front’ and *lu'e-le* – may be used without the suffix.

- (42) *Nita'-yaque' žan-le*
 exist=3PL.RESP buttocks/under
 ‘They live downstairs’

Zapotec body-part locatives provide a clear instance of layering, in the sense of coexistence of lexical and grammatical functions in the same word form, which is typical of the less advanced stages of grammaticalization (Hopper and Traugott 2003: 124-126). The body-part nouns grammaticalize into prepositions at a different pace, with the various terms located at different steps of the noun > preposition cline, both within and across the varieties. This nonuniformity contributes to their ambiguous categorial status and fuels the ensuing theoretical

²⁸ The remaining occurrences are as an incorporated noun (see Section 4.2.3).

debate (MacLaury 1989; Lillehaugen 2003, 2006; Sonnenschein 2005; Lillehaugen and Sonnenschein 2012; Black 2012: 88ff; Jensen de López 2012).

3.2.5 Preposed articles

A number of Zapotec varieties have developed, or are in the process of developing, definite and/or indefinite articles. The indefinite article is preposed and is either identical to or derived from the numeral ‘one’. The definite article may be preposed, or it may be a clitic (see Section 4.1.2). E.g., Choapan Zapotec (N) uses *tu* ‘one’ as the indefinite article and the coordinating conjunction *nu* as a plural definite article (see 43a-b). In Zoogocho and Zochina Zapotec (N), the definite articles are clitics (see 43c-d; López Nicolás 2016: 287). In Zochina Zapotec, the ultimate source of the clitic definite article is a locative adverb, and the immediate source a clitic demonstrative (López Nicolás 2016: 290); this grammaticalization path may be hypothesized for the Zapotec clitic definite articles in general. Zochina Zapotec possesses two additional forms analyzed by López Nicolás (2016: 295-296) as indefinite articles; these have the interrogative pronouns *who?* and *what?* as their sources.

(43) Choapan Zapotec (N) (Lyman 2007: 59-60)

- | | | |
|----|------------------------|---------------------|
| a. | <i>tu yaga</i> | ‘a tree’ |
| | <i>tu nigula badan</i> | ‘a beautiful woman’ |
| b. | <i>nu nigula</i> | ‘the women’ |
| | <i>nu beco' snia</i> | ‘the fierce dogs’ |

Zoogocho Zapotec (N) (Sonnenschein 2004: 263-264)

- | | | |
|----|-------------------------|--|
| c. | <i>to be'ko' gasgh</i> | |
| | one/a dog black | |
| | ‘a/one black dog’ | |
| d. | <i>be'ko' gasgh=en'</i> | |
| | dog black=DET | |
| | ‘the black dog’ | |

Nouns preceded by the numeral one, or the indefinite article derived from it, can become lexicalized: cf. *tigi* ‘downwards; west’ (*tib* ‘one’, *gi* ‘foot/below’) in Zaniza Zapotec (P); *tez* ‘on the road, on the way’ (*to* ‘one’, *nez* ‘road’), *tga'al* ‘empty-handed’ (*ga'al* ‘simple’), *tgüeje* ‘sometimes’ (*güeje* ‘each’), *tni'a* ‘once’ (*ni'a* ‘time’), *tlacw* ‘a quarter of the land or harvest’ (*lacw* ‘id.’), *tzil* ‘the whole morning’ (*zil* ‘morning’) in Zoogocho Zapotec (N); and a range of measure words, such as *tyàg* (*tò* ‘one’, *yàg* ‘tree’), in Zochina Zapotec (N) (Long and Cruz 2000; Operstein 2015a: 68; López Nicolás 2016: 447-449).

3.2.6 Numeral classifiers

Córdova (1578a) records in his grammar two distinct sets of the numerals one through four. He explains that one of these is reserved for “long things”:

Es de notar que a donde dize. Tobi, topa, chona, tapa, vno, dos, tres, quatro, se puede dezir, chaga, cato, cayo, taa, y es para cosas largas, s. ropa, madera. &c. (Córdova 1578a: 186)

[It is to be noted that where it says *tobi*, *topa*, *chona*, *tapa*, one, two, three, four, one can say *chaga*, *cato*, *cayo*, *taa*, and this is for long things, that is, clothes, wood, etc.]

In addition, the objects counted are identified by means of numeral classifiers. In Córdova's (1578a: 197-198) description, humans and animals are counted with the help of *quique* 'head', as in *tobiquiquepeni* (*tobi* 'one', *quique* 'head', *peni* 'person'). *Quie* 'stone' is used for counting eggs, tunas, tamales "o toda fruta assi redonda" [or any round fruit like that]. Classifiers derived from the names of plants or their parts include *quie*²⁹ 'grain', used for cocoa "y todo grano" [and all grains]; *laga* 'leaf',³⁰ used for blankets, hides "y toda cosa assi" [and anything like that]; *yaga* 'tree', used for beams "y cosa larga assi" [and long things like that]; *xana* 'stalk, trunk', used for cornstalks, trees and bushes; and *locha* ~ *loche*³¹ 'fiber', used for turnips, radishes, bananas and chili peppers. Other classifiers include *lao*, recorded in Córdova (1578b) with the meaning 'cosa generalmente' [thing generally] and used for counting *sermones plasticas y parlamentos* 'sermons, talks and speeches'; as well as *choo* 'lado derecho o siniestro' [right or left side], used for counting single members of paired objects (shoes, gloves, ears, etc.). Córdova's illustrations of numeral noun phrases include examples where the noun is suppressed, as in *tobi-quique* 'one hen' (literally, 'one head') (Córdova 1578a: 197).

In contemporary Zapotec, counting with the help of classifiers has been reported for Quiaviní Zapotec (C), as in *tyo'p ndahg gù'a'nn* 'two bulls' (Munro 2002: 61-62); *ndahg* appears to be cognate with Córdova's *laga* 'hileras de hombre, o toda cosa en hileras' [row of men, or anything in a row]. López Nicolás (2016: 447-449) lists several measure words in Zochina Zapotec (N); these represent a lexicalized combination of the numeral one (*tò*) and what appear to be numeral classifiers, cf. *tyàg* (*yàg* 'tree'), *tyíchgh* (*yíchgh* 'head'), *tyíxghoh* (*yíxghoh* 'net').

4. Postverbal and postnominal elements

4.1 Clitics

The constructions in this section have in common juxtaposition of two elements in which the first carries lexical and the second, functional information. The stress falls on the lexical element, causing cliticization and phonetic erosion of the functional element. Since the latter can be a lexical item (e.g., a locative adverb) or a functional one (e.g., a personal pronoun), the processes include both primary and secondary grammaticalization.

4.1.1 Personal pronouns

All Zapotec varieties distinguish between free and bound forms of personal pronouns. The extent to which this distinction is carried through is nonuniform across the family, as are the restrictions

²⁹ Spelled the same as *quie* 'stone' but hypothesized to have a different tone (Oudijk 2015).

³⁰ As an autonomous lexeme meaning 'leaf', this noun contains the animacy marker *pe-* (*pelaga*) (Córdova 1578b).

³¹ Córdova (1578b) lists *lochattoo*, *lochetoo* 'fiber' (*too* 'rope'). Whitecotton and Whitecotton (1993: 365) record *tobiloocha* "una caña, paja, cabello, cosa larga" [*tobi* 'one', *loocha* "cane, straw, hair, a long thing"].

on the occurrence of the forms. In typical descriptions, the free forms, which are phonologically independent, may show up in isolation, as focused arguments, as subjects of copular clauses, and as objects of Spanish prepositions. The bound forms are cliticized to their hosts and serve as arguments, possessors, and objects of native prepositions (Marlett 1993; Operstein 2003; Beam de Azcona 2005: 307ff; Lillehaugen 2006: 29ff). The formal relationship between the two categories of pronouns varies. In some varieties, some or all of the free forms are composed of the clitic forms attached to a phonological host/nominalizer (see 44a-b);³² in others, some or all of the clitics represent phonologically reduced forms of the free pronouns (see 44c-d); suppletive relationships also occur. Though the pronouns do not function as agreement markers, in some varieties moving the subject to preverbal position triggers the appearance of a resumptive pronoun after the verb (Black 1994: 50, fn. 8; Galant 1998: 24) (compare 45a with 45b).

(44) Quiaviní Zapotec (C) (Munro 2002)

- a. B-tò' Li'eb **la'a-nng**
 COMP-sell Felipe BASE-3.PROX
 'Felipe sold it [this one]'
- b. B-tò' Li'eb=**ëng**
 COMP-sell Felipe=3.PROX
 'Felipe sold it [this one]'

Zaniza Zapotec (P) (Operstein 2015a: 62, 78)

- c. **ru** sigul=ã
 2SG old.woman=1SG
 'You are my old woman'
- d. tʃuŋ urih ni=**r** bas?
 who COMP:give PREP=2SG glass
 'Who gave you the glass?'

(45) a. Coatec Zapotec (S) (Beam de Azcona 2004: 316)

Mě ka' ndâp kē
 3.RESP FOC HAB:have fault
 'He is at fault'

b. Quiaviní Zapotec (C) (Galant 1998: 24)

La:anng bda'uhw=ëng comiied
 3.PROX COMP:eat=3.PROX food
 'He ate the food'

The pronouns for the first and second persons are at an advanced stage of grammaticalization. In the case of several of the third-person forms, the lexical sources are more readily accessible.

³² The most common phonological host/nominalizer is a descendant of *leʔa, which in some varieties is homophonous or nearly homophonous with a focus marker (Operstein 2003: 171-172; Riggs and Marlett 2010; Kaufman 2016). The differential object marker in some varieties of Valley Zapotec reported in López Corona (2016) is perhaps more likely to have developed out of the latter morpheme.

Third-person pronouns divide the referent nouns into several semantic classes, largely in a variety-specific way. The basic division is into animates and inanimates; the animate class is divided into animals and humans, and the human class may be split into such subclasses as formal, familiar and reverential. A number of third-person pronouns have generic nouns as their source, including words for person, child, animal and thing (*k^wenne? ‘person, people’, *k^wi?i ‘child’, *mmani? ‘animal’, *kkwana ‘plant’) (Marlett 1985: 96; Operstein 2003: 172-175; Kaufman 2016: 65-70). Recently grammaticalized pronouns may retain nominal features, such as the ability to be modified by determiners (Black 2000: 36-37). The surface resemblance between the pronouns and the source nouns varies. For example, in Coatec Zapotec (S) the relationship is at its clearest in *měn* ‘person’ > *mě* (human pronoun), *mǎn* ‘animal’ > *má* (animal pronoun) and *ta'n* ‘thing’ > *ta'* (inanimate pronoun) (Beam de Azcona 2004: 310); the relationships in San Pedro Mixtepec Zapotec (S) are equally transparent (Antonio 2015: 446-449).

Some of the third-person pronouns are indistinguishable from the nominalizers and/or noun classifiers. E.g., in the Coatec Zapotec (S) examples in (46a-a"), “[t]he classifiers *mě* and *má* are identical to the pronouns which are reduced forms of the full nouns ‘person’ and ‘animal’” (Beam de Azcona 2004: 295). In the Texmelucan Zapotec (P) examples, *ju* is used as a pronoun in (46b) and as a nominalizer in (46b') (Speck 2012: 241-242). Similar functional overlap has been noted for Quiéfolani Zapotec (S) (Black 2000: 37) and Zaniza Zapotec (P) (Operstein 2015a: 23).

(46) Coatec Zapotec (S) (Beam de Azcona 2004: 265, 275, 308)

a. *Ngùth mē*
 COMP:die 3.RESP
 ‘He died’

a'. *Mě gúlâzh*
 NOM native
 ‘Native residents of the town since birth’

a". *Mě gôtz*
 CLF female
 ‘Woman’

Texmelucan Zapotec (P) (Speck 2012: 241-242)

b. *dzi rit ju*
 very thin 3.M
 ‘He is very thin’

b'. *bzu tub ju bel*
 COMP:stand one NOM elderly
 ‘There was an old man’

The formal and functional overlap between third-person pronouns, noun classifiers and classificatory nominalizers is in need of an explanation. To account for a similar overlap in Mixtec, a grammaticalization pathway has been proposed from generic nouns to noun classifiers and to third-person pronouns, with further grammaticalization into relativizers and subordinators

(Ventayol-Boada 2021; de León 1988; Veerman-Leichsenring 2001; Craig 1986: 264; Aikhenvald 2000: 87-88, 374-377). A developmental pathway along similar lines can be sustained for Zapotec as well, based on the anaphoric use of the classifiers. Thus, Beam de Azcona (2012: 263) notes that in Coatec Zapotec (S) noun classifiers can be used anaphorically to refer back to fuller noun phrases, López Nicolás (2016: 305-308) discusses similar usage in Zoochina Zapotec (N) and Galant (2007: 26-28, 31) furnishes examples from San Andrés Yáa Zapotec (N) in which the classificatory nominalizers in the second clause refer back to the nouns in the first. Clearly, polygrammaticalization of generic nouns in Zapotec calls for further investigation, both family-wide and language-specific.

4.1.2 Locative deictics

Zoochina Zapotec (N) possesses a clitic copula, a distal demonstrative, a focus marker and a definitite article of the shape = *nhà'*. All of these ultimately derive from the free adverb *nhà'* ‘there’, which continues to coexist with its grammaticalized progeny. To account for these developments, López Nicolas (2016: 331-334) proposes the grammaticalization chains in (47).

(47)	FREE		CLITIC		
	locative adverb	>	distal demonstrative	> copula > focus marker	> definite article

The above situation is a language-specific instance of the family-wide process of grammaticalization and (often also) cliticization of locative adverbs (Marlett 1985: 94-95). Depending on the language, and the host to which they are attached, these forms may function as adnominal demonstratives, definite articles, demonstrative pronouns, third-person pronouns or copulas. The different grammaticalized outcomes may coexist in the same variety, though it may be necessary to look outside the variety to establish their likely lexical sources (Butler 1980: 215ff; Munro 2002; Operstein 2003; Lillehaugen 2006: 30; Galant 2007; López-Nicolás 2016: 288ff, 331ff). The examples below illustrate a third-person distal pronoun in Tlacolula de Matamoros Zapotec (C) (in 48a) and a demonstrative pronoun in San Andrés Yáa Zapotec (N) (in 48b) (from Lillehaugen 2006: 44 and Galant 2007: 25). In each case, the phonological host to which the clitic is attached simultaneously serves as a nominalizer.

(48)	a.	<i>Làa'=na'ah</i>	<i>n-aga'ah-yeisy=na'ah</i>	
		BASE=3.DIST	STAT-lie-sleep=3.DIST	
		‘He is sleeping’		
	b.	<i>Da'=ni</i>	<i>dzh-o't=een</i>	<i>kukaraach</i>
		NOM.INAN=DEM	HAB-kill=3.INAN	cockroach
		‘This kills cockroaches’		

In some Zapotec varieties, first-person pronouns represent lexicalized combinations of the corresponding free pronominal forms and (grammaticalized) locative adverbs. For example, *narèe'* ‘I’ in Tlacolula de Matamoros Zapotec (C) is composed of *naa'* ‘I’ and *rèe'* ‘here’. The cognate of the latter in Quiaviní Zapotec (C) is a free form functioning as an adverb (‘here’), a postnominal demonstrative adjective (‘this’) and a demonstrative pronoun (‘this one’)

(Lillehaugen 2006: 30, 60; see also Operstein 2003: 157 fn. 5, 164). In Texmelucan Zapotec (P), combinations of bound third-person pronouns with locative deictics function as free deictic pronouns, cf. =*ju* ‘he’, *jui’i* ‘this one’ (*i’i* ‘here’), *jure* ‘that one’ (*re* ‘there’ (visible to speaker)), *juze* ‘that one’ (*ze* ‘there’ (not visible to speaker)) (Marlett 1985: 95).

4.1.3 Negation particle

At least some Central and Southern Zapotec varieties express sentential negation by means of an enclitic, used either by itself or as part of a discontinuous, pre- and post-verbal negative morpheme (Black 1993: 3-4; Lee 2003: 57-58; Miestamo 2007: 554-555). The enclitic is cognate with the form *ti* seen in the Córdoba’s Zapotec (C) examples in (49) (cited after Anderson and Lillehaugen 2016: 402). It will be observed in (49) that *ti* is not confined to negative contexts (compare 49a with 49b), which is the case in some contemporary Zapotec varieties as well (Anderson and Lillehaugen 2016: 403). In their paper, Anderson and Lillehaugen (2016: 409-410) demonstrate gradual obligatorification of this clitic in the expression of negation in Valley Zapotec. A clue to its likely origin in a modality marker may be found in San Dionisio Ocotepéc Zapotec (C), where it interacts with the factuality of the negated verb. Thus, the clitic is present only if the verb is in one of the factual forms, and is absent when the verb is in a non-factual (potential or irrealis) form (Broadwell 2012). This suggests that *ti* may originally have marked non-factual or irrealis modality, particularly in light of the robust cross-linguistic connection between irrealis modality and negation, including reanalysis of irrealis markers as markers of negation (Honda 1996: Ch. 6; Kahrel 1996: 80-87; Palmer 2001: 173-176; Romero 2012).

- (49) a. *t-ágo=ti=á*
 HAB-eat=*ti*=1SG
 ‘to be eating’ (Sp. ‘estar comiendo’)
- b. *yá=c-ágo=ti=lo*
 NEG=POT-eat=*ti*=2SG
 ‘do not ever eat it’ (Sp. ‘no lo comas nunca’)

Zapotec possesses a rich array of modal enclitics (Munro 2006: 189-191; Rojas Torres 2007: 76-78); the lexical sources of these forms must remain a subject for future research. Another cliticized element that may be mentioned is the marker licensing the standard of comparison phrase (Sonnenschein 2004: 232; Galant 2004, 2015). An example from San Andrés Yaa Zapotec (N) may be seen in (50) (from Galant 2015: 230).

- (50) *Petr=a’ t-seedl=x=be’ ka needa’*
 Petra=DEM HAB-study=more=3INF than 1SG
 ‘Petra studies more than me’

4.2 Compound constituents

The characteristic that unites the grammaticalizing constructions in Sections 4.2.1 through 4.2.3 is incorporation, or insertion of a free lexical or grammatical element into the verb complex. Depending on its location relative to the verb root, and some other properties, the incorporated

element has been described as the second member of a verbal compound, a suffix, or a clitic.³³ For some of the constructions, the construction with incorporation may coexist with its analytic counterpart as a (stylistic) variant. The functional or semantic contribution of the incorporated element may include valence (reflexive, reciprocal and instrumental-comitative markers), spatial orientation (spatial adverbs) and modality (modal particles). Where the contribution of the incorporated element is opaque, the grammaticalization transitions into lexicalization (Maisak 2005: 66-68; Brinton and Traugott 2005: Ch. 2). The constructions in Sections 4.2.4 and 4.2.5 concern noun modifiers that originate as modifying constituents of nominal compounds.

4.2.1 Reflexives and reciprocals

The reciprocal marker in Zapotec is a noun with such meanings as ‘fellow’,³⁴ ‘companion, person from the same town’,³⁵ ‘fellow, companion, relative, spouse, boyfriend, girlfriend’,³⁶ ‘relative; type of the same species; related to’,³⁷ ‘relative (kinsman), fellow (man), another like’,³⁸ ‘fellowman, mankind’,³⁹ ‘man’s brother’.⁴⁰ In a comparative study of Zapotec reciprocals, Munro (2015: 304-310) identified three types of reciprocal constructions which differ in the degree of bonding between the verb and the reciprocal marker. Some Zapotec varieties use only a transitive clause with the reciprocal marker in object position, others can additionally incorporate the marker into the verb, and still others realize it only as a bound morpheme. The Choapan Zapotec (N) example in (51a) illustrates the syntactic construction, and the Isthmus Zapotec (C) example in (51b) the morphological one (from Lyman 2007: 46 and Pickett et al. 2001: 78-79, respectively).

- (51) a. *Bëti=jë'* *laguedyi=jë'*
 killed=3PL.RESP companion=3PL.RESP
 ‘They killed each other’
- b. *Nadxii-saa=du*
 STAT:love-RECIP=1PL.EX
 ‘We love one another’

Reflexives are expressed by means of nominals variously glossed as ‘self’,⁴¹ ‘person, personal presence’,⁴² or ‘same’.⁴³ The basic reflexive clause has a transitive structure, with the reflexive marker in object position and its antecedent in subject position (Marlett 1985: 110; see 52a). In some varieties, reflexive nominals also function as intensifiers (Pickett et al. 2001: 39;

³³ E.g., López Nicolás (2016: 160) analyzes the incorporated preposition *lhénh* as a suffix.

³⁴ Zoogocho Zapotec (N) *Ighez*h (Sonnenschein 2004: 255).

³⁵ Choapan Zapotec (N) *laguedyi* (Lyman 2007: 46).

³⁶ Zaniza Zapotec (P) *losa'* (Operstein 2015a: 46; Munro 2015: 308).

³⁷ Teotitlán del Valle Zapotec (C) *sa'* (Gutiérrez 2021: 126).

³⁸ Tlacolula Valley Zapotec (C) *sa'ah* (Munro 2015: 302-304).

³⁹ San Pedro Mixtepec Zapotec (S) *-lsà* (Hunn et al. n.d.: 11).

⁴⁰ Coatecas Altas Zapotec (S) *wet'* (Benton 2015: 134).

⁴¹ Zoogocho (N) and Yatzachi El Bajo Zapotec (N) *kwin* (Butler 1976; Sonnenschein 2004: 255), Macultianquis Zapotec (N) *luesi'* (Foreman 2006: 575), Lachixío Zapotec (W) *lecatsia* (Persons et al. 2009: 19), Zaniza Zapotec (N) *ub* (Operstein 2015a: 45), Coatecas Altas Zapotec (S) *jub* (Benton 2015: 135).

⁴² Choapan Zapotec (N) *cuin* (Lyman 2007: 45).

⁴³ Isthmus Zapotec (C) *laca* (Pickett et al. 2001: 38-39).

Lyman 2007: 46; Marlett 1985: 93; Persons et al. 2009: 20; see Heine and Song 2011: 598-599). The Choapan Zapotec (N) examples below illustrate both usages (from Lyman 2007: 46).

- (52) a. *Uchug=a' cuin=a' len macheta qui=a'*
 cut=1SG person=1SG with machete POSS=1SG
 'I cut myself with my machete'
- b. *Bida cuin mestros deyubi=në' në'di*
 came person teacher come.to.visit=3.RESP 1SG
 'The teacher himself came to visit me'

The grammaticalization of the reflexive construction is recent, as indicated by the etymological diversity of the reflexive markers and the absence of this construction in a number of the varieties which express reflexives by repeating the subject (Black 2000: 73-74; Munro 2005: 95-96; Hunn et al. n.d.: 25; Antonio 2015: 53) (see the Quiégolani Zapotec (S) example in 53; from Black 2000: 74).

- (53) *r-wii noo noo*
 HAB-see 1EX 1EX
 'I see myself' / 'We see ourselves'

4.2.2 Comitatives and instrumentals

In some Zapotec varieties, comitative-instrumental markers may be compounded with the lexical verb. This may raise the verb's valence by converting peripheral arguments into core ones (Operstein 2015b: 37-39; López Nicolás 2016: 349-352). The marker may be viewed as the second member of a verbal compound. E.g., in Teotitlán del Valle Zapotec (C) the stress shifts to this marker just as it does to second members of compounds (Uchihara 2021: 359). The examples from San Andrés Yaá Zapotec (N) below show that the construction with incorporation (in 54b) may coexist with its analytic counterpart (in 54a) (from Galant 2015: 230).

- (54) a. *Kwann=a' zoo=be' Sandres neen needa'*
 Juan=DEM NEUT:be=3.INF San.Andrés with 1SG
 'Juan lives in San Andrés with me'
- b. *Kwann=a' zoo-neem=be' needa' Sandres*
 Juan=DEM NEUT:be-with=3.INF 1SG San.Andrés
 'Juan lives in San Andrés with me'

4.2.3 Compound verb constituents

Selected body-part nouns may be compounded with the verb. As in other types of compounds, the stress shifts to the second element (here, the noun) (Uchihara 2021: 359). Of especial interest is incorporation of the noun/relational noun 'face/eye', which may affect the verb's valence. The meanings of such compounds range from semantically compositional to non-compositional

(Lyman 2007: 99-100, 2012: 294; Benton 2012: 72-73, 2015: 129-130; Operstein 2015b: 44; López Nicolás 2016: 168-170) (see 55).

(55) Verbal compounds with *lao* ‘face’ in Choapan Zapotec (N) (Lyman 2012: 294)

ru ‘enter’	ru-lao ‘get used to’
zu ‘be alive; exist; be’ (in a place)	zu-lao ‘begin’

Verbal compounds with *lo* ‘face’, *ladz* ‘heart’ in Zaniza Zapotec (Operstein 2015a: 41)

kaş ‘hide’	kaş-lo ‘hide oneself’
at ‘die’	at-lo ‘be ashamed, embarrassed’
ju’ ‘enter’	ju'-lo ‘know how to, be able to’
ju’ ‘enter’	ju'-ladz ‘like’
ad ‘find, acquire’	ad-ladz ‘know, find out’

Verbal compounds may also be formed with adverbs, including spatial adverbs such as ‘face up’ or ‘upside down’, which nuance the meaning of positional verbs (Operstein 2015a: 52-53); with manner adverbs, such as ‘quickly’ or ‘incessantly’ (López Nicolás 2016: 170-173); and with degree adverbs, such as ‘too much’ or ‘very much’ (Galant 1998: 22). Some of these adverbs have no corresponding free forms.

As discussed by Lightfoot (2005: 594) in connection with West Germanic *haid > Old High German *-heit*, such compound constituents are best viewed as a means of derivation. On the cline of lexicality (part of phrase > part of compound > derivational affix) (Wischer 2021: 359), these formatives are located between the second and third steps. The views on whether the origin of derivational formatives is to be considered an instance grammaticalization, lexicalization or, indeed, both, are nonuniform.

4.2.4 Gender markers

The nouns meaning ‘man’ (‘male’) and ‘woman’ (‘female’) may be added to names of animals to indicate the male or female of the species (cf. Aikhenvald 2000: 358). Examples include /şib bija/ ‘she-goat’ (‘goat woman’) in Zaniza Zapotec (P), *bidx na*² ‘female seed’ (‘seed woman’) in Santiago Apóstol Zapotec (C), and /bedj ngu:l/ ‘male turkey’ (‘chicken male’) in Teotitlán del Valle Zapotec (C) (Operstein 2015a: 25; Padilla 2010: 123; Uchihara and Gutiérrez 2020: 15). Where mentioned, the location of stress points to the compound status of the resulting words (Uchihara and Gutiérrez 2020: 15).

4.2.5 Evaluative markers

Some Zapotec varieties possess evaluative markers, described as either clitics or suffixes (Rojas Torres 2007: 72ff; López Nicolás 2016: 292-293; Antonio 2015: 85; Uchihara and Gutiérrez 2020: 15). In some cases, these appear to have descended from the modifying members of compounds. E.g., the diminutive/affectionate clitic =*dáó*’ in Zochina Zapotec (N) is transparently related to the noun *bí’dáó*’ ‘child’ (< *=tawo?, *k^we-tawo?) (López Nicolás 2016: 292, 300).

5. Equational copulas

Zapotec has several ways of expressing copular relations, including by using positional verbs (in locative clauses) and by having no overt copula (in equational ones). All Zapotec varieties also have at least one equational copula, and some have more than one.

All branches of Zapotec possess an equational copula derived from *akka ‘to be possible; to happen’ (the same reconstructed form has produced the modal auxiliary ‘to be able to’; see Section 3.1.3). In some varieties, such as Zoogocho Zapotec (N), this is the only copula (Sonnenschein 2004: 244) (see 56). In Quiégolani Zapotec (S), the copula derived from *akka is translated as ‘become’ and contrasts with the copula translated as ‘be’ (Black 1994: 69).

- (56) *benhe* *n-ak* *noolh* *wego*
person STAT-be woman virgin
‘The person is a young woman’

Selected branches of Zapotec possess a copula of the general shape /na/, discussed earlier as a likely source of the stative prefix (see Section 3.1.5.1). This copula has a limited aspect morphology and syntactic distribution (Lee 2003: 238-239); its lexical source is unclear. The example below is from Tlacolula de Matamoros Zapotec (C) (Lillehaugen 2006: 62).

- (57) *Nndèe' bèe'cw nàa* *ngaàa'ts*
this dog COP yellow
‘This dog is yellow’

Other copulas have evolved on the variety-specific basis. E.g., Zochina Zapotec (N) has the clitic copula =*nhà'* derived from a distal demonstrative (see Section 4.1.2). The same variety also has grammaticalized the positional verb *zo* ‘stand’ into a copula that can occur in attributive or identifying clauses (López Nicolas 2016: 336, 344-347) (see 58). In Quiégolani Zapotec (S), the copula translated as ‘be’ (*nuu*) is cognate with the positional verb *noo* ‘be inside’ in Córdoba’s Zapotec (shown earlier in 13) (Black 1994: 69).

- (58) *dà'* *Kálistr* *zó* *prístént=nhà'*
INAN Calixto COP president=DEF
‘The late Calixto was the president’

6. Conclusion

Zapotec developments have not yet played a significant role in the discussion of grammaticalization. The only area to have received any attention outside the specialist circle is grammaticalization of relational nouns (body-part locatives). The index to the second edition of the *World Lexicon of Grammaticalization* (Kuteva et al. 2019) is symptomatic of this state of affairs, containing as it does only two substantive references to Zapotec, both of which concern grammatical extensions of body-part terms: locative-agentive syncretism on page 265 and the development from ‘shoulder’ to ‘behind’ on page 393. This paper has endeavored to redress this imbalance by presenting a grammaticalization profile of the family.

The dominant emphasis throughout has been on the most characteristic areas of grammatical innovation and renovation, highlighting the role of grammaticalization as a force that both shapes and is shaped by Zapotec grammars. To that end, some developments had to be left out of consideration. This includes grammaticalization of lexical items outside specific constructions (Maisak 2005: 93-94), the distinction between primary and secondary grammaticalization (sporadically noted but not systematically explored) and degrammaticalization (cf. Operstein 2014).

Within these limitations, the paper has endeavored to highlight those areas of grammaticalization which give the Zapotec morphosyntax its distinctive cast. In the verb system, the focus has been on the sources of markers that occur preverbally (TAM and valence-related) as well as postverbally (argument clitics, reflexives, reciprocals, applicatives, modal clitics and derivational formatives). In the noun system, it has scrutinized a range of markers that occur prenominally (classifiers, nominalizers, determiners, body-part locatives) and postnominally (possessive clitics, determiners, evaluative and gender markers). The sources of equational copulas have also been examined. Consistent focus on recurrent and interconnected phenomena has brought into relief the salience of polygrammaticalization, or concurrent use of the same items in different syntactic functions (Robert 2004). A non-exhaustive list of items that fall under this heading includes basic verbs, which may function simultaneously as autonomous verbs, light verbs and/or auxiliaries; generic nouns, which may function as nouns, classifiers, nominalizers, third-person pronouns and/or clause connectors; body-part terms, which may function as nouns, numeral classifiers and/or body-part locatives; the nouns ‘fellow’ and ‘brother’ functioning as both nouns and reciprocal markers; locative deictics functioning as adverbs, adjectives, determiners and/or copulas; and the numeral ‘one’ doubling as the indefinite article. By combining the syntactic and prosodic perspectives, it has been possible to observe how the two modules work in tandem to propel grammaticalization.

A partial list of the areas of grammaticalization not covered or only lightly touched in this paper includes the sources of clause connectors, modal and evidential clitics and particles, evaluative clitics and suffixes, focus and topic markers, polar question markers, plural markers, native conjunctions and prepositions,⁴⁴ the Central Zapotec definite future,⁴⁵ the Northern Zapotec applicative marker *-d*, and such variety-specific curiosities as the alienable possession circumfix *d- . . . -nt* in San Pedro Mixtepec Zapotec (Antonio 2015: 289). Additional research from the descriptive, comparative and grammaticalization perspectives is needed to better understand the development of these markers and their parent constructions.

Abbreviations

1/2/3 = first/second/third person
ANDA = andative
ANIM = animal
BASE = pronoun base
CAUS = causative
CLF = classifier
CMPL = complement

⁴⁴ E.g., in Zoochina Zapotec (N) the only native preposition, *lhénh*, is a comitative-instrumental preposition which López Nicolás (2016: 466) derives from the homophonous verb meaning ‘to join’.

⁴⁵ See Smith Stark’s (2008: 409-410) proposal regarding this form.

COMP = completive
 CONT = continuative
 COP = copula
 DEF = definite article
 DEM = demonstrative
 DUMMY = dummy possessed noun
 EX = exclusive
 EXH = exhortative
 EXP = experiencer
 F = feminine
 FAM = familiar (pronoun)
 FORM = formal (pronoun)
 FREQ = frequentative
 GER = gerund
 HAB = habitual
 HUM = human (pronoun)
 IMP = imperative
 INAN = inanimate (pronoun)
 INCL = inclusive
 INF = informal (pronoun) *or* infinitive (verb form)
 M = masculine
 NEG = negative
 NEG.EX = negative existential
 NOM = nominalizer
 PASS = passive
 PCLE = particle
 PFVE = perfective
 PL = plural
 POSS = possessed noun prefix *or* possessive marker
 POT = potential
 PREP = preposition
 PROG = progressive
 PROX = proximate (pronoun)
 RECIP = reciprocal marker
 REL = relativizer
 RESP = pronoun of respect
 SG = singular
 STAT = stative
 VEN = venitive

References

- Adam, Christopher C. 2003. *A Study of Dixidx Bilyáhab (Santo Domingo Albarradas Zapotec) Morphophonology*. Northridge: California State University Northridge (MA thesis).
 Adam, Christopher C. 2012. BP Nominal to preposition grammaticalization in Dixidx Bilyahab. In Brook Danielle Lillehaugen and Aaron Huey Sonnenschein (eds), *Expressing Location in Zapotec*, 37-55. Munich: Lincom Europa.

- Aikhenvald, Alexandra Y. 2000. *Classifiers: A Typology of Noun Categorization Devices*. Oxford: Oxford University Press.
- Aikhenvald, Alexandra Y. 2010. *Imperatives and Commands*. Oxford: Oxford University Press.
- Alonso Ortiz, Ana D. 2020. Propiedades de los verbos posicionales en el zapoteco de Yalálag. *Linguística Mexicana, Nueva Época, II*, 1, 77-99.
- Anderson, Carolyn Jane and Brook Danielle Lillehaugen. 2016. Negation in Colonial Valley Zapotec. *Transactions of the Philological Society* 114. 391-413.
- Antonio Ramos, Pafnuncio. 2015. *La fonología y morfología del zapoteco de San Pedro Mixtepec*. Tlalpan: Centro de Investigaciones y Estudios Superiores en Antropología Social (PhD dissertation).
- Beam de Azcona, Rosemary G. 2004. *A Coatlán-Loxicha Zapotec Grammar*. Berkeley: University of California Berkeley (PhD dissertation).
- Beam de Azcona, Rosemary G. 2012. Southern Zapotec toponyms. In Brook Danielle Lillehaugen and Aaron Huey Sonnenschein (eds), *Expressing Location in Zapotec*, 261-287. Munich: Lincom Europa.
- Beam de Azcona, Rosemary G. 2015. Valency-changing devices in two Southern Zapotec languages. In Natalie Operstein and Aaron Huey Sonnenschein (eds), *Valence Changes in Zapotec: Synchrony, Diachrony, Typology*, 139-173. Amsterdam: Benjamins.
- Beam de Azcona, Rosemary G. 2017. Spanish infinitives borrowed into Zapotec light verb constructions. In Karen Dakin, Claudia Parodi and Natalie Operstein (eds), *Language Contact and Change in Mesoamerica and Beyond*, 55-80. Amsterdam: Benjamins.
- Beam de Azcona, Rosemary. 2019. Southern Zapotec verb classes. *Amerindia* 41. 121-165.
- Beam de Azcona, Rosemary. 2023. The historical dialectology of stative morphology in Zapotecan. *Journal of Historical Linguistics* 13. 115-172.
- Beam de Azcona, Rosemary and Emiliano Cruz. 2022. Los compuestos verbales y las expresiones idiomáticas del zapoteco miahuateco de San Bartolomé Loxicha. In Francisco Arellanes, Mario Chávez and Rosa María Rojas (eds), *Estudios descriptivos de lenguas zapotecas. Fonética-fonología, morfosintaxis y semántica léxica*. UNAM-LANMO.
- Benton, Joseph. 2012. The grammaticalization of body part terms in two varieties of Zapotec. In Brook Danielle Lillehaugen and Aaron Huey Sonnenschein (eds), *Expressing Location in Zapotec*, 57-75. Munich: Lincom Europa.
- Benton, Joseph. 2015. Valence-changing operations in Coatecas Altas Zapotec. In Natalie Operstein and Aaron Huey Sonnenschein (eds), *Valence Changes in Zapotec: Synchrony, Diachrony, Typology*, 117-138. Amsterdam: Benjamins.
- Bisang, Walter. 1998. Grammaticalization and language contact, constructions and positions. In Anna Giacalone-Ramat and Paul J. Hopper (eds), *The Limits of Grammaticalization*, 13-58. Amsterdam: Benjamins.
- Black, Cheryl A. 1993. Negative concord with obligatory fronting in Zapotec. In Geoffrey K. Pullum and Eric Potsdam (eds), *Syntax and Semantics at Santa Cruz*, Vol. II, 1-20. Santa Cruz: Linguistics Research Center, University of California Santa Cruz.
- Black, Cheryl A. 1994. *Quiegolani Zapotec Syntax*. Santa Cruz: University of California Santa Cruz (PhD dissertation).
- Black, Cheryl A. 1995. Laryngeal licensing and syllable well-formedness in Quiegolani Zapotec. *Work Papers of the Summer Institute of Linguistics* 39. 11-32.
- Black, Cheryl A. 2000. *Quiegolani Zapotec Syntax: A Principles and Parameters Account*. Dallas, Texas: SIL International and University of Texas at Arlington.

- Black, Cheryl A. Body part terms and their uses in Quiégolani Zapotec. In Brook Danielle Lillehaugen and Aaron Huey Sonnenschein (eds), *Expressing Location in Zapotec*, 77-98. Munich: Lincom Europa.
- Brinton, Laurel J. and Elizabeth C. Traugott. 2005. *Lexicalization and Language Change*. Cambridge: Cambridge University Press.
- Broadwell, George Aaron. 2012. Clausal negation as raising in San Dionisio Ocotepec Zapotec. *Anthropology Faculty Scholarship* 2. (https://scholarsarchive.library.albany.edu/cas_anthro_scholar/2)
- Broadwell, George Aaron. 2015. The historical development of the progressive aspect in Central Zapotec. *International Journal of American Linguistics* 81. 151-185.
- Butler, Inez M. 1976. Reflexive constructions of Yatzachi Zapotec. *International Journal of American Linguistics* 42. 331-337.
- Butler, Inez M. 1980. *Gramática zapoteca: Zapoteco de Yatzachi El Bajo*. Mexico City: Instituto Lingüístico de Verano.
- Bybee, Joan, Revere Perkins and William Pagliuca. 1994. *The Evolution of Grammar: Tense, Aspect, and Modality in the Languages of the World*. Chicago and London: The University of Chicago Press.
- Calderón Corona, Mariana Itzel. 2021. *Adaptación sintáctica de préstamos verbales del español en el zapoteco de San Pablo Güilá*. Mexico City: Universidad Nacional Autónoma de México (MA tesis).
- Campbell, Lyle, Terrence Kaufman and Thomas C. Smith-Stark. 1986. Meso-America as a linguistic area. *Language* 62. 530-570.
- Claudi, Ulrike and Bernd Heine. 1989. On the nominal morphology of 'alienability' in some African languages. In Paul Newman and Robert D. Botne (eds), *Current Approaches to African Linguistics*, 3-19. Dordrecht: Foris.
- Córdova, Juan de. 1578a [1987]. *Arte en lengua zapoteca*. Facsimile ed. Mexico City: Ediciones Toledo.
- Córdova, Juan de. 1578b [1987]. *Vocabulario en lengua çapoteca*. Facsimile ed. Mexico City: Ediciones Toledo.
- Craig, Collette. 1986. Jacalteco noun classifiers: A study in language and culture. In Collette Craig (ed), *Noun Classes and Categorization*, 263-293. Amsterdam: Benjamins.
- Craig, Collette. 1991. Ways to go in Rama: A case study in polygrammaticalisation. In Elisabeth Closs Traugott and Bernd Heine (eds), *Approaches to Grammaticalization*, 455-492. Amsterdam: Benjamins.
- Croft, William. 1991. The evolution of negation. *Journal of Linguistics* 27. 1-27.
- Dahl, Östen. 2009. Increases in complexity as a result of language contact. In Kurt Braunmüller and Juliane House (eds), *Convergence and Divergence in Language Contact Situations*, 41-52. Amsterdam: Benjamins.
- de Ávila, Alejandro. 2010. *Mixtec Plant Nomenclature and Classification*. Berkeley: University of California Berkeley (PhD dissertation).
- de León Pasquel, María de Lourdes. 1988. *Noun and Numeral Classifiers in Mixtec and Tzotzil: A Referential View*. Sussex: University of Sussex (PhD dissertation).
- Eberhard, David M., Gary F. Simons and Charles D. Fennig (eds). 2022. *Ethnologue: Languages of the World*. 25th edition. Dallas, Texas: SIL International. Online version: <http://www.ethnologue.com>.
- Feria, Pedro de. 1567. *Doctrina christiana en lengua castellana y çapoteca*. Mexico City: En

- casa de Pedro Ocharte. (<http://www.archive.org/details/doctrinachristia00feri>)
- Foreman, John Olen. 2006. *The Morphosyntax of Subjects in Macuilianguis Zapotec*. Los Angeles: University of California Los Angeles (PhD dissertation).
- Foreman, John and Brook Danielle Lillehaugen. 2017. Positional verbs in Colonial Valley Zapotec. *International Journal of American Linguistics* 83. 263-305.
- Frajzyngier, Zygmunt. 2021. The grammaticalization of reference systems. In Heiko Narrog and Bernd Heine (eds), *The Oxford Handbook of Grammaticalization*, 625-635. Oxford: Oxford University Press.
- Galant, Michael. 1998. *Comparative Constructions in Spanish and San Lucas Quiaviní Zapotec*. Los Angeles: University of California Los Angeles (PhD dissertation).
- Galant, Michael. 2004. The nature of the standard of comparison in San Lucas Quiaviní Zapotec comparative. In Rosemary Beam de Azcona and Mary Paster (eds), *Papers from the Conference on Otomanguan and Other Oaxacan Languages*, 59-74. Berkeley: Survey of California and Other Indian Languages Report 13.
- Galant, Michael. 2007. The morphosyntactic status of animacy markers in San Andrés Yaá Zapotec. *Southwest Journal of Linguistics* 26. 21-37.
- Galant, Michael. 2008. La expresión de conceptos de propiedad en el zapoteco de San Andrés Yaá. In Ausencia López Cruz and Michael Swanton (eds), *Memorias del Coloquio Francisco Belmar*, 311-327. Oaxaca: Biblioteca Francisco de Burgoa.
- Galant, Michael. 2015. Changes in valence in San Andrés Yaá Zapotec. In Natalie Operstein and Aaron Huey Sonnenschein (eds), *Valence Changes in Zapotec: Synchrony, Diachrony, Typology*, 213-235. Amsterdam: Benjamins.
- Gisborne, Nikolas and Amanda Patten. 2021. Construction grammar and grammaticalization. In Heiko Narrog and Bernd Heine (eds), *The Oxford Handbook of Grammaticalization*, 92-104. Oxford: Oxford University Press.
- Guillaume, Antoine. (Forthc.) Associated motion and associated posture in Tacana (Takanan family, Amazonian Bolivia). *Studies in Language*.
- Guillaume, Antoine and Harold Koch. 2021. Introduction: Associated motion as a grammatical category in linguistic typology. In Antoine Guillaume and Harold Koch (eds), *Associated Motion*, 3-30. Berlin and Boston: De Gruyter.
- Gutiérrez, Ambrosio. 2018. Where are Zapotec negative constructions situated from a typological perspective? Poster of paper presented at Syntax of the World Languages VIII. (https://swl8.sciencesconf.org/data/pages/Gutierrez_SoWL8_2_Negation_Zapotec.pdf)
- Gutiérrez Lorenzo, Ambrosio. 2021. *A Description and Analysis of the Syntax and Functions of Subordinate Clauses in Teotitlán del Valle Zapotec*. Austin: The University of Texas at Austin (PhD dissertation).
- Harder, Peter and Kasper Boye. 2021. Grammaticalization and functional linguistics. In Heiko Narrog and Bernd Heine (eds), *The Oxford Handbook of Grammaticalization*, 56-68. Oxford: Oxford University Press.
- Heine, Bernd. 1997. *Possession: Cognitive Source, Forces, and Grammaticalization*. Cambridge: Cambridge University Press.
- Heine, Bernd and Tania Kuteva. 2002. *World Lexicon of Grammaticalization*. Cambridge: Cambridge University Press.
- Heine, Bernd and Kyung-An Song. 2011. On the grammaticalization of personal pronouns. *Journal of Linguistics* 47. 587-630.
- Hernández Luna, Mario Ulises. 2021. La palabra fonológica en miahuateco. *Cuadernos de*

- lingüística de El Colegio de México* 8. e239.
- Hilpert, Martin. 2021. Grammaticalization in Germanic languages. In Heiko Narrog and Bernd Heine (eds), *The Oxford Handbook of Grammaticalization*, 708-718. Oxford: Oxford University Press.
- Honda, Isao. 1996. *Negation: A Cross-Linguistic Study*. Buffalo: University of New York at Buffalo (PhD dissertation).
- Hopper, Paul J. 1991. On some principles of grammaticization. In Elizabeth Closs Traugott and Bernd Heine (eds), *Approaches to Grammaticalization*, Vol. 1: *Focus on Theoretical and Methodological Issues*, 17-35. Amsterdam: Benjamins.
- Hopper, Paul J. and Elizabeth Closs Traugott. 2003. *Grammaticalization*. 2nd ed. Cambridge: Cambridge University Press.
- Hunn, Eugene S. 1998. Mixtepec Zapotec ethnobiological classification: A preliminary sketch and theoretical commentary. *Anthropologica* 40. 35-48.
- Hunn, Eugene S. and Donato Acuca Vásquez. 2001. La etnobiología en el *Vocabulario de la Lengua Çapoteca de Fray Juan de Córdoba*, comparación con la actual de San Juan Mixtepec. *Cuadernos del Sur* 16. 21-32.
- Hunn, Eugene S., Akesha Baron, Roger Reeck, Meinardo Hernández Pérez, Hermilo Silva Cruz. n.d. *A Sketch of Mixtepec Zapotec Grammar*. (https://faculty.washington.edu/hunn/vitae/Hunn_Zapotec_Grammar_English.pdf). (Accessed on 2021-11-13.)
- Jensen de López, Kristine. The syntactic and semantic status of body part locatives in San Marcos Tlapazola Zapotec (Valley Zapotec). In Brook Danielle Lillehaugen and Aaron Huey Sonnenschein (eds), *Expressing Location in Zapotec*, 99-116. Munich: Lincom Europa.
- Kahrel, Pieter Johannus. 1996. *Aspects of Negation*. Amsterdam: University of Amsterdam (PhD dissertation).
- Kaufman, Terrence. 2006. Oto-Manguean languages. In Keith Brown (ed), *Encyclopedia of Language and Linguistics*, Vol. 9, 118-124. Oxford: Elsevier.
- Kaufman, Terrence. 2016. Proto-Sapotek(an) Reconstructions. Unpublished Manuscript.
- Koptjevskaja-Tamm, Maria. 1996. Possessive noun phrases in Maltese: Alienability, iconicity and grammaticalization. *Italian Journal of Linguistics* 8(1). 245-274.
- Kuteva, Tania. 1999. On 'sit'/'stand'/'lie' auxiliaries. *Linguistics* 37. 191-213.
- Kuteva, Tania and Bernd Heine. 2008. On the explanatory value of grammaticalization. In Jeff Good (ed), *Linguistic Universals and Language Change*, 215-230. Oxford: Oxford University Press.
- Kuteva, Tania, Bernd Heine, Bo Hong, Haiping Long, Heiko Narrog and Seongha Rhee. 2019. *World Lexicon of Grammaticalization*. 2nd ed. Cambridge: Cambridge University Press.
- Lamiroy, Béatrice and Walter De Mulder. 2021. Degrees of grammaticalization across languages. In Heiko Narrog and Bernd Heine (eds), *The Oxford Handbook of Grammaticalization*, 302-317. Oxford: Oxford University Press.
- Lee, Felicia. 2003. *Remnant Raising and VSO Clausal Architecture: A Case Study of San Lucas Quiavini Zapotec*. Dordrecht: Springer.
- Lightfoot, Douglas J. 2005. Can the lexicalization/grammaticalization distinction be reconciled? *Studies in Language* 29. 583-615.
- Lillehaugen, Brook Danielle. 2003. *The Categorical Status of Body Part Prepositions in Valley Zapotec Languages*. Los Angeles: University of California Los Angeles (MA thesis).
- Lillehaugen, Brook Danielle. 2006. *Expressing Location in Tlacolula Valley Zapotec*. Los Angeles: University of California Los Angeles (PhD dissertation).

- Lillehaugen, Brook Danielle and Aaron Huey Sonnenschein. 2012. Expressing location in Zapotec: An introduction. In Brook Danielle Lillehaugen and Aaron Huey Sonnenschein (eds), *Expressing Location in Zapotec*, 1-34. Munich: Lincom Europa.
- Long C., Rebecca and Sofronio Cruz M. 2000. *Diccionario zapoteco de San Bartolomé Zoogocho, Oaxaca*. Coyoacán: Instituto Lingüístico de Verano.
- López Corona, Georgette Aimmé. 2016. La codificación del objeto en el zapoteco de San Pablo Güilá: Una muestra de marcación diferenciada. *Lingüística Mexicana* 8. 41-74.
- López, Filemon L. and Ronaldo Newberg Y. 2005. *La conjugación del verbo zapoteco: Zapoteco de Yalálag*. 2nd ed. Mexico City: Instituto Lingüístico de Verano.
- López Cruz, Ausencia. 1997. *Morfología verbal del zapoteco de San Pablo Güilá*. Tlalpan: Escuela Nacional de Antropología e Historia (Tesis de licenciatura).
- López Nicolás, Oscar. 2015. La gramaticalización de los verbos posicionales en el zapoteco de Zochina. *Amerindia* 37(2). 31-68.
- López Nicolás, Oscar. 2016. Estudios de la fonología y gramática del zapoteco de Zochina. Tlalpan: Centro de Investigaciones y Estudios Superiores en Antropología Social (PhD dissertation).
- Lorenz, Konrad. 1977. *Behind the Mirror: A Search for a Natural History of Human Knowledge*. New York and London: Harcourt Brace Jovanovich.
- Lyman Boulden, Hilario. 2007. *Gramática popular del zapoteco de Comaltepec, Choapan, Oaxaca*. Tlalpan: Instituto Lingüístico de Verano.
- Lyman, Larry G. 2012. Location and position in Comaltepec Zapotec: Some aspects of Comaltepec Zapotec locative adverbs, demonstrative adjectives, and body part prepositions. In Brook Danielle Lillehaugen and Aaron Huey Sonnenschein (eds), *Expressing Location in Zapotec*, 289-306. Munich: Lincom Europa.
- MacLaury, Robert E. 1989. Zapotec body-part locatives: Prototypes and metaphoric extensions. *International Journal of American Linguistics* 55. 119-154.
- Maisak, T. A. 2005. *Tipologija grammatikalizatsii konstruksij s glagolami dvizhenija i glagolami pozitsii* [Typology of grammaticalization of constructions with motion and positional verbs]. Moscow: Jazyki Slavjanskix Kultur.
- Marcus, Joyce and Kent V. Flannery. 1978. Ethnoscience of the sixteenth-century Valley Zapotec. In Richard I. Ford (ed). *The Nature and Status of Ethnobotany*, 51-79. Ann Arbor: Museum of Anthropology, University of Michigan.
- Marlett, Stephen A. 1985. Some aspects of Zapotecan clausal syntax. *Work Papers of the Summer Institute of Linguistics, University of North Dakota Session* 29. 83-154.
- Marlett, Stephen A. 1993. Zapotec pronoun classification. *International Journal of American Linguistics* 59. 82-101.
- Marlett, Stephen A. 2010. Possession. In Cheryl A. Black, H. Andrew Black and Stephen A. Marlett (eds), *The Zapotec Grammar Files*. (<http://mexico.sil.org/resources/archives/60872>)
- Merrill, Elizabeth D. 2008. The formation of causative in Tilquiapan Zapotec. *SIL-Mexico Branch Electronic Working Papers* #005. (<http://mexico.sil.org/resources/archives/10701>)
- Miestamo, Matti. 2007. Negation: An overview of typological research. *Language and Linguistics Compass* 1(5). 552-570.
- Munro, Pamela. 2002. Hierarchical pronouns in discourse: Third-person pronouns in San Lucas Quiavini Zapotec narratives. *Southwest Journal of Linguistics* 21. 37-65.
- Munro, Pamela. 2005. Zapotec grammar without tears (except perhaps for the grammarian). In Rosemary Beam de Azcona and Mary Paster (eds), *Papers from the conference on*

- Otomanguan and other Oaxacan languages*, 87-106. Berkeley: University of California.
- Munro, Pamela. 2006. Modal expression in Valley Zapotec. In William Frawley (ed), *The Expression of Modality*, 173-205. Berlin and New York: Mouton de Gruyter.
- Munro, Pamela. 2007. A definite mystery. *Berkeley Linguistics Society* 33. 91-102.
- Munro, Pamela. 2011. On the avoidance of abstract nominalizations. *Italian Journal of Linguistics* 23(1). 21-38.
- Munro, Pamela. 2015. Zapotec reciprocals. In Natalie Operstein and Aaron Huey Sonnenschein (eds), *Valence Changes in Zapotec: Synchrony, Diachrony, Typology*, 297-322. Amsterdam: Benjamins.
- Narrog, Heiko and Bernd Heine (eds), 2021 [2011]. *The Oxford Handbook of Grammaticalization*. Oxford: Oxford University Press.
- Newmeyer, Frederick J. 1975. *English Aspectual Verbs*. The Hague and Paris: Mouton.
- Operstein, Natalie. 2002. First-person plural and the aspect morphology of Zapotec. *Proceedings of the 5th Annual Workshop on the American Indigenous Languages, Santa Barbara Papers in Linguistics* n.n.. 53-64.
- Operstein, Natalie. 2003. Personal pronouns in Zapotec and Zapotecan. *International Journal of American Linguistics* 69. 154-185.
- Operstein, Natalie. 2014. Origin of the Zapotec causative marker *k-: A diachronic-typological perspective. *International Journal of American Linguistics* 80. 99-114.
- Operstein, Natalie. 2015a. *Zaniza Zapotec*. Munich: Lincom Europa.
- Operstein, Natalie. 2015b. Valence-altering operations in Zapotec. In Natalie Operstein and Aaron Huey Sonnenschein (eds), *Valence Changes in Zapotec: Synchrony, Diachrony, Typology*, 23-53. Amsterdam: Benjamins.
- Operstein, Natalie. 2017. Suppletion in Zapotec. *Linguistics* 55. 739-782.
- Operstein, Natalie. 2022. Review of Heiko Narrog and Bernd Heine (eds), 2021, *The Oxford Handbook of Grammaticalization*, Oxford, Oxford University Press. *Linguist List* 33.2869.
- Operstein, Natalie and Aaron Huey Sonnenschein (eds). 2015. *Valence Changes in Zapotec: Synchrony, Diachrony, Typology*. Amsterdam: John Benjamins.
- Oudijk, Michel (coord). 2015. Diccionario Zapoteco-Español, Español-Zapoteco basado en el *Vocabulario en lengua çapoteca* de fray Juan de Córdova (1578). (<https://www.iifilologicas.unam.mx/cordova/>)
- Padilla Pérez, Roberto. 2010. Adjetivos y conceptos de propiedad en el zapoteco de Santiago Apóstol, Oaxaca. Tlalpan: Centro de Investigaciones y Estudios Superiores en Antropología Social (MA tesis).
- Palmer, F.R. 2001. *Mood and Modality*. 2nd ed. Cambridge: Cambridge University Press.
- Pérez Báez, Gabriela and Terrence Kaufman. 2016. Verb classes in Juchitán Zapotec. *Anthropological Linguistics* 58. 217-257.
- Persons, David D., Cheryl A. Black and Jan A. Persons. 2009. *Gramática de zapoteco de Lachixío*. Electronic ed. Mexico City: Instituto Lingüístico de Verano.
- Pickett, Velma B. 1976. Further comments on Zapotec motion verbs. *International Journal of American Linguistics* 42. 162-164.
- Pickett, Velma B., Cheryl Black and Vicente Marcial Cerqueda. 2001. *Gramática popular del zapoteco del Istmo*. 2nd electronic edition. Juchitán: Centro de Investigación y Desarrollo Binnizá and Tucson: Instituto Lingüístico de Verano.
- Riggs, David B. and Stephen A. Marlett. 2010. The le'le focus phrase: Structural aspects. In Cheryl A. Black, H. Andrew Black and Stephen A. Marlett (eds), *The Zapotec Grammar*

- Files*. (<http://mexico.sil.org/resources/archives/60868>)
- Robert, Stéphane. 2004. The challenge of polygrammaticalization for linguistic theory: Fractal grammar and transcategorial functioning. In Zygmunt Frajzyngier, Adam Hodges and David S. Rood (eds), *Linguistic Diversity and Language Theories*, 119-142. Amsterdam: Benjamins.
- Rojas Torres, Rosa María. 2007. Los procesos de formación de palabras en el zapoteco de Santa Ana del Valle, Oaxaca. *Dimensión Antropológica* 14. 55-89.
- Romero, Sergio. 2012. A Maya version of Jespersen's Cycle: The diachronic evolution of negative markers in K'iche' Maya. *International Journal of American Linguistics* 78. 77-96.
- Seifart, Frank. 2010. Nominal classification. *Language and Linguistics Compass* 4. 719-736.
- Smeaton, B. Hunter. 1973. *Lexical Expansion Due to Technical Change*. Bloomington, Indiana: Research Center for the Language Sciences, Indiana University.
- Smith Stark, Thomas C. 2008. La flexión de tiempo, aspecto y modo en el verbo del zapoteco colonial del Valle de Oaxaca. In Ausencia López Cruz and Michael Swanton (eds), *Memorias del Coloquio Francisco Belmar*, 377-419. Oaxaca: Biblioteca Francisco de Burgoa.
- Smith Stark, Thomas and Fermín Tapia García. 1984. Los tonos del amuzgo de San Pedro Amuzgos. *Anales de Antropología* 21. 199-220.
- Solá-Llonch, Elizabeth. 2021. Aspects and Arguments of the Lachirioag Zapotec Verb. Los Angeles: University of California Los Angeles (MA thesis).
- Sonnenschein, Aaron Huey. 2004. *A Descriptive Grammar of San Bartolomé Zoogocho Zapotec*. Los Angeles: University of Southern California (PhD dissertation).
- Sonnenschein, Aaron Huey. 2005. The grammaticalization of relational nouns in Zoogocho Zapotec. In Rosemary Beam de Azcona and Mary Paster (eds), *Survey of California and Other Indigenous Languages, Report 13, Conference on Otomanguan and Oaxacan Languages, March 19-21, 2004*, 117-131.
- Sonnenschein, Aaron Huey. 2015. Indirect object 'lowering' in San Bartolomé Zoogocho Zapotec. In Natalie Operstein and Aaron Huey Sonnenschein (eds), *Valence Changes in Zapotec: Synchrony, Diachrony, Typology*, 281-296. Amsterdam: Benjamins.
- Speck, Charles H. 1978. *The Phonology of Texmelucan Zapotec Verb Irregularity*. Grand Forks: University of North Dakota (MA thesis).
- Speck, Charles H. 1984. The phonology of the Texmelucan Zapotec verb. *International Journal of American Linguistics* 50. 139-164.
- Speck, Charles H. 2012. The existential use of positional verbs in Texmelucan Zapotec. In Brook Danielle Lillehaugen and Aaron Huey Sonnenschein (eds), *Expressing Location in Zapotec*, 241-257. Munich: Lincom Europa.
- Speck, Charles H. and Velma B. Pickett. 1976. Some properties of the Texmelucan Zapotec verbs *go*, *come*, and *arrive*. *International Journal of American Linguistics* 42. 58-64.
- Stolz, Christel and Thomas Stolz. 2001. Mesoamerica as a linguistic area. In Martin Haspelmath, Ekkehard König, Wulf Oesterreicher and Wolfgang Raible (eds), *Language Typology and Language Universals: An International Handbook*, 1539-1553. Berlin and New York: Walter de Gruyter.
- Stolz, Thomas. 1992. On turning bellies into locatives: Mesoamerican, universal or both? *Papier zur Linguistik* 47. 165-189.
- Stubblefield, Morris and Carol Miller de Stubblefield. 1991. *Diccionario zapoteco de Mitla, Oaxaca*. Mexico City: Instituto Lingüístico de Verano.
- Uchihara, Hiroto. 2021. La pérdida de la vocal átona en el zapoteco central. In Francisco Arellanes Arellanes and Lilián Guerrero (eds), *Estudios lingüísticos y filológicos de lenguas*

- indígenas mexicanas. Celebración por los 30 años del Seminario de Lenguas Indígenas*, 347-394. Mexico City: Universidad Nacional Autónoma de México.
- Uchihara, Hiroto and Ambrosio Gutiérrez. 2020. Open and closed mid-front vowels in Teotitlán del Valle Zapotec. *Phonological Data & Analysis* 2. 1-22.
- Ventayol-Boada, Albert. 2021. From classifiers to subordination: Nominal origins of relativizers and subordinators in Tù'un na Ñuu Sá Mátxíí Ntxè'è (Mixtec). *Amerindia* 43. 177-210.
- Veerman-Leichsenring, Annette. 2004. Popolocan noun classifiers: A reconstruction. *International Journal of American Linguistics* 70. 416-451.
- Veselinova, Ljuba. 2013. Negative existentials: A cross-linguistic study. *Italian Journal of Linguistics* 25(1). 107-145.
- Viberg, Åke. 1993. Crosslinguistic perspectives on lexical organization and lexical progression. In Kenneth Hylden and Åke Viberg (eds), *Progression and Regression in Language*, 340-385. Cambridge: Cambridge University Press.
- Whitecotton, Joseph W. and Judith Bradley Whitecotton. 1993. *Vocabulario zapoteco-castellano*. Nashville, Tennessee: Vanderbilt University.
- Wichmann, Anne. 2021. Grammaticalization and prosody. In Heiko Narrog and Bernd Heine (eds), *The Oxford Handbook of Grammaticalization*, 331-341. Oxford: Oxford University Press.
- Wischer, Ilse. 2021. Grammaticalization and word formation. In Heiko Narrog and Bernd Heine (eds), *The Oxford Handbook of Grammaticalization*, 356-364. Oxford: Oxford University Press.