ZENZONTEPEC CHATINO ASPECT MORPHOLOGY AND ZAPOTECAN VERB CLASSES[1]

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This work presents a classification of Zenzontepec Chatino (ZEN) verbs based on which allomorphs of aspect markers they select. The selection depends on several interrelated factors including verbal semantics, valency, derivational morphology, and phonological factors, but it is partly lexically determined. Until now, aspect marking in Chatino has defied concise description (Rasch 2002 and Pride 2004) because previously documented varieties have undergone considerable phonological and morphological reduction, wiping out some of the earlier systematic patterns. ZEN, on the other hand, is conservative in these respects. In addition to describing the ZEN verb classes in synchronic terms, I demonstrate that they line up well with Kaufman's (1987) proposed verb classes for Zapotec and Proto-Zapotec. With slight modification, Kaufman's system applies to Proto-Zapotecan, the parent language of Zapotec and Chatino. The basic system has remained stable through time, despite elaborations and innovations in the individual languages. This study also documents in Chatino several derivational morphemes and a progressive aspect prefix reconstructed for Proto-Zapotec (Kaufman 1993), showing that they are of Proto-Zapotecan vintage.

[KEYWORDS**:** Chatino, Zapotec, verb classes, aspect marking, historical linguistics, morphology]

1. Introduction. Various studies on Zapotec languages have been carried out that classify verbs according to the allomorphs of aspect markers that they select, including de Córdova (1578), Bartholomew (1983), Kaufman (1987), Stubblefield and Hollenbach (1991), Pickett, Black, and Cerqueda (1998), Long and Butler (2000), Smith Stark (2001; 2002), Beam de Azcona (2004), Sonnenschein (2005), López and Newberg (2005), and Lyman Boulden (2007). Much less work exists on Chatino, which is coordinate with

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Zapotec in the Zapotecan language family of the Otomanguean linguistic stock of central and southern Mexico (Mechling 1912 and Boas 1913). Previous work on Chatino (Rasch 2002 and Pride 2004) has so far failed to uncover any systematicity to its aspect morphology. Therefore, in descriptions of the language, it has been necessary to specify for each verb its form in each of the four principal aspects: potential (POT), progressive (PROG), habitual (HAB), and completive (COMP). This paper presents the first comprehensive and successful verb classification in a Chatino language—the phonologically and morphologically conservative Chatino of Santa Cruz Zenzontepec (ZEN).

The classification proposed here is compared to Kaufman's (1987) classification of Zapotec verbs and his reconstructed aspect markers for Proto-Zapotec (PZp). Because ZEN is conservative in preserving vowels of nonprominent syllables, including those of aspect markers, it facilitates comparison with Zapotec. In order to achieve a better understanding of verb classes at the deeper Proto-Zapotecan (PZn) level, the classification of ZEN verbs will be connected to similar work on Zapotec, particularly work that is also based on Kaufman's, such as Smith Stark (2002) and Beam de Azcona (2004), who treat the verbs of Chichicapan Central[2] Zapotec and Coateco Southern Zapotec, respectively.

A significant finding of this study is that the Chatino data largely align with Kaufman's Zapotec verb classes, which can therefore be extended back in time, with minor revision, to include the entire Zapotecan language family. Although the system has diversified over time within most Zapotecan languages through the emergence of new subclasses and migrations of verbs from one class to another, its core has remained largely intact. Certain verbs show remarkable stability across branches of Zapotecan languages with regard to their class membership. Additionally, several derivational morphemes related to valence and a progressive aspect marker **kkay-* that Kaufman (1993) reconstructs for PZp are here documented in Chatino, establishing that they are at least of PZn origin.

Section **2** gives some background information on Chatino and the ZEN data. Section **3** summarizes the most relevant previous work on Zapotec verb classes, and **4** briefly reviews the similar but limited work on Chatino. Section **5** presents the ZEN verb classes in detail, with connections to Zapotec. Finally, **6** summarizes the classification and offers preliminary generalizations about the PZn verb-class system, with a description of some of its later development in the Chatino language group.

[2] I adopt the terminology for the branches of the Zapotec language family put forth by Kaufman (1987), which Smith Stark (2007) modified and placed within the context of the rest of the history of classification of the Zapotec languages.

2. Background. Chatino is a shallow family of languages spoken in the southern part of the state of Oaxaca, Mexico. Most Chatino communities are located in the district of Juquila, except for those in the municipality of Santa Cruz Zenzontepec in the district of Sola de Vega. The internal diversification of Chatino has not received as much attention as that of Zapotec, but Boas (1913) recognized three distinct varieties: Zenzontepec, Tataltepec, and a third that includes the communities to the south and east of those. Ethnologue (Lewis 2009) lists six languages: Zenzontepec, Tataltepec, Eastern Highland, Western Highland, Zacatepec, and Nopala. In recent work, Woodbury (2009) agrees with Boas's three divisions: Zenzontepec, Tataltepec, and Eastern Chatino.

Chatino languages share most of the features that define the Mesoamerican linguistic area (Campbell, Kaufman, and Smith Stark 1986). Basic word order is VSO. Their morphology is head marking (Nichols 1986) and ranges from fairly synthetic, as in ZEN, to relatively analytic in monosyllabic varieties. Chatino is a transitivizing language (Nichols, Peterson, and Barnes 2004) because the majority of verb roots are intransitive and have transitive stems derived from them.

ZEN is the most linguistically divergent variety, and it is the most politically and geographically isolated from the rest of the Chatino region. It is spoken in about 28 villages and many *ranchos*, or hamlets, throughout the region. Its linguistic uniformity is remarkable for an area of its size in mountainous rural Oaxaca. This suggests a relatively recent expansion of ZEN. Nevertheless, the area where the language is spoken is now shrinking, as communities, especially on the periphery, have shifted or are shifting to Spanish. There are an estimated 8,000 ZEN speakers, of which perhaps 2,000 are monolingual.[3]

The ZEN data for this study are from elicitation on the Project for the Documentation of the Languages of Mesoamerica (PDLMA) from 2007 to 2009 and from texts I recorded during several trips to three ZEN-speaking villages: San Pedro del Río, La Aurora, and Santa María Tlapanalquiahuitl. The lexical database created by Carleton (1995–2000) on the PDLMA was a principal source for building the current database, which now includes around 1,400 verbal lexemes. Previous published work on ZEN is limited but includes Upson and Longacre's (1965) study of Proto-Chatino phonology, Carleton (1997; 1998), and Carleton and Waksler (2000; 2002). Nothing has previously been written on ZEN verbal morphology.

3. Zapotec verb classes. Kaufman (1987) proposes four verb classes for Zapotec based on the aspect proclitics that they take: classes A, B, C, and D. From those, he reconstructs two allomorphs of the potential marker for PZp,

[3] My tentative estimates here agree with Lewis (2009).

TABLE 1
KAUFMAN'S ZAPOTEC VERB CLASSES

	Class A	Class B	Class C	Class D
Potential	*ki-*	*ki-*	*k-*	*k-*
Completive	*kwe-*	*ko-*	*ko-*	*ko-*
Replacives	No	No	No	Yes
Begin with	*u, e*	*C*	*V, C*	*V, s*

**ki-* and **k-*, and two for the completive, **kwe-* and **ko-*. Although these pairs of allomorphs may each ultimately descend from one form, they were separate at the level of PZp, and likely at the level of PZn, because they are also distinct in Chatino. Table 1 shows Kaufman's (1987:99) Zapotec verb classes.

Class A is unique in having the completive marker *kwe-*, while classes B, C, and D share the allomorph *ko-*. Classes C and D differ from classes A and B in having the vowel-less potential marker *k-*. Class D differs from class C in having what Kaufman calls stem-initial replacive consonant alternations, whereby a verb stem begins with one consonant in the completive aspect and a different consonant, or none at all, in the potential and habitual. Class A contains mostly transitive stems that begin with the vowels /u/ or /e/. Class B stems are mostly intransitive and begin with consonants. Class C verbs are mostly intransitive and begin with vowels or consonants, and class D roots are transitive or intransitive and begin with vowels or /s/ in a few cases.

The class D replacive consonants are part of Kaufman's Zapotec verb analysis that accounts for what otherwise could appear as greater irregularity in aspect marking. Since the classes are based on aspect markers, the inventory of verb classes would needlessly expand if the replacive consonants were treated as part of the aspect markers. Furthermore, the replacive consonant of a transitive verb stem in the completive generally matches the stem-initial consonant of the corresponding intransitive verb, perhaps reflecting a now lost pattern of aspect-based split ergativity (Kaufman 1987:97). The verb 'to pay (it) (to him/her)' in (1), from Betaza (Villa Alta) Northern Zapotec (BET),[4] inflected for three aspects, illustrates one class D replacive consonant (REPL) pattern.[5]

[4] The BET data were collected by Amador Teodocio Olivares, a native speaker of Betaza Zapotec, and me.

[5] I adopt the practical orthography of the PDLMA, differing from the IPA as follows: *zx* = [z̢], *gh* = [ʁ], *zh* = [ʒ], *kw* = [kʷ], *tz* = [ʦ], *r* = [ɾ], *ty* = [t̪], *ly* = [l̪], *ny* = [n̪], *ch* = [tʃ], *x* = [ʃ], *y* = [j], *ky* = [kʲ], *7* = [ʔ], *j* = [h], and *VV* = vowel length. Nasalized vowels are written with an ogonek (*ẏ*), and tone is represented as follows (except in Eastern Chatino): *v̀* = low tone, *v̂* = falling, *v̌* = rising, *v̄* = mid, and *v́* = high. Eastern Chatino tone is represented by superscript numbers, where V^0 is the highest pitch and V^4 is the lowest.

(1*a*) *kizxgh*
/g-**g**-izxgh/
POT-REPL-pay
's/he is going to pay (it) (to him/her)'

(1*b*) *dzyizxgh*
/dz-**g**-izxgh/
HAB-REPL-pay
's/he pays (it) (to him/her)'

(1*c*) *bdizxgh*
/b-**d**-izxgh/
COMP-REPL-pay
's/he paid (it) (to him/her)'

The replacive consonants in (1) are /g/ in the potential and habitual and /d/ in the completive. The BET class D potential marker *g-* (<**k-*) fuses with the stem-initial lenis /g/ to yield the fortis [k]. The stem /g/ surfaces as [y] in the habitual because in Northern Zapotec /g/ becomes [y] before front vowels. This verb would thus be classified as a class D ($g \rightarrow d$) verb in BET. The notation ($g \rightarrow d$) means that the stem begins with /g/ in the potential and habitual and /d/ in the completive.

Replacive consonants like those shown in (1) for BET have been documented, even if not treated as such, in other Northern Zapotec varieties (Bartholomew 1983, Sonnenschein 2005, López and Newberg 2005, and Lyman Boulden 2007) and most of the other major branches of Zapotec including Western (Sicoli 2008), Central (Smith Stark 2002 and Pickett, Black, and Cerqueda 1998), and Southern (Beam de Azcona 2004).[6] However, there is no trace of replacive consonants in ZEN or any documented Chatino language. Therefore, in Chatino there is no equivalent to Kaufman's class D, as illustrated in table 2 by the cognate verbs meaning 'to pay (it) (to him/her)' in BET, Juchitan (Central) Zapotec (JCH),[7] and ZEN. In ZEN, this verb belongs to class A.

The replacive consonant phenomenon was either (*a*) an innovation in PZp after Chatino and Zapotec split, or (*b*) it existed in PZn and was leveled in Chatino after the split with Zapotec but before the breakup of the Chatino languages. Since there is no trace of the phenomenon, even as fossilized irregularities, in the corpus of 1,400 ZEN verbs inflected for four aspects, option (*a*) seems more likely.

[6] Aside from the extinct Solteco, the other main branch of Zapotec is Papabuco. In Speck (1984), one can see the class D replacive phenomenon in Texmelucan Papabuco.

[7] I thank Gabriela Pérez Báez for the JCH data.

TABLE 2
ZAPOTECAN COGNATE VERBS: 'TO PAY (IT) (TO HIM/HER)'

	BET	JCH	ZEN
POT	/g-g.izxgh/	/g-g.ĭzhe/	/k-isu/
HAB	/dz-g.izxgh/	/ri-g.izhe/	/nt-isu/
COMP	/b-d.izxgh/	/gu-d.izhe/	/nkw-ísū/

Another element of Kaufman's Zapotec verb classification is a vowel hierarchy. Most aspect markers end with vowels, and many verb stems begin with vowels. Since Zapotecan languages tend to disallow vowel sequences, one is deleted in hiatus. Which vowel elides is determined by the hierarchy. Smith Stark (2002:172) cites Kaufman's (1987) vowel hierarchy, shown in (2) (» = "outranks"):

(2) *e* » *u*/*o* » *a* » *i*

When two vowels come into contact, the stronger on the hierarchy will delete the weaker, with /i/ being the weakest. Two like vowels reduce to one.

A salient difference between Zapotec and Chatino is that the former has a contrast between lenis and fortis consonants, and the latter does not. Swadesh (1947) and Kaufman (1993) reconstruct these pairs as geminate versus simple consonants. As seen in (1*a*) for BET, a phenomenon found in some class C and D verbs in all branches of Zapotec is fortition of a stem-initial lenis consonant as a marker of potential aspect. By Proto-Chatino (PCh), however, geminate consonants had merged with their simple counterparts, and the lack of the resultant lenis/fortis distinction in Chatino precludes fortition as a marker of potential aspect.

4. The problem of aspect marking in Chatino. Although Chatino lacks some of the elaborations of aspect marking found in Zapotec, such as fortition and class D replacive consonants, the system in Chatino has previously proved to be rather opaque. The principal extant descriptions of Chatino languages are Rasch's (2002) doctoral dissertation on Yaitepec Chatino (YAI) and Pride's (2004) short grammar of Panixtlahuaca Chatino (PAN). Rasch (2002:113) writes of YAI: "A given verb root selects an allomorph of each aspectual prefix from among several possibilities. This selection appears to be largely arbitrary, but is partially restricted by the phonological shape of the root."

The number of verbs in Pride and Pride (2004) is extensive, but Pride (2004:368) states that the aspect markers are only partly identifiable in PAN, and the morphophonology of aspect marking is so abstract that it is necessary to list the four basic forms for each verb in its lexical entry. In addition

to the segmental abstractness of aspect markers, YAI and PAN each have considerable tonal differences between aspects, although the tone is always the same in the potential and habitual. In ZEN, tone varies less across aspects than in YAI or PAN, though it is more complicated than in Zapotec.[8]

Why should aspect marking in Chatino be so complicated? A few observations may be made at this point. YAI, PAN, and many other Eastern Chatino varieties (for example. San Juan Quiahije and Teotepec) are largely, if not completely, monosyllabified. Historically, Zapotecan languages had both monosyllabic and disyllabic roots (Kaufman 1993). A tendency in certain varieties of Chatino and Zapotec has been to undergo monosyllabification of disyllabic roots through the loss of non-prominent vowels—in some varieties only in certain environments and in others unconditionally. In Chatino and most Otomanguean languages, the final syllable of a root is most prominent, whereas in Zapotec, the first syllable is. Even in conservative (disyllabic) Chatino varieties, non-final syllables are weak in that they fail to distinguish between nasal and oral vowels and the contrast in oral vowels is reduced. The monosyllabification of roots results in root-initial consonant clusters. Adding to this, aspect markers in Zapotecan languages are single syllable proclitics or prefixes, and in innovative varieties these markers have also lost their vowels. Consequently, in Chatino further verb-initial consonant clusters pile up, which then tend to simplify due to phonotactic constraints, eroding stem consonants and leaving at best only traces of the aspect markers.

The result of monosyllabification is that in many Chatino varieties, including those previously documented, the systematicity to aspect marking has been obscured or lost. ZEN and the Eastern Chatino of San Marcos Zacatepec (ZAC), documented in Cruz and Woodbury (2006) and Villard (2009), are the two most syllabically conservative varieties, preserving nearly all vowels of aspect markers and historically disyllabic roots. Since aspect markers are intact in ZEN and ZAC, they show clearer relationships with conservative forms of Zapotec, such as Juchitán (Central) and Atepec (Northern) (Nellis and Nellis 1983), helping shed light on both the PZn system and the opaque monosyllabic Chatino varieties. With this, I now turn directly to ZEN aspect marking.

5. Zenzontepec Chatino aspect marking and verb classes. The surface forms of the aspect markers of Zenzontepec Chatino are listed in table 3. The notation [lam]- stands for laminalization. In PCh, the alveolars **t*, **n*, and **l* became lamino-alveo-palatals *ty*, *ny*, and *ly* when preceded by the vowel /i/

[8] In Zapotec, the potential aspect marker often carries a high or rising tone (Beam de Azcona 2004, Smith Stark 2002, and Sicoli 2008).

TABLE 3
ZEN ASPECT MARKERS

	ZEN Aspect Allomorphs
POT	*ki-*, *k-*, [lam]-, ∅
PROG	*nte-*, *ntey-* ~ *nch-*
HAB	*nti-*, *n+* [lam]-, *n-*, *nch-*
COMP	*nku-*, *nka-*, *nkwi-*, *nkay-* ~ *y-*

within a word.[9] This process is still active in ZEN, as seen in the potential and habitual of some verbs whose stems begin in coronal consonants: POT *ki-laja* [ki-lyaja] 'it will get cleaned up'. Since the PROG prefix *nte-* ends in /e/, the stem /l/ is not laminalized as it is in the potential: PROG *nte-laja* [nde-laja] 'it is getting cleaned up'.

The ZEN completive markers *nkwi-* and *nku-* are cognate to Kaufman's Zapotec completive forms *kwe-* and *ko-*. In Chatino, a nasal /n/ has accreted onto the beginning of all aspect markers except for the potential markers and the *y-* allomorph of the completive.[10] Kaufman (1993:103) posits that the prefixed nasal comes from an inherited Proto-Otomanguean adverb **na* 'now'.

In addition to the potential (**k-*, **ki-*) and completive (**kwe-*, **ko-*) markers already discussed, Kaufman (1987) reconstructs the following PZp aspect markers, which are pertinent to this study:

(3*a*) **tyi-* Habitual
(3*b*) **kkay-* Progressive

The ZEN habitual marker *nti-* is the expected reflex of a would-be PZn habitual **tyi-*, after nasal accretion. Of the basic aspect markers in ZEN, the habitual is the one with the least allomorphy. In fact, **tyi-* has stable and predictable reflexes across Zapotecan languages.[11] The ZEN habitual forms *n+* [lam]- and *n-* are morphophonologically determined variants of *nti-*.

Kaufman's (1987) reconstructed progressive marker **kkay-* has reflexes in Central Zapotec and some varieties of Southern Zapotec. He traces it to a Proto-Otomanguean (POM) progressive marker **kai*, followed by a POM "indefinite" marker **i*. Smith Stark (personal communication, 2008) sug-

[9] Laminal consonants have phonemicized due to the loss of some conditioning vowels, for example, ZEN *lyo7o* 'spouse'; cf. ZAC *kwi-lyo7o* (Villard 2009).

[10] Similar nasal accretion is seen in Southern Zapotec and may be an areal phenomenon.

[11] The Zapotec habitual marker in a given language reflects the reflex of the palatalized stop **ty* before the vowel [i]—with or without the vowel, depending on whether or not that variety preserves prestem vowels. In Western Zapotec it is *r-*, Papabuco *r-/ri-,* Isthmus *ri-*, Chichicapan (Central) *r-*, Atepec (Northern) *ri-*, Coateco (Southern) *nd-*, and Villa Alta *dz-* or *dx-* (Campbell 2008).

gests that it is a Central Zapotec innovation not reconstructible to PZp, let alone PZn. However, the Chatino data show a likely cognate progressive marker: ZEN *nch-*, ZAC *nky-*, and TAT *ndy-*, which would place this morpheme firmly in PZn. All that is required to derive this form from **kkay* is the loss of the vowel /a/ and the expected nasal accretion. Examples of this prefix in ZEN, ZAC (Villard, personal communication), and TAT (Pride and Pride 1970) are given in (4):

	ZEN	ZAC	TAT	Gloss
(4*a*)	*nch-ūlá*	*nky-ola*^{31}	*ndy-ula*	's/he is dancing'
(4*b*)	*nch-ūná*	*nky-ona*^{31}	*ndy-unạ*	's/he is crying'
(4*c*)	*nch-ata*	*nky-ata*^{13}	*ndy-atá*	's/he is bathing'
(4*d*)	*nch-aku*	*nky-ako*^{13}	*ndy-aku*	's/he is eating (it)'
(4*e*)	*nch-akwę̄*	*nky-akwę*^{32}	—	's/he is vomiting'

This particular progressive marker is found only on class C verbs in ZEN. Its form in PCh would have been **nky-*, as it is today in ZAC, and the ZEN and TAT forms reflect language-specific sound changes. The cognate sets in (5) further illustrate the correspondence between ZEN /ch/, TAT /ty/, and /ky/ in Eastern Chatino varieties: ZAC (Villard and Woodbury, personal communication), YAI (Rasch 2002), and San Juan Quiahije (SJQ) (Cruz et al. 2009).

	ZEN	TAT	ZAC	YAI	SJQ	Gloss
(5*a*)	*choō7*	*tyoo7*	*kyoo7*^{32}	*kyoo7*^{23}	*kyo7*^{2}	'century plant'
(5*b*)	*chaja*	*tyija*	*kyaja*^{3}	*kyja*^{3}	*yja*^{4}	'tortilla'
(5*c*)	*choo*	*tyoo*	*kyoo*^{3}	*kyoo*^{3}	*kyo*^{4}	'rain'
(5*d*)	*chojo*	*tyojo*	*kyojo*^{2}	*kyjo*^{12}	*yjo*^{42}	'squash'

The ZEN completive allomorph *y-* has no Zapotec cognates, but it reconstructs to PCh because it is also found in Eastern Chatino. It must have emerged after nasal accretion occurred on all of the non-potential aspect markers. The ZEN completive allomorphs *nka-* and *nkay-* are also of PCh vintage. The latter freely alternates with *y-* in ZEN and ZAC, and likely reflects double marking, *nka-* + *y-*, as suggested by Woodbury (personal communication).

The most common Chatino progressive marker is ZEN *nte-*, ZAC *nta-*. Since the vowel /e/ only occurs in prominent root syllables in ZAC, it is possible that the ZAC form *nta-* continues from an earlier PCh **nte-*. The ZEN progressive aspect marker *ntey-* is in morpholexical alternation with *nch-*, and it is a ZEN innovation, having no cognates in ZAC or Zapotec. It likely arose from the broader *nte-* form, with a *y-* added on analogy to the *nka-y-* completive, which is found on the same verbs that have the progressive *ntey-*.

The ZEN vowel hierarchy (6) differs from that for Zapotec proposed by Kaufman, repeated in (7).

TABLE 4
VOWEL HIATUS REDUCTION IN ZEN

Prefix	Stem	Verb	Gloss	Ranking
nte-	*-u-tala7*	*nte-tala7*	's/he is weaving (it)'	*e* » *u*
ki-	*-eta*	*k-eta*	's/he will wait for (it)'	*e* » *i*
nti-	*-u-tala7*	*nt-u-tala7*	's/he weaves (it)'	*u* » *i*
nku-	*-atza7*	*nku-tza7*	'it got wet'	*u* » *a*
nti-	*-atza7*	*nti-tza7*	'it gets wet'	*i* » *a*
nti-	*-ojo7*	*nti-jo7*	'it stings (him/her)'	*i* » *o*

(6) ZEN vowel hierarchy *e* » *u* » *i* » *a*, *o*
(7) Zapotec vowel hierarchy *e* » *u*/*o* » *a* » *i*

The vowel /i/ dominates the vowel /a/ in ZEN, whereas it is the reverse in Zapotec. Another difference is that /o/ is separated from /u/ on the ZEN hierarchy and ranked beneath /i/.[12] The lowest level of the ZEN vowel hierarchy is shared by /a/ and /o/, which cannot be ranked with respect to one another because they happen never to occur in hiatus. Table 4 gives examples that illustrate the ZEN vowel hierarchy.

The vowel hierarchy is unusual in that we might expect the typically most sonorous vowel, [a], to dominate the others and the typically shortest vowel, [i], to be the weakest. However, the similar and equally unusual hierarchy in Zapotec (7) illustrates that the roots of the current pattern are old, and the full details of its development await deeper comparison within Otomanguean.

The ZEN verb classes and the aspect markers that define them are summarized in table 5, and each class and subclass are described in turn below.

5.1. Class A. There are three subclasses of class A verbs. Subclasses Au and Ac share identical aspect marking, and they only appear different because the former includes verbs that begin in /u/, which in turn interacts with the aspect marker vowels. Subclass Au verbs are derived causatives and subclass Ac are largely unergative roots. Subclass A2 differs from subclasses Au and Ac in having the completive allomorph *nkwi-*. As in Kaufman's Zapotec system, the class A potential marker in ZEN is *ki-*. Class A is summarized in table 6.

5.1.1. Subclass Au. Verb roots in class A are both transitive and intransitive, but there are many more transitive stems in this class. This is due to the fact that a large set of consonant-initial intransitive verb roots (from class B)

[12] Kaufman (1993) reconstructs both **o* and **u* for PZn. They have merged in some varieties, and their reflexes overlap and are not altogether clear in others.

TABLE 5
ZENZONTEPEC CHATINO VERB CLASSES

	Class A		Class B			Class C	
	Au, Ac	A2	Bc	Bt	By	Ca	C2
POT	*ki-*	*ki-*	*ki-*	[lam]	(*y* → *ch*)	*k-*	*k-*
HAB	*nti-*	*nti-*	*nti-*	*n-* [lam]	*n-* (*y* → *ch*)	*nti-*	*nti-*
PROG	*nte-*	*nte-*	*nte-*	*nte-*	*nte-*	*nch-*	*ntey-*, *nch-*
COMP	*nka-*	*nkwi-*	*nku-*	*nku-*	*nk*(*u*)-	*nku-*	*nkay-*, *y-*

TABLE 6
ASPECT MARKERS OF CLASS A VERBS BY SUBCLASS

	Au/Ac	A2
POT	*ki-*	*ki-*
PROG	*nte-*	*nte*
HAB	*nti-*	*nti-*
COMP	*nka-*	*nkwi-*

are made causative by prefixing *u-* to them. I refer to them as the *u*-causatives, and they make up subclass Au. (8) and (9) show two intransitive/transitive verb pairs whose transitive members are *u*-causatives.

(8*a*) *-lōó* ‘to come out’, ‘to be removed’ (subclass Bc)
(8*b*) *-u-lōó* ‘to take (it) out’, ‘to remove (it)’ (subclass Au)
(9*a*) *-xé* ‘to be squeezed out’ (subclass Bc)
(9*b*) *-ū-xé* ‘to squeeze (it) out’ (subclass Au)

The ZEN *u*-causative derivational pattern is just one of several formal manifestations of a system of verb pairs found in Zapotecan languages. Although many verb pairs consist of a syntactically transitive (causative) stem derived from a syntactically intransitive, inchoative stem, some pairs consist of two syntactically transitive verbs where one is more active than the other. Therefore, I use the terminology MORE TRANSITIVE versus LESS TRANSITIVE, in a sense following Hopper and Thompson (1980) that aligns features such as higher agentivity with higher transitivity, and not solely the number of core arguments of a verb.

The ZEN causative *u-* is cognate to Kaufman’s (1987) reconstructed PZp causative **o-* or **ok-*, which has Zapotec reflexes in Atepec (Northern) (Nellis and Nellis 1983) and Isthmus (Central) (Marlett and Pickett 1987). Smith Stark (2002) also includes the *u*-causatives of Chichicapan Zapotec (Central) in his class A. The presence of the causative *u-* in ZEN along with cognates in Zapotec is sufficient to push Kaufman’s **o-* /**ok-* back to PZn.

One of the few exceptions to the vowel hierarchy is found in subclass Au completives: /u/ is higher than /a/ on the vowel hierarchy, but it is the /u/ of the stem that elides after the prefix *nka-*. It is possible that the /u/ is behaving as historical **o* in this case, which is consistent with the PZp form **o-*.[13] If this were the case, /o/ could be ranked below /a/. Since the ZEN (and ZAC) completive marker *nka-* has no clear cognates in Zapotec, an alternative explanation is that this marker grammaticalized in PCh from an earlier independent word. The completive form of the verb *-aka* 'to be able to' is *nkaā*. If this were the source of the completive *nka-*, the original vowel length, tone, and stress due to its having been an independent word could explain why /a/ might behave more strongly than /u/ in these cases.[14]

In (10), the four principal aspects of the *u*-causative verb *-u-jnyā* 'to build (it)' are listed.

(10) *-u-jnyā* 'to build (it)'

POT	*k-u-jnyā*	's/he is going to build (it)'
PROG	*nte-jnyā*	's/he is building (it)'
HAB	*nt-u-jnyā*	's/he builds (it)'
COMP	*nka-jnyā*	's/he built (it)'

In the potential and habitual, the causative /u/ deletes the /i/ of the aspect markers *ki-* and *nti-*. The progressive marker *nte-* has the strong vowel /e/, which deletes the /u/ of the stem, and the completive shows the exception of /a/ deleting /u/. Table 7 contains 20 ZEN subclass Au verbs in the four principal aspects.

Some subclass Au verbs appear irregular, but their irregularity can be explained. ZEN has some haplology that is also seen in the Spanish of native ZEN speakers. For example, the town Tututepec is pronounced in Spanish as [tutepek], with loss of one of the *tu* syllables. Haplology in the habitual occurs in *u*-causative stems that begin with *-u-tu*. Thus, the habitual form of 'to grab hold of (it)' (table 7, line *r*) is usually pronounced as *n-tusū7*, instead of the expected *nt-u-tusū7*.

5.1.2. Subclass Ac. The second subclass of class A has the same aspect markers as the *u*-causatives. Since they are consonant-initial, they are labeled subclass Ac. They are treated separately because they are generally not causative. Many of these verbs are unergative, either syntactically intransi-

[13] Juliette Blevins (personal communication) pointed out this possibility. It is conceivable that the vowel hierarchy was set at an earlier time. Kaufman (cited in Smith Stark 2002) has shown this for Zapotec, where some instances of [i] in Central Zapotec behave strongly, as /e/ on the hierarchy, in cases where the source of the vowel was **e*.

[14] Jeff Rasch (personal communication) brought up the possibility of the Chatino completive marker *nka-* perhaps coming from the completive form of the verb *-aka*.

TABLE 7
SUBCLASS AU VERBS

	Gloss	POT	PROG	HAB	COMP
a.	'to untie (it)'	*k-u-sati7*	*nte-sati7*	*nt-u-sati7*	*nka-sati7*
b.	'to smooth (it) out'	*k-u-suwe7*	*nte-suwe7*	*nt-u-suwe7*	*nka-suwe7*
c.	'to weave (it)'	*k-u-tala7*	*nte-tala7*	*nt-u-tala7*	*nka-tala7*
d.	'to lose (it)'	*k-u-lijí*	*nte-lijí*	*nt-u-lijí*	*nka-lijí*
e.	'to take (it) out'	*k-u-lōó*	*nte-lōó*	*nt-u-lōó*	*nka-lōó*
f.	'to write/mark (it)'	*k-u-sā7ą́*	*nte-sā7ą́*	*nt-u-sā7ą́*	*nka-sā7ą́*
g.	'to split (it)'	*k-u-sā7wé*	*nte-sā7wé*	*nt-u-sā7wé*	*nka-sā7wé*
h.	'to squeeze (it) out'	*k-ū-xę́*	*ntē-xę́*	*nt-ū-xę́*	*nkā-xę́*
i.	'to cut (it)'	*k-u-xū7ú*	*nte-xū7ú*	*nt-u-xū7ú*	*nka-xū7ú*
j.	'to yank (it)'	*k-u-tyele*	*nte-tyélē*	*nt-u-tyele*	*nka-tyélē*
k.	'to clean (it) out'	*k-u-wii*	*nte-wiī*	*nt-u-wii*	*nka-wiī*
l.	'to build (it)'	*k-u-jnyā*	*nte-jnyā*	*nt-u-jnyā*	*nka-jnyā*
m.	'to bury (it)'	*k-u-kachī7*	*nte-kachī7*	*nt-u-kachī7*	*nka-kachī7*
n.	'to count (it)'	*k-u-lakwā*	*nte-lakwā*	*nt-u-lakwā*	*nka-lakwā*
o.	'to show (it)'	*k-u-lu7ū*	*nte-lu7ū*	*nt-u-lu7ū*	*nka-lu7ū*
p.	'to snap (it)'	*k-u-kitę́7*	*nte-kītę́7*	*nt-u-kitę́7*	*nka-kītę́7*
q.	'to play (it)'	*k-u-la7ā*	*nte-lā7á*	*nt-u-la7ā*	*nka-lā7á*
r.	'to grab hold of (it)'	*k-u-tusū7*	*nte-tūsú7*	*n-tusū7*	*nka-tūsú7*
s.	'to burn (it)'	*k-u-takę́*	*nte-tākę́*	*nt-u-takę́*	*nka-tākę́*
t.	'to buy (it)'	*k-u7yā*	*ntē-7yá*	*nt-u7yā*	*nkā-7yá*

tive or ambitransitive, and lack a derivationally related companion of greater or lesser transitivity. Many verbs of bodily function, such as 'to laugh', 'to defecate', and 'to smell', fall into this subclass.[15] Since subclass Ac verbs are consonant-initial, there is no vowel hiatus upon inflection, and the unaltered aspect markers appear. Table 8 lists a sample of them in their four principal forms.

5.1.3. Subclass A2. Subclass A2 is unique in having the completive marker *nkwi-*. Because of the labialized velar, this is the group that most resembles Kaufman's Zapotec class A (completive *kwe-*). After nasal accretion, *nkwi-* is the expected Chatino cognate of PZp **kwe-*. These verbs begin with consonants or with one of the front vowels, /e/ or /i/. It is a small group of roots, but several of them function as auxiliaries or are common prepounds in compound verbs, so in the end a substantial number of verbal lexemes fall into this subclass. Table 9 presents some subclass A2 verbs.

Some of the consonant-initial verbs of subclass A2 have doubles in subclass Ac, as shown in (11) and (12).

[15] This is not to say that 'to laugh' has no causative form. Some verbs are causativized periphrastically rather than derivationally.

TABLE 8
SUBCLASS AC VERBS

	Gloss	POT	PROG	HAB	COMP
a.	'to command(him/her)'	*ki-neę*	*nte-neę*	*nti-neę*	*nka-neę*
b.	'to fall over'	*ki-sesu*	*nte-sesu*	*nti-sesu*	*nka-sesu*
c.	'to laugh'	*ki-xiti*	*nte-xiti*	*nti-xiti*	*nka-xiti*
d.	'to fight'	*kī-sǫ́*	*ntē-sǫ́*	*ntī-sǫ́*	*nkā-sǫ́*
e.	'to play'	*ki-jya*	*nte-jyā*	*nti-jya*	*nka-jyā*
f.	'to spin thread'	*ki-júų̄*	*nte-júų̄*	*nti-júų̄*	*nka-júų̄*
g.	'to smell (it)'	*ki-lya7ā*	*nte-lya7ā*	*nti-lya7ā*	*nka-lya7ā*
h.	'to get a stomachache'	*ki-ju7u*	*nte-jú7ū*	*nti-ju7u*	*nka-jú7ū*
i.	'to water (it)'	*ki-lyā*	*nte-lyā*	*nti-lyā*	*nka-lyā*

TABLE 9
SUBCLASS A2 VERBS

	Gloss	POT	PROG	HAB	COMP
a.	'to wait (for it)'	*k-eta*	*nte-k-eta*	*nt-eta*	*nkw-eta*
b.	'to turn over'	*ki-sesu*	*nte-sesu*	*nti-sesu*	*nkwi-sesu*
c.	'to sew'	*k-ikwą*	*nte-k-ikwą*	*nt-ikwą*	*nkw-íkwą̄*
d.	'to pay (it) (to him/her)'	*k-isu*	*nte-k-isu*	*nt-isu*	*nkw-ísū*
e.	'to water (it)'	*ki-lyā*	*nte-lyā*	*nti-lyā*	*nkwi-lyā*
f.	'to wash (it)'	*cha7ą*	*nte-cha7ą*	*n-cha7ą*	*nkwi-chá7ą̄*
g.	'to go down'	*k-e7e*	*nte-k-e7e*	*nti-7e*	*nkwi-7e*
h.	'to smell (it)'	*ki-lya7ā*	*nte-lya7ā*	*nti-lya7ā*	*nkwi-lya7ā*

(11*a*) *nka-lyā* 's/he watered (it)' (subclass Ac)
(11*b*) *nkwi-lyā* 's/he watered (it)' (subclass A2)
(12*a*) *nka-lya7ā* 's/he smelled (it)' (subclass Ac)
(12*b*) *nkwi-lya7ā* 's/he smelled (it)' (subclass A2)

The variation between completive forms in *nkwi-* and *nka-* is likely due to analogical leveling that has not yet run its course. It appears that the innovative completive marker *nka-* is gaining ground at the expense of the historically conservative *nkwi-*, and transitive verbs are migrating from subclass A2 to Ac. This is supported by the fact that transitive class C verbs have the alternation between *y-* and the double-marked *nka-y-* in the completive. These processes, when viewed together, suggest that *nka-* is extending to become a general completive marker of transitive verbs. Recall that *nka-* is the completive marker of subclass Au, the home of the vast majority of transitive verbs.

Subclass A2 verbs that begin in vowels (/e/ or /i/) have an unusual progressive form, with an extra consonant *k-* between the aspect marker and the

verb stem (table 9, lines *a*, *c*, *d*, *f*, and *g*). Additionally, a few of these (lines *c*, *d*, and *f*) present counterexamples to a strong tendency for a verb's tone pattern to be the same in the progressive and the completive.[16] In fact, in these cases the tone in the progressive is the same as in the potential and habitual. This is because the progressive of these verbs is formed by prefixing the progressive marker onto a verb in the potential, which explains the intrusive *k* (potential marker *ki-*) caught in the progressives.[17]

The verb *cha7ą* 'to wash it' in table 9 (line *f*) was originally a *y*-initial root, *-ya7ą* (from subclass By); this is evident in the ZAC cognate in (13), where the [y] is still present. Note that in the ZAC progressive form, the potential *k-* appears.

(13) ZAC *-ya7ą*^{2} 'to wash (it)'

POT	PROG	HAB	COMP
k-ya7ą^2	*nti-k-ya7ą*^{2}	*nti-ya7ą*^{2}	*nk-ya7ą*^{2}

In the Zen cognate, repeated in (14) below, the /y/ is not present in any of the aspects, so it is one of few verb stems that synchronically begin with /ch/.

(14) ZEN-*cha7ą* 'to wash (it)'

POT	PROG	HAB	COMP
cha7ą	*nte-cha7ą*	*n-cha7ą*	*nkwi-chā7ą̄*

The alveopalatal affricate /ch/ is now a phoneme in ZEN, but it is not inherited from PCh. Those that exist derive from Spanish loans, sound-symbolic material, or one of the following sound changes particular to ZEN: **ky* > *ch*; **tz* > *ch* /_*i*.[18]

The verb 'to go down' (table 9, line *g*) is the ZEN reflex of PZn **-i7ye*, reconstructed from cognates in Western Zapotec and Chatino (Kaufman 1993). The ZEN stem can be analyzed as underlying *-i7e*. Translaryngeal vowel harmony accounts for the potential form *k-e7e*, also seen in the progressive, and lack thereof in the habitual and completive may be due to the translaryngeal vowels falling across morpheme boundaries.

[16] The ones that are not counterexamples are those in which the tone is the same in all four aspects anyway.

[17] These verbs may provide a clue into the origin of the *nte-* progressive marker, which may have grammaticalized from the demonstrative *nteē* 'here', 'this'. It is possible that a periphrastic progressive existed of the form 'here' + POT-verb. Then, the demonstrative may have been further grammaticalized as an aspect prefix replacing the potential marker in all but these cases in subclass A2 and a few in subclass By.

[18] A Spanish loan containing *ch* is *chikerū* (< *chiquero*) 'animal pen', 'sty', and a sound-symbolic word is *chę́7* 'sound of punching mud'. *ch* derives from **ky* in *choo* 'rain' (cf. ZAC *kyoo*^{3}) and from **tz* in *nkáchī* 'yellow' (< PZn **k-attzi* [Kaufman 1993]). There are also morphophonemic processes in the potential and habitual of subclass By verbs in which a stem-initial /y/ becomes [ch].

TABLE 10
ASPECT MARKERS OF CLASS B VERBS BY SUBCLASS

	Bc	Bt	By
POT	*ki-*	[lam]-	stem *y* → *ch*
PROG	*nte-*	*nte-*	*nte-*
HAB	*nti-*	*n-* [lam]-	*n-* stem *y* → *ch*
COMP	*nku-*	*nku-*	*nk*(*u*)-

5.2. Class B. Class B verbs take the completive marker *nku-* rather than the *nka-* or *nkwi-* of class A. If we push Kaufman's PZp completive marker **ko-* back to PZn, the expected reflex in ZEN after nasal accretion would be *nku-*, exactly as we find. Therefore, ZEN class B resembles Kaufman's Zapotec class B and shows parallels to class B intransitive verbs in Isthmus (Central) Zapotec (IZ). Two cognate verbs in ZEN and IZ (Pickett 2007) are given in (15), along with their reconstructed stems (Kaufman 1993).

(15) Class B cognates between ZEN and IZ

Gloss	ZEN	IZ	PZn	
'it boils'	*nti-lákwī*	*ri-ndaabi7*	**tyi-lla:7kwi*	(class B)
'it gets swept'	*nti-lukwa*	*ri-luuba7*	**tyi-l-o:7kwa*	(class B)

Class B is a large class of verbs in ZEN that are consonant-initial and mostly intransitive, just as in Kaufman's Zapotec system. There are three subclasses: Bc, Bt, and By. With a certain degree of abstraction, all class B verbs can be seen as originally sharing one set of aspect markers, those of subclass Bc. However, the complexity of the morphophonemics makes it appropriate to list the aspect marking for each of the three subclasses (see table 10).

5.2.1. Subclass Bc. Subclass Bc verbs are labeled as such because they begin in consonants. These are mostly the less transitive partners of the *u*-causatives (subclass Au) discussed earlier. Subclass Bc verbs are mostly inchoative, translating to English as middles or passives. However, the semantics of some of these pairs is not always transparently inchoative/causative. For example, the first verb in table 11, *-ka7a* 'to be kept out', is used primarily for water, as when one's house or things are mended so that they withstand rain. The derivationally related *u*-causative verb is *-u-ka7ā* 'to deny (him/her) (it)'. The transitive verb applies to a wider range of objects that are "denied" and also conveys an element of selfishness on the part of the agent. Table 11 lists a sample of Bc verbs. The full aspect markers appear due to the lack of vowel hiatus.

5.2.2. Subclass Bt. The second subgroup of class B is subclass Bt. They are largely verbs of motion or position, and as their name suggests, they be-

TABLE 11
SUBCLASS Bc VERBS

	Gloss	POT	PROG	HAB	COMP
a.	'to be kept out'	*ki-ka7a*	*nte-ka7a*	*nti-ka7a*	*nku-ka7a*
b.	'to get cleaned up'	*ki-laja*	*nte-laja*	*nti-laja*	*nku-laja*
c.	'to drain or run off'	*ki-lakwi*	*nte-lakwi*	*nti-lakwi*	*nku-lakwi*
d.	'to shatter'	*ki-la7a*	*nte-la7a*	*nti-la7a*	*nku-la7a*
e.	'to be set down'	*ki-sa7ą*	*nte-sa7ą*	*nti-sa7ą*	*nku-sa7ą*
f.	'to fasten a strap'	*ki-sti*	*nte-sti*	*nti-sti*	*nku-sti*
g.	'to get stretched out'	*ki-wini*	*nte-wini*	*nti-wini*	*nku-wini*
h.	'to dry up'	*ki-witi*	*nte-witi*	*nti-witi*	*nku-witi*
i.	'to get late'	*ki-xę*	*nte-xę*	*nti-xę*	*nku-xę*
j.	'to get cut'	*ki-xū7ú*	*nte-xū7ú*	*nti-xū7ú*	*nku-xū7ú*
k.	'to get opened'	*ki-kīį*	*nte-kīį*	*nti-kīį*	*nku-kīį*
l.	'to get lost'	*ki-liji*	*nte-líjī*	*nti-liji*	*nku-líjī*
m.	'to come loose'	*ki-su*	*nte-sū*	*nti-su*	*nku-sū*
n.	'to slip', 'to get muddy'	*ki-jlyā*	*nte-jlyā*	*nti-jlyā*	*nku-jlyā*
o.	'to tire out'	*ki-xiyā7*	*nte-xiyā7*	*nti-xiyā7*	*nku-xiyā7*
p.	'to get snapped'	*ki-kitę̄7*	*nte-kītę́7*	*nti-kitę́7*	*nku-kītę́7*

gin with /t/. They are inflected for potential aspect solely by laminalization of the stem-initial /t/ and for habitual by both the addition of /n/ and laminalization of the /t/, as exemplified in (16).

(16) *-taja/-tajā* 'to get holes'

POT	*tyaja*	'it will get holes in it'
PROG	*nte-tajā*	'it is getting holes in it'
HAB	*n-tyaja*	'it gets holes in it'
COMP	*nku-tajā*	'it got holes in it'

Even though the *ki-* aspect marker does not appear, the verb stem's initial /t/ is laminalized as if the /i/ of the aspect marker were there at some abstract level or historical stage. Laminalized coronal consonants in ZEN only occur after [i], after where there once was an [i], or in loanwords. Most inchoative verbs and motion verbs that begin with /t/ follow this pattern. Exceptions include verbs whose first vowel is also [i], such as *-tiką7* 'to swing', POT *ki-tiką7*, which thus belongs to subclass Bc.

The underlying form of the habitual aspect marker may be the standard *nti-*. However, haplology deletes the *ti-* sequence of the habitual marker before the stem sequence *tV*, but only after the /i/ has laminalized the /t/. Table 12 lists a sample of subclass Bt verbs.

There is a parallel between ZEN and Coateco Southern Zapotec (COA) class B verbs. COA class B verbs begin in coronal consonants, and Beam de

TABLE 12
SUBCLASS Bt VERBS

	Gloss	POT	PROG	HAB	COMP
a.	'to walk/go around'	*tya7ą*	*nte-ta7ą*	*n-tya7ą*	*nku-ta7ą*
b.	'to bear fruit/crops'	*tyu7u*	*nte-tu7u*	*n-tyu7u*	*nku-tu7u*
c.	'to stand up'	*tyoǫ*	*nte-toǫ*	*n-tyoǫ*	*nku-toǫ*
d.	'to be seen'	*tyāką́7*	*nte-tāką́7*	*n-tyāką́7*	*nku-tāką́7*
e.	'to go out'	*tyukwā*	*nte-tyūkwá*	*n-tyukwā*	*nku-tyūkwá*
f.	'to get holes'	*tyaja*	*nte-tajā*	*n-tyaja*	*nku-tajā*
g.	'to pass'	*tyejɇ̄*	*nte-tējɇ́*	*n-tyejɇ̄*	*nku-tējɇ́*
h.	'to begin'	*tyejnā*	*nte-tyejnā*	*n-tyejnā*	*nku-tyejnā*
i.	'to fall down'	*tyásū*	*nte-tásū*	*n-tyásū*	*nku-tásū*
j.	'to be hanging'	*tyakwi*	*nte-tákwī*	*n-tyakwi*	*nku-tákwī*

Azcona (2004:265) states that they ". . . undergo palatalization of their root-initial consonants to mark the potential and habitual aspects. The only verbs in this class that don't have root-initial coronal consonants are those that are already *y*-initial and therefore do not use palatalization as a strategy for marking morphological categories."

Laminalization in ZEN and palatalization in COA are likely reflexes of a PZn phenomenon that affected the potential and habitual forms of coronal-initial class B verbs. Some ZEN and COA cognate verbs that show the parallel appear in table 13, all of which are class B verbs in ZEN and COA.

Since this pattern is found in Chatino and in Southern Zapotec, subclass Bt may be reconstructible to PZn as a distinct subclass of class B. If so, it has been leveled out in most branches of Zapotec.

5.2.3. Subclass By. All *y*-initial verbs in ZEN belong to subclass By, and the stem-initial /y/ interacts with the aspect markers, as shown in (17).

(17) *-y-ano/-y-ánō* 'to stay', 'to be left'

POT	*ch-ano*	'it will stay'
PROG	*nte-y-ánō*	'it is staying'
HAB	*n-ch-ano*	'it stays'
COMP	*nk-y-ánō*	'it stayed'

The *ki-* of the potential combines with the /y/ of the stem to yield [ch]. This resembles the ZEN sound change **ky* > *ch* discussed earlier. ZAC did not undergo that change, and the ZAC cognate is *k-yanǫ*, preserving the /k/ as expected. A morphophonemic process in ZEN specific to aspect/stem boundaries is in effect whereby the sequence /iy/ is reduced to /y/, and the resulting /ky/ sequence becomes [ch]. This is not an across-the-board phonological process in the language. There are some lexemes which have the sequence /kiy/ or the palatalized stop /ky/ which do not affricate, for example, *kiya7* 'his foot' and *kyālá* 'dream'.

TABLE 13
ZEN SUBCLASS BT VERBS AND COA ZAPOTEC CORRESPONDENCES

		COA		ZEN	
		Stem	POT	Stem	POT
a.	'to pass'	*-tìd*	*tyǐd*	*-tejē*	*tyejē*
b.	'to stand'	*-zô*	*zyó*	*-toǫ*	*tyoǫ*
c.	'to walk/go around'	*-zè*	*zyé*	*-ta7ą*	*tya7ą*
d.	'to fly'	*-za7b*	*zya7b*	*-tákwi*	*tyákwi*

In the habitual, the /y/ of the stem combines with the aspect marker *nti-* to yield [nch-]. Again, it is possible that the /i/ and /y/ reduce when adjacent, and the /t(i)-y/ sequence also becomes [ch]. This process is not general either, because there are lexemes with unreduced /tiy/ sequences, such as *tiye7* 'sour' and *tīyú* 'smell of urine or squashed bedbug'. Alternatively, the habitual stem may contain the affricate due to analogy on the potential, or perhaps the progressive marker *nch-* (< PCh **nky-*) shifted to habitual in this subclass. In the completive, the aspect vowel is not present and the marker *nk-* affixes directly to the *y*-initial stem.[19]

Many of the subclass By verbs are the less transitive verbs of another group of derivationally related verb pairs. These pairs are equipollent (Haspelmath 1993), since their more transitive and less transitive stems are both derived by prefixes on uninflectable roots. The more transitive verb is derived by a transitivizing prefix, either *t-* or *s-*, on a root that begins in either /a/ or /u/. The transitivizer in turn is often preceded by the causative *u-*. Like other *u-*causatives, the more transitive verbs derived in these pairs fall into subclass Au. The subclass By, less transitive verb stems of these pairs are formed by adding an intransitivizing prefix *y-* to the root. (18)-(20) show three of these equipollent pairs representing the *y-/u-t-* and *y-/u-s-* derivations.

(18*a*)	*-y-akę̄*	'to be burned'	(subclass By)
(18*b*)	*-u-t-akę̄*	'to burn (it)'	(subclass Au)
(19*a*)	*-y-ati7*	'to be untied'	(subclass By)
(19*b*)	*-u-s-ati7*	'to untie (it)'	(subclass Au)
(20*a*)	*-y-uwe7*	'to be smoothed out'	(subclass By)
(20*b*)	*-u-s-uwe7*	'to smooth (it) out'	(subclass Au)

Kaufman (1987) reconstructs a PZp causativizer **o(s)se-*. Since /t/ is the normal ZEN reflex of both PZn **s* and **ss*, it is likely that the transitivizing

[19] The lack of the /u/ in subclass By completives may have a phonotactic explanation. The sequence /uy/ is very rare in the native lexicon. It occurs in *ya ntuyā7* 'ladder'. If that lexeme turns out to be an as yet unidentified loan, the restriction on *uy* sequences begins to look even stronger.

TABLE 14
SUBCLASS BY VERBS

	Gloss	POT	PROG	HAB	COMP
a.	'to weave (it)'	*chakwa*	*nte-chakwa*	*n-chakwa*	*nk-yakwa*
b.	'to plant (a plant)'	*chata*	*nte-chata*	*n-chata*	*nk-yata*
c.	'to sleep'	*k-yatę*	*nt-yatę*	*ta la nt-yatę*	*nk-yatę*
d.	'to wilt'	*ch-ana*	*nte-y-ánā*	*n-ch-ana*	*nk-y-ánā*
e.	'to stay'	*ch-ano*	*nte-y-ánō*	*n-ch-ano*	*nk-y-ánō*
f.	'to be burned'	*ch-akę̄*	*nte-y-akę̄*	*n-ch-akę̄*	*nk-y-akę̄*
g.	'to go in'	*ch-atę̄*	*nte-y-atę̄*	*n-ch-atę̄*	*nk-y-atę̄*
h.	'to receive (it)'	*ch-ukwą̄*	*nte-ch-ukwą̄*	*n-ch-ukwą̄*	*nk-y-ukwą̄*
i.	'to melt'	*chalā*	*nte-chalā*	*n-chalā*	*nk-yālá*
j.	'to be made'	*chaā7*	*nte-yāá7*	*n-chaā7*	*nk-yāá7*
k.	'to get tied up'	*ch-akę́7*	*nte-y-āką́7*	*n-ch-aką́7*	*nk-y-āką́7*

prefix *t-* is cognate with PZp **o(s)se-*. The source of the *s-* transitivizer in ZEN is not yet identified, but it may ultimately be the same.[20] Kaufman also reconstructs a PZp intransitivizer **i-* that is cognate with the ZEN *y-* intransitivizer of some subclass By verbs. The ZEN Chatino cognates place these derivational morphemes firmly at the earlier level of PZn.

Since the consonant-initial intransitive stems in subclass Bc pair with the *u*-causatives of subclass Au, and the transitive verbs of the equipollent pairs are also in subclass Au, placing the *y*-initial verbs in class B provides cohesion to the overall system. As already discussed, the irregularities of subclass By verbs are largely explainable morphophonologically. Table 14 presents several subclass By verbs. The full stems (root or derivation + root) are visible in the completive aspect and include the /y/ and everything to the right of it. Subclass By also includes some *y*-initial roots that are not part of the equipollent derivational pattern and are not necessarily intransitive.

As shown in table 14, the progressive forms of subclass By verbs take the marker *nte-* just like the rest of class B and class A. However, some have the affricate [ch] in place of the stem /y/. This is the result of the same phenomenon seen in vowel-initial subclass A2 verbs whose progressives are formed by adding the progressive prefix to the potential form. The verb 'to melt' (table 14, line *i*) is revealing because the tone in the progressive matches the tone of the potential and habitual instead of the completive, as it would if it were not built on the potential.

5.3. Class C. ZEN class C verbs, as in Kaufman's Zapotec class C, are set apart from classes A and B by having the vowel-less potential marker *k-*. In

[20] However, Chatino /s/ normally corresponds to Proto-Zapotec **xx* and **x*.

TABLE 15
ASPECT MARKERS OF CLASS C VERBS BY SUBCLASS

	Ca	C2
POT	*k-*	*k-*
PROG	*nch-*	*nch-*, *ntey-*
HAB	*nti-*	*nti-*
COMP	*nku-*	*y-*, *nkay-*

TABLE 16
SUBCLASS CA VERBS

	Gloss	POT	PROG	HAB	COMP
a.	'to get wet'	*k-atza7*	*nch-atza7*	*nti-tza7*	*nku-tza7*
b.	'to be born'	*k-ala*	*nch-ala*	*nti-la*	*nku-la*
c.	'to thicken'	*k-ana7*	*nch-ana7*	*nti-na7*	*nku-na7*
d.	'to burst'	*k-atzu*	*nch-atzu*	*nti-tzu*	*nku-tzu*
e.	'to drip'	*k-akwa7*	*nch-akwa7*	*nti-kwa7*	*nku-kwa7*
f.	'to die' (irreg.)	*k-aja*	*ntey-aja*	*nti-ji*	*nku-jwi*
g.	'to be done'	*k-aka*	*nch-akā*	*nti-ka*	*nku-kā*
h.	'to compost'	*k-ākwí*	*nch-akwī*	*ntī-kwí*	*nku-kwī*
i.	'to get cooked'	*k-āké7*	*nch-aké7*	*ntī-ké7*	*nkū-ké7*
j.	'to get old'	*k-āsú7*	*nch-asū7*	*ntī-sú7*	*nkū-sú7*
k.	'to fatten up'	*k-ālú*	*nch-alū*	*ntī-lú*	*nkū-lú*

Kaufman's system, class C shares the **ko-* completive with classes B and D. However, ZEN *nku-*, the cognate of PZp **ko-*, only occurs on a small set of intransitive class C verbs, all of which begin with /a/. These are called subclass Ca verbs. Other class C verbs form the completive with the prefix *y-*, in alternation with *nkay-*, and they make up subclass C2. The basic progressive marker for all of class C is *nch-*, which, as discussed earlier, is likely cognate to PZp **kkay-*. The progressive marker *ntey-* is in morpholexical alternation with *nch-*, but only in subclass C2. Table 15 summarizes, by subclass, the aspect markers of class C.

5.3.1. Subclass Ca. The /i/ of the habitual marker deletes the stem /a/ of subclass Ca verbs, but the stem /a/ appears in the potential due to the lack of /i/ in the class C potential marker. Table 16 presents an exhaustive list of the documented, non-compound ZEN subclass Ca verbs.

Subclass Ca verbs are intransitive, and most have inchoative semantics. Some of them have *u*-causative pairs where the /u/ deletes the stem /a/. However, only one, *-atzu* 'to burst', has a pair that is a *u*-causative verb in subclass Au, *-utzu* 'to pop (it)'. The rest of the causatives of Ca verbs belong to subclass C2. The verbs *-āké7* 'to get cooked', *-āsú7* 'to get old', and *-ālú* 'to fatten up' are unusual in having a tone pattern in the progressive that does

TABLE 17
COMPARATIVE ZAPOTECAN SUBCLASS CA VERB STEMS

	Gloss	ZEN	COA	CHI	PZN
a.	'to burst'	*-atzu*	*-âch*	*-atshí*	**attzok*
b.	'to be born'	*-ala*	*-ăl*	*-alá*	**alak*
c.	'to be cooked'	*-āké7*	*-ày*	*-aa7yi*	**ą7ki7*
d.	'to be done'	*-aka*	*-ăk*	*-aka*	**akka*
e.	'to get wet'	*-atza7*	*-âzh*	*-adzhi*	**atza(k)*
f.	'to die'	*-aji*	*-âth*	*-atxi*	**atti*

not match that of the completive. The verb *-aji* 'to die' (< PZn **atti*) shows progressive translaryngeal vowel harmony in the potential and progressive aspects that does not occur in the habitual or completive across the morpheme boundary.

ZEN subclass Ca corresponds to a historically stable class of verbs in Zapotec. While in each Zapotecan language some verbs have migrated from one class to another, cognates of the ZEN subclass Ca verbs have remained in class C in several branches of Zapotec, as documented by Beam de Azcona (2004) and Smith Stark (2002) for Coateco and Chichicapan Zapotec, respectively (see table 17). It should be noted that in spite of the conservatism of class C in Zapotecan languages, in ZEN and COA it includes only verbs that begin in vowels, whereas in CHI and PZp it contains consonant-initial verbs as well.

5.3.2. Subclass C2. The final subclass of ZEN verbs is subclass C2. Like subclass Ca, these verbs have the potential marker *k-*, the progressive *nch-*, and the habitual *nti-*. Instead of marking the completive with *nku-*, they have *y-* in alternation with *nkay-*. Subclass C2 verbs are all transitive, except perhaps *-ākwę́* 'to vomit'.[21]

The progressive marker also has two forms in morpholexical alternation: the conservative *nch-* (< PZn **kkay-*) and the innovative *ntey-*. The latter looks like the most prevalent progressive marker in the language, *nte-*, from classes A and B, accreted onto a *y-*, likely on analogy to the *y* ~ *nkay* completives of subclass C2. This would not be the only connection specific to the progressive and completive aspects, which as mentioned almost always have the same tone.

Subclass C2 verbs are vowel-initial, beginning in /a/, /o/, or /u/. Table 18 presents a selection of them.

The subclass C2 verb *-aku* 'to eat (it)' is irregular in the habitual because the /a/ of the stem deletes the /i/ of the aspect marker, in violation of the

[21] Even the verb *ākwę́* 'to vomit' may be transitive and mean 'to vomit it'.

TABLE 18
SUBCLASS C2 VERBS

	Gloss	POT	PROG	HAB	COMP
a.	'to eat (it)' (irreg.)	*k-aku*	*nch-aku*	*nt-aku*	*y-aku*
b.	'to hold (it)'	*k-ala7*	*nch-ala7*	*nti-la7*	*nkay-ala7*
c.	'to take a bath'	*k-ata*	*nch-ata*	*nti-ta*	*y-ata*
d.	'to kill (it)'	*k-ujwi*	*ntey-ujwi*	*nt-ujwi*	*nkay-ujwi*
e.	'to hear (it)'	*k-una*	*nch-una*	*nt-una*	*y-una*
f.	'to twist (it) into rope'	*k-una*	*ntey-una*	*nt-una*	*nkay-una*
g.	'to sting (him/her)'	*k-ojo7*	*nch-ojo7*	*nti-jo7*	*nkay-ojo7*
h.	'to speak' (irreg.)	*ki-kwi7*	*nch-akwi7*	*nti-kwi7*	*y-akwi7*
i.	'to grab or pull (it)'	*k-ukwą̄*	*ntey-ukwą̄*	*nt-ukwą̄*	*nkay-ukwą̄*
j.	'to be ground'	*k-uwe*	*ntey-uwe*	*nt-uwe*	*nkay-uwe*
k.	'to sing (it)'	*k-ulā*	*nch-ūlá*	*nt-ulā*	*y-ūlá*
l.	'to sell (it)'	*k-ujwi7*	*nch-ujwī7*	*nt-ujwi7*	*y-ujwī7*
m.	'to vomit (it?)'	*k-ākwę́*	*nch-akwę̄*	*ntī-kwę́*	*nkay-akwę̄*
n.	'to drink (it)'	*k-ō7ó*	*ntey-o7ō*	*ntī-7yó*	*nkay-o7ō*

vowel hierarchy. The *o*-initial verbs *-ojo7* 'to sting (him/her)' and *-ō7ó* 'to drink (it)' in table 18 (lines *g* and *n*, respectively) provide the evidence for ranking /o/ at the bottom of the vowel hierarchy along with /a/. As seen in the habitual forms, the /o/ is deleted by the /i/.

The verb *-akwi7* 'to speak' (table 18, line *h*), which Kaufman (1993) reconstructs as a class A verb, is irregular in ZEN in that it has the *ki-* potential marker of classes A and B while having the progressive *nch-* of class C (repeated in 21). It has the completive *y-*, which places it in subclass C2. We can say that because of its potential form, it used to belong to class A, but it has (not completely) migrated to class C.

(21)

POT	PROG	HAB	COMP
ki-kwi7	*nch-akwi7*	*nti-kwi7*	*y-akwi7*

ZEN has several other irregular verbs which do not conform to the verb-class system outlined here, most of which, as expected for irregular verbs, are frequent in their use: 'to do', 'to give', 'to want', and the deictic motion verbs.

6. Conclusions. This study has demonstrated a classification of Zenzontepec Chatino verbs based on the aspect markers with which they occur. There have been several similar classifications of Zapotec verbs, but this represents the first successful comprehensive verb classification of its kind in any Chatino language.

Class A verbs in ZEN have the potential marker *ki-*, progressive *nte-*, and habitual *nti-*. The class is divided based on the completive, where subclasses

TABLE 19
ZEN TONE ACROSS ASPECT BY SUBCLASS

Tone	Au	Ac	A2	Bc	Bt	By	Ca	C2	Total
/∅/ in all four aspects	3	3	3	9	3	3	6	9	39
/∅M/ in all four aspects	4	2	2	2	1	3	—	1	15
/MH/ in all four aspects	6	1	—	2	2	—	—	—	11
/∅M/ in P H, /MH/ in G C	5	—	—	1	2	3	—	1	12
/∅/ in P H, /HM/ in G C	1	1	—	1	2	2	—	—	7
/∅/ in P H, /∅M/ in G C	1	1	—	1	—	—	1	1	5
/MH/ in P H, /∅M/ in G C	—	—	—	—	—	—	1	2	3
/∅/ in P G H, /HM/ in C	—	—	3	—	—	—	—	—	3
/MH/ in P H C, /∅M/ in G	—	—	—	—	—	—	3	—	3
/HM/ in all four aspects	—	1	—	—	—	—	—	—	1
Total	20	9	8	16	10	11	11	14	99

Au and Ac have *nka-* and subclass A2 has *nkwi-*. Class B has three subclasses. The subclass Bc aspect markers are the same as class A except for having *nku-* in the completive. Most class B verbs that begin in /t/ belong to subclass Bt, and they realize potential aspect purely by laminalization of the stem-initial /t/. In the habitual, the stem /t/ is laminalized and preceded by *n-*. The subclass By verbs are distinct in that the /y/ of the stem changes to [ch] in the potential. The habitual is a fusion of the *nti-* aspect marker with the /y/ of the stem, which yields *nch-*. Class C verbs are unique in having the potential marker *k-* and the progressive marker *nch-*, with its alternant *ntey-* in subclass C2. Subclass Ca shares the completive marker *nku-* with class B, and subclass C2 verbs take the *y-* completive marker and its *nkay-* alternant.

The issue of tone is a pressing one for any study of Chatino, because tone carries a high functional load in most varieties. However, aspect is never marked solely by tone in ZEN, and although tone varies across aspects, each pattern of variation is spread through all or many of the verbal subclasses. This conforms to the view that tone is largely contributed, at least synchronically, by the stem, and most aspect markers do not independently carry lexical tone. Table 19 lists the tone patterns across the four aspects of all of the verbs in this study, by subclass.[22] As table 19 shows, the issue of tone is largely orthogonal to the verb-class system in ZEN. Therefore, a more detailed description of the phenomenon will be saved for future work that deals more comprehensively with tone.

[22] In the left column of table 19, shorter abbreviations for the aspects are used: P = Potential, G = Progressive, H = Habitual, and C = Completive. H = high tone, M = mid tone, and ∅ = unmarked tone.

Smith Stark (2002) and Beam de Azcona (2004) have shown that Kaufman's (1987) PZp verb-class system is still largely intact in Zapotec, and this study has shown that it applies to Chatino as well. Although a robust characterization of the PZn verb-class system awaits further work, the comparison initiated here between Chatino and Zapotec allows for several generalizations.

Class A in Kaufman's Zapotec system and in ZEN contains mostly transitive verbs and some unergative verbs like 'to laugh'. Labialization in the completive marker is the hallmark of class A in Zapotec, but its cognate is found only in subclass A2 in ZEN. Subclass A2 verbs have doublets in subclass Ac. The latter take the non-labial *nka-* completive marker, which is found on the vast majority of transitive verbs in Chatino. Although it is a PCh innovation, *nka-* is extending to become a general completive marker of transitive verbs in ZEN. This is reflected as pattern pressure in subclass C2, primarily transitive verbs, where the completive marker *y-* exists in alternation with the double-marked *nka-y-*. The only verbs which have the labialized completive marker *nkwi-* in ZEN without the *nka-* alternant are those that begin with /i/ or /e/, and all stems in the language that begin with those vowels take *nkwi-*. Therefore, that allomorph is partly phonologically conditioned in ZEN.

Contrary to the pattern in ZEN whereby the labial completive is becoming more restricted, in some varieties of Zapotec, such as Betaza (Northern), the class A labialized completive marker *b-* (< **kwe-*) has extended and is by far more common than the non-labialized completive *go-* (< **ko-*). Smith Stark's study of Chichicapan (Central) Zapotec shows a parallel pattern: 267 of the 387 verbs that he classifies belong to class A. In contrast, in Lachixío (Western) Zapotec (LCH), completive forms are never labial. Therefore, class A has disappeared in LCH, and class B has expanded to be the largest verb class by a significant margin (Sicoli 2008).

Class B in ZEN contains consonant-initial intransitive verbs, the same as in Kaufman's PZp system. It is probably necessary to reconstruct a subclass of PZn class B that includes some verbs of motion and position that began in coronal consonants. The laminalization or palatalization that these coronals undergo in the potential and habitual forms in Chatino and COA Southern Zapotec suggests that at some pre-PZn stage the vowel /i/ of the class B potential and habitual markers was present, and the aspect markers were later segmentally reduced in this subclass.

Class C in ZEN, as in Kaufman's Zapotec system, includes both intransitive and transitive verbs. Subclass Ca stems in ZEN are intransitive and begin with /a/. These are relatively stable in Zapotecan because they tend to remain in class C in several branches of the family. ZEN subclass C2 verbs

are vowel-initial (/a/, /u/, /o/) and like class A are either transitive or unergative. Thus, all class C verbs in ZEN are vowel-initial. In Zapotec, however, some are consonant-initial, and the initial consonants undergo fortition in the potential. The Chatino cognates of consonant-initial verbs that undergo fortition in Zapotec are found in classes A and B.

The networks of Chatino cognates of Zapotec class D verbs are not all worked out yet, but they are distributed throughout the classes in Chatino, largely in line with the phonological and valency specifications for the ZEN verb classes outlined here. The lack of any relict traces of class D replacive consonants in Chatino favors positing class D as a Zapotec innovation through which some transitive verbs take the corresponding intransitive stem in the completive.

The verb classes of ZEN correlate in part with the valency of verbs, which in turn is related to derivational morphology (the *u*-causatives and the subclass By verbs with the *y*- intransitivizer), and also with phonological factors (all /i/- and /e/-initial verbs are in subclass A2, and all *y*-initial verbs are in subclass By). Nevertheless, the system is partly lexical and not determined solely by the other factors. The same is true for Zapotec, according to Kaufman (1993). For example, the more transitive verb paired with a ZEN subclass Ca intransitive verb could logically either belong to subclass Au or subclass C2, and a learner of the language would have to learn which is correct.

Although some verbs have migrated between classes in individual Zapotecan languages and the modern systems are slightly more complicated than the posited original, the core system has remained largely intact through time in the daughter languages. This study has demonstrated that some of the derivational morphology reconstructed by Kaufman (1993) for PZp can be reconstructed back to PZn, including the **o-* or **ok-* causative, the **o(s)se-* causative, and the **i-* intransitivizer. Additionally, Kaufman's PZp **kkay-* progressive is reconstructible for PZn, given its Chatino cognates.

This work advances our understanding of verb classes and aspect morphology in the broader Zapotecan language family and sheds light on the historical evolution of the system in various daughter languages, particularly ZEN. It should offer insight into other Chatino languages whose aspectual systems are more opaque due to the loss of aspect marker and/or stem vowels. What remains to be done are comprehensive verb classifications in more Zapotecan languages in order to reconstruct the class membership of individual verbal lexemes in Proto-Zapotecan, as begun by Kaufman (1993). Also needed is further work on how these formal classes line up with the argument structure and lexical semantics of verbs, as Levin (1993) has done for English.

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