

Zaniza Zapotec phonology: synchronic and historical aspects

1. Zaniza Zapotec (ca 400 speakers in Santa María Zaniza, Sola de Vega, Oaxaca, Mexico)

< Papabuco < Zapotec < Zapotecan < Otomanguean

2. The segments.

	Labial	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Glottal
Stops	p	t			ty [tʃ]	k	
and affricates	b	d			dy [dʒ]	g	
	kw						
	gw						
Fricatives	(f)	s	x [ʃ]	tx [ʂ]			j [h]
	jw [h ^w]	z	zh [ʒ]	dx [z]			
Nasals	m	n			ny [ɲ]		
Liquids		l, r			ly [ʎ]		
Glides	w				y		
	i/i'/ī		u/u'/(u)		(õ, e, u occur in recent Spanish loanwords)		
	e/e'/(e)		o/o'/(õ)				
		a/a'/ã					

3. Sources of consonants.

Zaniza Zapotec		Proto-Zapotec		Spanish	
p-	pinyal 'sugar loaf'	–	–	recent p-	panela 'sugar loaf'
-p-	gup 'armadillo'	*-pp-	*pe+ kuppe 'armadillo'		
b-	bany 'wake up' bed 'Pedro' bàg 'cow' biyor 'topil'	*p-	*pani 'wake up'	early p- b- m-	Pedro (a name) vaca 'cow' mayor (an office)
-b-	ub 'shelled corn' txubat 'shoe' txib 'goat'	*-p-	*opa 'shelled corn'	early -p- -b-	zapato 'shoe' chivo 'goat'
kw-	kwal 'cornhusk' kwey 'stallion' kwaw 'curds'	*kp-	*kpela 'cornhusk'	early /kb/ /kw/-	caballo 'horse' cuajo 'curds'
gw-	gwan 'mirror' (do'-)gwidx 'sun' gweny 'has heard'	*w- *kVpV- *ko/_e,i	*wana 'mirror' *ko+ pitza 'sun; day'		
t-	tib 'one' tâz 'cup' timiwi 'Sunday'	*tt-, *Ct-	*k-tipa 'one'	t- early d-	taza 'cup' domingo 'Sunday'
-t-	bit 'skunk' almet 'bottle'	*-tt-	*p+ e7tte 'skunk'	recent -t-	limeta 'bottle'
d-	do 'maize spike'	*t-	*tawo 'maize spike'		
-d-	gid 'skin; leather' bràd 'cheap'	*-t-	*kiti 'skin; leather'	early -t-	barato 'cheap'
ty-	tyup 'two' tyin 'ink' tyen 'shop'	*tty-	*k-tyoppa 'two'	early t/_i, ty-	tinta 'ink' tienda 'shop'
-ty-	gity 'paper'	*-tty-	*ki7tyi 'paper'		

	marity 'machete' letyug 'lettuce'			early t/_e recent ch	machete lechuga 'lettuce'
dy-	dyaw 'river' dyuzh 'God'	g³/_a,o,u	*ke:7ku 'river'	di-	dios 'God'
-dy-	bedy 'turkey' xindyi 'watermelon'	*-ty-	*p+ etya (+ju) 'turkey'	-di-	sandía 'wtrmelon'
r-	rit 'bone'	*ty-	*tyitta 'bone'		
-r-	ber- (in cpds only) marity 'machete' armer 'medicine' arùz 'rice' kruz 'cross' mràd 'blue' arkaly 'mayor'	*-ty-	*p+ etya (+ju) 'turkey'	-ch- -di- -rr- -r- -l-	machete remedio 'cure' arroz 'rice' cruz 'cross' morado 'purple' alcalde 'mayor'
k-	kub 'new' kèzh 'cheese' karnad 'pomegranat'	*kk-	*kkupi 'new'	/k/- /g/-	queso 'cheese' granada
-k-	xurka 'furrow'			-/k/-	surco 'furrow'
-j-	bejw 'dog' loj 'crazy'	*-kk-	*p+ e7kku7 'dog'	-/k/-	loco 'crazy'
g-	gid 'chicken' garbaz 'chickpea'	*k expt / _u,o[str]	*kiti 'chicken'	g-	garbanzo
-g-	geg 'water gourd' bàg 'cow'	*-k- expt /_u,o	*k+ eka7 'water gourd'	16 th c /k/	vaca 'cow'
f-	feb 'Thursday'			/xw/-	jueves 'Thursday'
-f-	kafe 'coffee'			-/f/-	café 'coffee'
s-	sa 'kinsman, family' siwda 'city'	*ss-	*ssa7a 'kinsman, family'	recent /s/-	ciudad 'city'
-s-	as 'to sleep' asug 'sugar'	*-ss-	*assi 'to sleep'	-/s/-	azúcar 'sugar'
z-	za 'cloud'	*s-	*sa 'cloud'		
-z-	dyaz 'ear of corn' mùz 'servant' arùz 'rice'	*-s-	*kesa 'ear of corn'	-/s/- -/s/	mozo 'servant' arroz 'rice'
x-	xag 'cheek' xab 'clothing' xily 'saddle; chair' xigàn 'giant'	*xx- *x-	*xxaka7 'cheek' *xapa 'bark, clothing'	early s- /ʃ/	silla 'saddle/chair' gigante 'giant'
-x-	ix 'sweet' lunex 'Monday' tixèr 'scissors'	*-xx-	*ixxi 'sweet'	-s- /ʃ/	lunes 'Monday' tijera 'scissors'
-zh-	gìzh 'grass' àzh 'garlic' dyuzh 'God'	*-x-	*kixi 'grass'	/ʃ/ early -s-	ajo 'garlic' dios 'God'
tx-	txib 'to frighten' txij 'to burn' (Pot) txib 'goat' txubat 'shoe'	*ttz- *k+y	*ok+ tzepE 'to frighten' *k (Pot) + yij 'burn'	early ch /ts/	chivo 'goat' zapato 'shoe'
-tx-	katx 'yellow' kutx 'pig'	*-ttz-	*k-attzi 'yellow'	early ch	cuche 'pig'
dx-	dxeny 'smoke'	*tz-	*tzeni 'smoke'		

-dx-	bedx 'to shout'	*-tz-	*p-etzi 'to shout'		
m-	m' 3 animal pronoun marity 'machete' màzh 'Tomás' muntuny 'button'	*mm-	*mma(ni7) 3 anim pron	m- b-	machete Tomás (a name) botón 'button'
-m-	timiny '12.5 cents' trum 'top' (toy)			-m- -mp-	tomín (a coin) trompo 'top' (toy)
ny-	nya 'red' nyez 'road' nyan 'year' nyeny 'inside'	*nn- *n/_e *l/_in, ni	*(xi+) nnä 'red' *nesa 'road' *linV7 ~ lana 'year' *(l)la:7ni 'inside'		
-ny-	biny 'mud' bany 'to wake up' unye 'scorpion' biziny 'mouse' pinyal 'sugar loaf' timiny '12.5 cents' anym 'spirit' muntuny 'button' ganys 'goose'	*-nn- *-n/_i, e *-n/i_	*penne +ju 'mud' *pani 'to wake up' *ko+ ne7 *pe+ sina7 'mouse'	early n,ñ/_e n/i_ ni n/o_ n/_s	panela 'sugar loaf' tomín (a coin) ánima 'spirit' botón 'button' ganso 'goose'
n-	nis 'water' nit 'to be lost' nan 'soot' nun 'bed'	*n- *nn-/_i *l/_n	*nissa 'water' *nnitti 'to be lost' *lana 'soot' *lo:7na 'bed'		
-n-	dyan 'plate'	*-n-	*ke7na 'plate'		
ly-	lyag 'leaf' lyudx 'tongue' lyum-titx 'back of a.' lyuj 'Lucas'	*ll- *l/_e,i,u	*llaka7 'leaf' *lu:7tze7 'tongue'	l-/_o,u	lomo 'back of a.' Lucas (a name)
-ly-	xily 'wing' txily 'castilla' bixily 'vigil' wely 'Manuel' kusnely 'cook' ulyan 'hare' muly 'she-mule' arkaly 'mayor'	-l/i_ l/u_	*xxila7 'wing' *ko=lana 'hare'	-ll-/_i_ -l-/_i, e_ -r-/_e_ l/u_ -ld-	castilla 'Castilian' vigilia 'vigil' Manuel (a name) cocinero 'cook' mula 'she-mule' alcalde 'mayor'
l-	la' 'to blow' law 'crop' arbanil 'mason'	*l- *ll-	*la7a 'to blow' *lla:7ku 'crop, crawl'	-r-, -l-	albañil 'mason'
-l-	ral 'night' bal 'fish' pinyal 'sugar loaf'	*-l- *-ll-	*ty-e:7la 'night' *p+ ella 'fish'	-l-	panela 'sugar loaf'
w-	witx 'Sola de Vega' wes 'has moved' wizh 'Luis' wely 'Manuel'	*w- *ko/_ye,I	*wittzi 'Sola de Vega'	lw- nw-	Luis (a name) Manuel (a name)
-w-	kaw 'dark' dyaw 'river' yew 'mare' triw 'wheat' bāw 'bench' sijw 'Francisco' milawr 'miracle'	*-w- *-(k)u	*xi+ kkawi 'dark' *ke:7ku 'river'	-(g)w- -go -k/o -o -g/_r	yegua 'mare' trigo 'wheat' banco 'bench' Francisco (name) milagro 'miracle'

	awtobus ‘bus’			-w-	autobús ‘bus’
y-	yag ‘tree, wood’	*y-	*yaka ‘tree, wood’		
-y-	bey ‘moon, month’ kwey ‘stallion’ bay ‘shawl’	*-y-	*p+e7yo7 ‘moon, month’	-/y/- <ll> -/j/- <ñ>	caballo ‘horse’ pañó ‘cloth’

4. Sources of vowels.

Zaniza Zapotec		Proto-Zapotec		Spanish	
a, a’	a ‘to get ripe’ as ‘to chew’ lab ‘to boil’ àzh ‘garlic’	*a *a7 *a:7	*a ‘to get ripe’ *a7ssa7 ‘to chew’ *lla:7pi ‘to boil’	a	ajo ‘garlic’
	dyaz ‘ear of corn’ lay ‘tooth’ dyan ‘plate’ dyaw ‘river’ bitya’ ‘louse’	*e:(7)/ C ^y _C/ø C= z,y,n,w	*kesa ‘ear of corn’ *(l)le7ya ‘tooth’ *ke7na ‘plate’ *ke:7ku ‘river’ *p+e:7ttye7 ‘louse’		
	ral ‘night’ pinyal ‘sugar loaf’	*e:(7)/_l	*ty-e:7la ‘night’	e/_l	panela ‘sugar loaf’
	za ‘to walk’ ya ‘sweat-house’ ba’ ‘sky’ ya’ ‘clear(ed)’	*ä *ä: *ä7 *ä:7	*sä ‘to walk’ *yä: ‘sweat-house’ *pä7 ‘sky’ *yä:7 ‘clear(ed)’		
ã	yã ‘I’ bãw ‘bench’	*an/_#	*yan ‘I’ (Papabuco)	an/_#	banco ‘bench’
e, e’	yety ‘be washed’ yeny ‘neck, throat’ kwey ‘stallion’ mez ‘mallet’	a, a’ > e, e’ /kw, y_C ^y	*yã7tye ‘be washed’ *yãnni ‘neck/throat’	a/kw_y a/m_z	caballo ‘horse’ mazo ‘mallet’
e, e’	gey ‘rain’ ge ‘flower’ txi-be ‘crab’ bèzh ‘peso’ (coin)	*e:(7)	*ke +jo ‘rain’ *ke7 +ja ‘flower’ *p-e:7 ‘crab’	e	peso ‘peso’ (coin)
e, e’	zet ‘far’ getx ‘quern’	*i, i:7	*sittu7 ‘far’ *ki:7tzi ‘quern’		
i, i’	bily ‘snake’ bily ‘woman’s sister’	*e, e:7	*p+e:7lla ‘snake’ *p+ ella ‘w’s sister’		
i, i’	gib ‘to sew’ gi’ ‘foot, leg’ gib ‘to wash’ txib ‘goat’	*i, i7, i:7	*k-ipa ‘to sew’ *k-i7ya ‘foot, leg’ *k-i:7pE ‘to wash’	i	chivo ‘goat’
i, i’	gita’ ‘stone’ bi= (completiv mrkr) pinyal ‘sugar loaf’ xikwal ‘school’ timiny ‘12.5 cents’	*a,e,o /_stress	*ke: +ja ‘stone’ *kwe= (cmpl mrkr)	a,e,o /_stress	panela ‘sugar loaf’ escuela ‘school’ tomín (a coin)
ĩ	ĩw ‘turtle’	*in/_#	*inku ‘turtle’ (P/Ch)		
o o’	lo ‘face, eye’ bo’ ‘to remove’	*awo(7)	*lawo ‘face, eye’ *pawo7 ‘to remove’		
o’	lo’ ‘fence, corral’	*o7	*lo7o ‘fence’		
o’	o’ ‘to drink’ lo’ ‘fence, corral’	*e7	*e7 ‘to drink’ *(pe+) le7 +ja		

			'fence; courtyard'		
õ	kamyõ 'truck'			on/_#	camión 'truck'
u u'	lyu 'root' gu 'sweet potato' yu 'house' nun 'bed' dyuzh 'God'	*o(:)(7)	*llo 'root' *ko: 'sweet potato' *yo7o 'house' *lo:7na 'bed'	o	dios 'God'
u u'	u= (compl. marker)	*ko=/_#C	*ko= (cpltv. mrkr)		
u u'	kub 'new' gudx 'swamp' dub 'feather' komu 'toilet' txubat 'shoe' xundista 'sacristan' txuplin 'grasshopper'	*u, u:, u:7	*kkupi 'new' *ku:tza7 'swamp' *tu:7pi7 'feather'	u a/_stress	común 'common' zapato 'shoe' sacristán chapulín

5. The “epenthetic vowel” and syllable structure.

Final vowels in Zaniza are lost (with the exception of *-u/*-o > -w). However, there is an epenthetic vowel that automatically occurs at the end of a speech chain (at the end of sentences and clauses, words in isolation, individual words in slow speech, hesitation pauses).

Because of the epenthetic vowel, the syllable structure of a word in isolation differs from its syllable structure in connected speech, cf.:

<u>gloss</u>	<u>In connected speech</u>		<u>In isolation</u>	
	<u>word</u>	<u>syllable</u>	<u>word</u>	<u>syllable</u>
'here':	i	V	i-(y)a	V-(C)V
'head':	ij	VC	i-ja	V-CV
'face':	lo	CV	lo-a	CV-V
'meat':	bal	CVC	ba-la	CV-CV
'shoulder':	xijw	CVCC	xi-jwa	CV-CCV

6. Native morpheme shapes (V = V or V'):

4(a) Stressable stems (nouns, free pronouns, adjectives, participles, verbs, adverbs):

V	o' 'to drink', i 'salary', i 'here'
VC	ab 'to speak', ub 'shelled corn'
CV	ga 'to shave', bo' 'charcoal', re 'there', yã 'I', mi ze '3sf/resp'
CVC	tyal 'to split', geg 'gourd', katy 'white', nyeny 'inside; under'
CVCC	bejw 'dog', xijw 'arm, shoulder', tyijw 'small bird, sparrow', sijw 'Francisco'

4(b) Clitics:

	<u>Proclitics</u>	<u>Enclitics</u>
V	u (completive aspect)	e (deictic)
VC	aj (marker of negation)	
C	g (causative marker)	r (2s clitic pronoun)
CV	bi (animacy marker)	ze (deictic)
CVC	gal 'and; then'*	

*Classifiers (e.g., yag 'wood' → ya-tim 'shaft', ya-xily 'chair'), initial members of compounds, relational nouns, wh-words (ka 'where?', tyu/laj '[anim./inan.] which?'), and conjunctions also behave like clitics.

7. Distribution of segments.

7(a). Consonants:

- **m, gw** are rare (attested combinations: **ma-, mi-, mb-, -m, gwa-, gwe-, gwi-**)
- No initial **p-, zh-, j-**, and no initial **gw-** in verb-stems; only one **dy-** initial verb-stem
- No final **-k, -kw, -gw, -r, -f** (in verb-stems, also **-m**)
- Final **-r** occurs only in proclitics
- Word-medial **-ly-** occurs only after i

- **-ty, -m** are rare stem-finally in nouns
- No stem-initial or stem-final consonant clusters in verb-stems
- Native word-initial clusters (occur only in nouns): **mb-, ng-, ngw-, ndy-** (once)
- Native word-final cluster: **-jw** (< *kku).

7(b). Vowels (V = V or V'):

- **o** is rare
- No **o, u** after labials (kw, gw, w, p, b, m). Exception: bo' 'to remove' (< *pawo7)
- No **e** after k- and n-; **i** once after k-
- No **e, i, u** after l-
- No **e, o** initially in noun-stems
- Only **a, o, u** after dy-; only **a, e** after ny-; only **a, e** before -y-
- Nasalized vowels occur only word-finally or before -w.

8. Tones.

8(a). The stem of a stressable monosyllabic word has a high, mid, or low tone:

High	Mid	Low
lyéx 'buzzard'	lyex 'avocado'	—
—	yew 'expensive'	yèw 'mare'
íly 'cotton'	—	ìly 'big'
ná 'work'	na 'today'	nà 'thick'.

8(b). The epenthetic vowel always has mid tone:

yú'a 'house'	yua 'earth'	yèwa 'mare'.
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8(c). The epenthetic vowel of words ending in -a/-a'/-ã combines with the high or low tones of the stem vowel to produce phonetically long vowels with tones that are acoustically rising or falling:

yââ 'hand'	yaa 'clear'	yâa 'sweat bath'.
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8(d). In words of more than one syllable only the stressed syllable bears distinctive tone: the syllables to the left (proclitics and initial syllables of polysyllabic Spanish loans) take the default mid: yaj=bés 'to curl up' u=yan 'it has hurt' mbiz-ily 'thumb' disyémbr 'December'.

8(e). The only clitics to bear a distinctive tone are 1s =ã and 3s f/animal =ma':

lyex=ã 'my avocado'	lyex=ma' 'her/the animal's avocado'.
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8(f). In early loans from Spanish, the stressed syllable received low tone while the unstressed syllables were lost, cf:

mìzh 'shirt' < camisa.

In more recent loans, Spanish stress is rendered as high tone, the posttonic syllables are lost, but the pretonic syllables remain and are treated as in 8(d):

mák 'sewing machine' < máquina

famíl 'family' < familia.

9. The stress.

Stress in Zaniza Zapotec uniformly falls on the final syllable of a stressable stem.

10. Spanish loanwords introduced the following changes into the phonology of Zaniza:

- introduced **f**, initial **p-**, medial **-k-**, final **-r**
- introduced more instances of **o, m, dy-**
- introduced consonant clusters, e.g. such onset clusters as **br-, tr-, gr-, by-, sy-, my-, pw-, nw-, xk-** (< esc-) and such coda clusters as **-nt, -rk, -ndr, -mbr**
- early loans introduced more instances of the rare low tone
- introduced polysyllabic words.