

# Linking proto-Totonacan and proto-Mixe-Zoquean

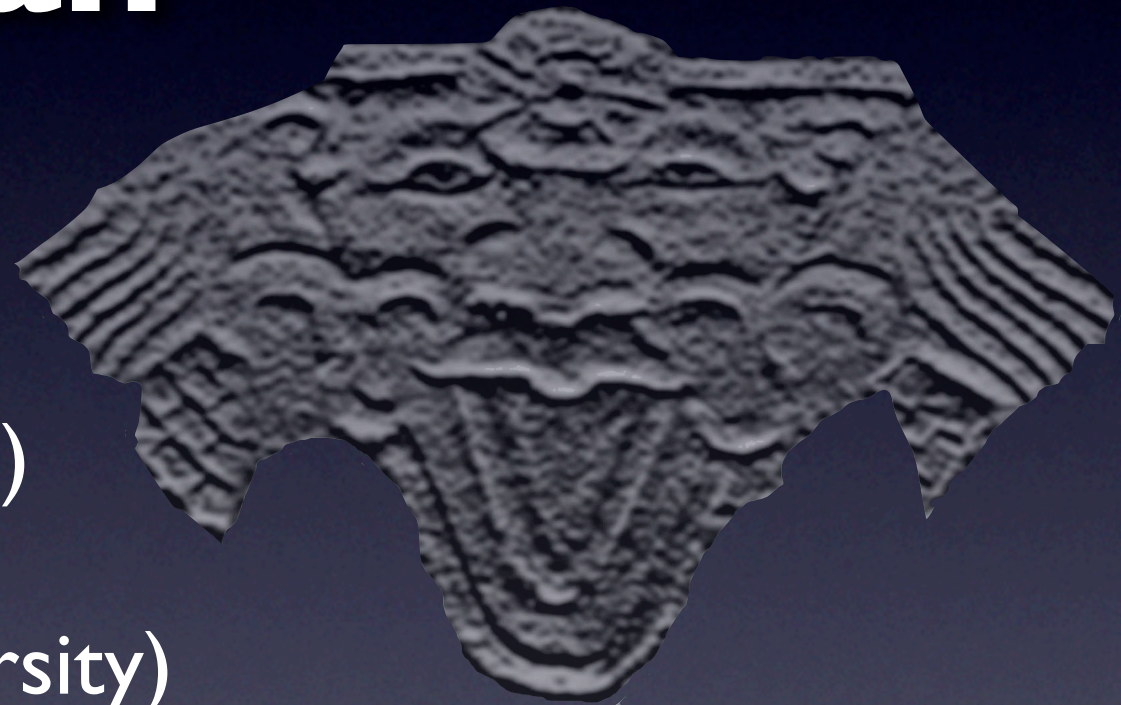
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a complete version of the talk, including pTz cognate sets, is available at: <http://www.ualberta.ca/~dbeck/TzEILNXI.pdf>





# proto-Totozoquean

- a genetic link between Totonacan (Tn) and Mixe-Zoquean (MZ) has been suggested previously (Belmar 1910; Whorf 1935; McQuown 1942, 1956; Witkowski & Brown 1978; Greenberg 1987; Campbell 1997:324)
- no systematic effort has been made to connect the families using traditional historical comparative methods
- we apply this methodology to reconstructed forms from proto-Totonacan (pTn) and proto-Mixe-Zoquean (pMZ) and assemble:
  - a phonological inventory for a potential proto-language;
  - a set of regular sound correspondences; and
  - a set of 188 lexical cognates based on these sound correspondences.

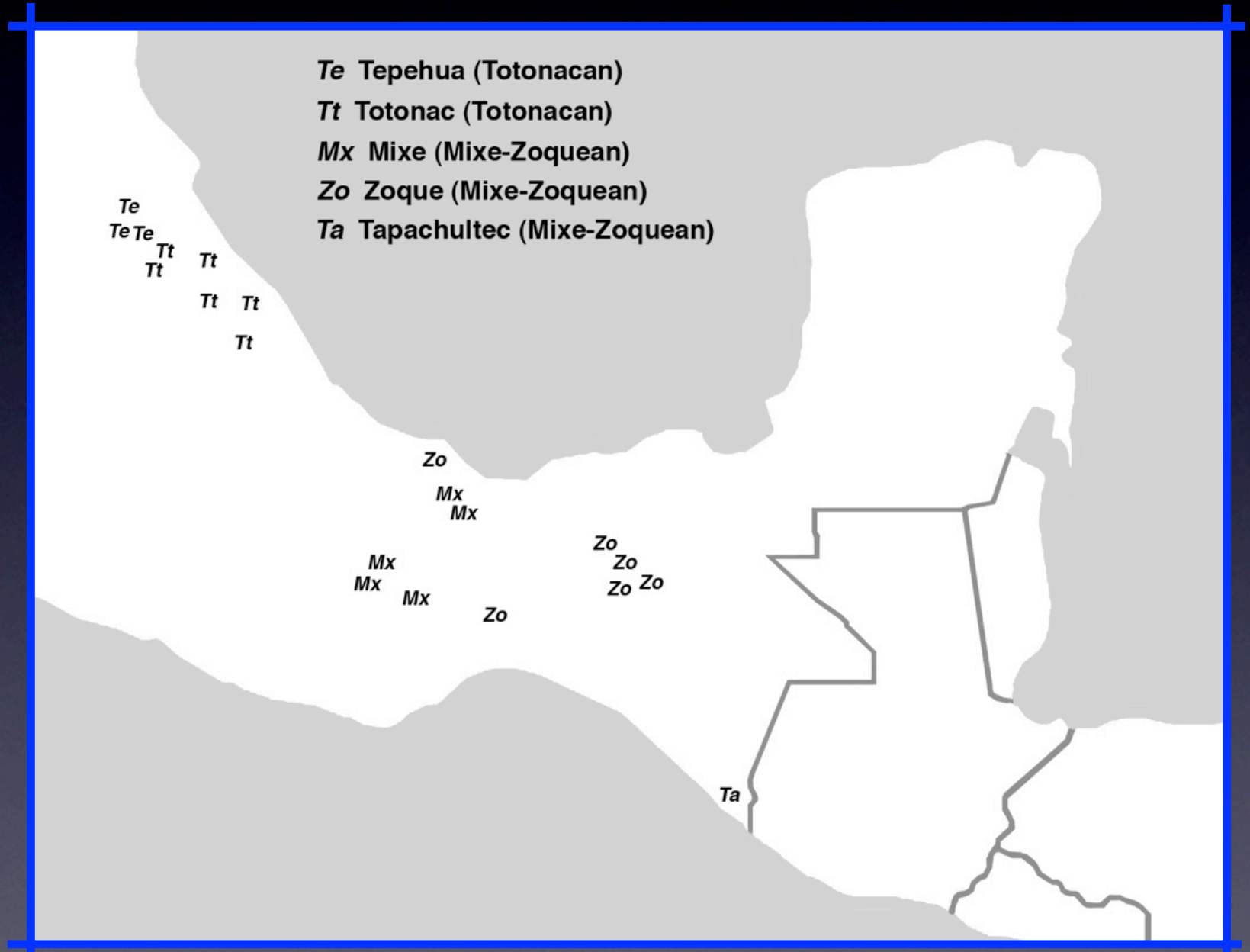
The number, regularity, and nature of these cognates constitutes strong evidence in favour of the descent of pTn and pMZ from an earlier language —**proto-Totozoquean** (pTz).





# The modern languages

- Mixe-Zoque is a family of 17 languages spoken in the states of Chiapas, Oaxaca, Tabasco, and southern Veracruz (Lewis 2009)
- Totonacan languages are spoken in Puebla, southern Hidalgo, and northern Veracruz
- Totonacan consists of two branches, Totonac and Tepehua
- the number of Totonacan languages is undetermined, estimates ranging from 3 to between 14 and 20







# Reconstructing pTz

Unlike earlier studies, which compared limited numbers of modern forms, this study directly compares words reconstructed for pTn and pMZ

- the pMZ forms were drawn from an existing, independent source (Wichmann 1995)
- for pTn, our starting point was a list of cognates identified by Kondrak et al. (2007)
  - these were supplemented with forms reconstructed for the purposes of this study

This is not ideal, as the pTn cognate set was not arrived at independently of the pTz hypothesis, but we feel that our pTn cognates are robust and relatively uncontroversial.





# pTn Consonants

- this inventory is similar to the inventory of most daughter languages
- it differs only in two points from the reconstruction of Arana Osnaya (1953)
  - the glottal stop
    - motivated by morphology (see Levy 1987; MacKay 1997)
  - the existence of two back fricatives
    - found marginally in at least two modern languages—Coatepec (McQuown 1990) and Ozelonacaxtla (Roman Lobato 2008)
- Davletshin (2008) reaches this conclusion independently

p	t			k	q	(ʔ)
m		n				
	s	š		x		h
	ç	č				
w		l	y			
		ɬ				
		ɮ				

proposed pTn consonant inventory





# pTn Vowels

- the same as that reconstructed by Arana Osnaya (1953)
- this inventory differs very little from the inventory of most daughter languages
- some modern languages have developed a 5-vowel system
- some languages have lost length
- some Totonac languages have lost laryngealization as well
- stops followed by laryngealized vowels in Totonac correspond to ejective stops in Tepehua, which lacks ʷ
- this may have implications for the reconstruction of pTn ʷ

plain		laryngealized			
i(:)		u(:)	ĩ(:)		ũ(:)
	a(:)			ã(:)	

proposed pTn vowel inventory





# pMZ Inventory

p	t		k	ʔ
m	n			
	s			h
	ç			
w		y		

- both fairly similar to pTn
- lacks laterals, alveo-palatals, uvular stop, and velar fricative
- has mid-vowels missing from pTn

i(:)		u(:)
e(:)	ə(:)	o(:)
	a(:)	

pMZ inventories from Wichmann (1995)





# pTz Consonants

p	pTn *p	t	pTn *t	t <sup>y</sup>	pTn *č	k	pTn *q	q	pTn *q	ʔ	pTn *∅
	pMZ *p		pMZ *t		pMZ *t		pMZ *k		pMZ *ʔ		pMZ *ʔ
m	pTn *m	n	pTn *n	n <sup>y</sup>	pTn *l	k <sup>y</sup>	pTn *k	q	pTn *q	ʔ	pTn *∅
	pMZ *m		pMZ *n		pMZ *n		pMZ *k		pMZ *q		pMZ *ʔ
		s	pTn *s	š	pTn *š	x	pTn *x	q	pTn *q	ʔ	pTn *∅,#h
			pMZ *s		pMZ *s		pMZ *h		pMZ *q		pMZ *h
		ç	pTn *ç	č	pTn *č		pTn *	q	pTn *q	ʔ	pTn *∅
			pMZ *ç		pMZ *ç		pMZ *		pMZ *q		pMZ *
w	pTn *w	l	pTn *l	y	pTn *t		pTn *	q	pTn *q	ʔ	pTn *∅
	pMZ *w		pMZ *y		pMZ *t		pMZ *		pMZ *q		pMZ *
		λ	pTn *λ		pTn *		pTn *	q	pTn *q	ʔ	pTn *∅
			pMZ *y		pMZ *		pMZ *		pMZ *q		pMZ *
		ɸ	pTn *ɸ		pTn *		pTn *	q	pTn *q	ʔ	pTn *∅
			pMZ *y		pMZ *		pMZ *		pMZ *q		pMZ *





# pTz Consonants

p	pTn *p	t	pTn *t	t <sup>y</sup>	pTn *č	k	pTn *q	q	pTn *q	ʔ	pTn *∅
	pMZ *p		pMZ *t		pMZ *t		pMZ *k		pMZ *ʔ		pMZ *ʔ
						k <sup>y</sup>	pTn *k				
							pMZ *k				
m	pTn *m	n	pTn *n	n <sup>y</sup>	pTn *l						
	pMZ *m		pMZ *n		pMZ *n						
		s	pTn *s	š	pTn *š	x	pTn *x			h	pTn *∅,#h
			pMZ *s		pMZ *s		pMZ *h				pMZ *h
		ç	pTn *ç	č	pTn *č						
			pMZ *ç		pMZ *ç						
w	pTn *w	l	pTn *l	y	pTn *t						
	pMZ *w		pMZ *y		pMZ *y						
		λ	pTn *λ								
			pMZ *y								
		ɸ	pTn *ɸ								
			pMZ *y								

the pTz inventory strongly resembles the pTn inventory





# pTz Consonants

p	pTn *p	t	pTn *t	tʸ	pTn *č	k	pTn *q	q	pTn *q	ʔ	pTn *∅
	pMZ *p		pMZ *t		pMZ *t		pMZ *k		pMZ *ʔ		pMZ *ʔ
						kʸ	pTn *k				
							pMZ *k				
m	pTn *m	n	pTn *n	nʸ	pTn *l						
	pMZ *m		pMZ *n		pMZ *n						
		s	pTn *s	š	pTn *š	x	pTn *x			h	pTn *∅,#h
			pMZ *s		pMZ *s		pMZ *h				pMZ *h
		ç	pTn *ç	č	pTn *č						
			pMZ *ç		pMZ *ç						
w	pTn *w	l	pTn *l	y	pTn *t						
	pMZ *w		pMZ *y		pMZ *y						
		λ	pTn *λ								
			pMZ *y								
		ɸ	pTn *ɸ								
			pMZ *y								

9 consonants are maintained in both daughter languages





# pTz Consonants

p	pTn *p	t	pTn *t	t <sup>y</sup>	pTn *č	k	pTn *q	q	pTn *q	ʔ	pTn *∅
	pMZ *p		pMZ *t		pMZ *t		pMZ *k		pMZ *ʔ		pMZ *ʔ
m	pTn *m	n	pTn *n	n <sup>y</sup>	k <sup>y</sup>	x	pTn *k	h	pTn *∅,#h	pMZ *h	
	pMZ *m		pMZ *n				pMZ *k				
w	pTn *w	l	pTn *l	y	č	x	pTn *x	h	pTn *∅,#h	pMZ *h	
	pMZ *w		pMZ *l				pMZ *č				
		λ	pTn *λ								
			pMZ *y								
		ɸ	pTn *ɸ								
			pMZ *y								

MZ loses its laterals, which are neutralized to /y/





# pTz Consonants

- \**ləʔ* | pTn \*{š}la' 'he, she, it' (= \*iš '3pos' + \*la' [pronominal stem]); pMZ \*yəʔ  
'(demonstrative pronoun) this'. [Note: SJ yəʔə '3SG-specific'.]
- \**liʔkʷ* | pTn \*lik{š}- 'to shake, vibrate'; pZ \*yəʔk 'shake' [pMZ \*yəʔk].
- \**skOʔl* | pTn \*squ'lí' 'suck; use mouth to make something whistle'; pM \*koʔy 'to suck (inside the mouth)' [pMZ \*koʔy].
- \**Haʔl* ~ \**Huʔl* | pTn \*Hal{á'n} 'embers'; pMZ \*huʔy{i} 'coal'.
- \**yeʔ* ~ \**yeʔʔ* | pTn \*tiʔ- 'spread out (to dry)'; pMZ \*ye(?)y 'lay out (...beans), dry'.
- \**taʔ* | pTn \*táʔ{u} 'rash, skin disease'; pMZ \*tay 'to scar'.
- \**lahʔnk* ~ \**lehʔnk* | pTn \*ʔank- 'big, more'; pMZ \*ye:ʔk 'to grow'.
- \**ʔox* | pTn \*ʔax 'earn, win'; pMZ \*yoh 'owe, pay'. [Note: pTn \*ʔa is expected.]
- \**məʔ* | pTn \*ma'ʔ - 'bamboo'; pM \*məhy 'long grass' [pMZ \*məy].
- \**po:ʔ* | pTn \*pu:ʔ 'mud'; pZ \*poʔyo 'sand' [Note: some reflexes mean 'fine dirt']  
[pMZ \*po:ʔy{o}].





# pTz Consonants

p	pTn *p	t	pTn *t	t <sup>y</sup>	pTn *č	k	pTn *q	q	pTn *q	ʔ	pTn *∅
	pMZ *p		pMZ *t		pMZ *t		pMZ *k		pMZ *ʔ		pMZ *ʔ
m	pTn *m	n	pTn *n	n <sup>y</sup>	pTn *l	k <sup>y</sup>	pTn *k				
	pMZ *m		pMZ *n		pMZ *n		pMZ *k				
		s	pTn *s	š	pTn *š	x	pTn *x			h	pTn *∅,#h
			pMZ *s		pMZ *s		pMZ *h	pMZ *h			
		ç	pTn *ç	č	pTn *č						
			pMZ *ç		pMZ *ç						
w	pTn *w	l	pTn *l	y	pTn *t						
	pMZ *w		pMZ *y		pMZ *y						
		λ	pTn *λ								
			pMZ *y								
		ɸ	pTn *ɸ								
			pMZ *y								

MZ loses \*q and neutralizes the alveolar vs. alveopalatal/palatalized distinction





# pTz Consonants

\**ča:m* | pTn \*ča: ‘ripen’; pMZ *ɕa:m?* ‘ripen’.

\**čah?* | pTn \*ča{xí:t} ‘hail’; pMZ \**ɕa:?* ‘stone’

\**čEq* ~ \**čAq* | pTn \*ča'q{á:} ‘wash’; pZ \**ɕe?* ‘wash’ [pMZ \**ɕe?*].

\**pu:č?* | pTn \*pu:č{í:} ‘rot<sub>v</sub>’; pMZ \**pu:ɕ?* ‘rot’.

\**šI?* | pTn \*ši{n} ‘itch<sub>v</sub>’; pM \*ši?p ~ \*ši:p ‘cause an itch’ [pMZ \*si?{p}].

\**šoKI* | pTn \*šokI ‘snail, slug’; pZ \**soki* ‘snail’ [pMZ \**soki*].

\**pəš* | pTn \*paš- ‘bathe<sub>intr</sub>’; pMZ \**pəs{-V(k)}* ‘sweat’, pZ \**pəs* ‘sweat’.

\**pikʸš* | pTn \*pikš- ‘itch<sub>v</sub>’; pMZ \**piks* ‘to tap, pick at’.

\**nʸema* | pTn \*lamá ‘flame<sub>v</sub>, burn’; pZ \**nema* ‘flame’ [pMZ \**nema*].

\**nʸUʃš* | pTn \*lú'š{u'} ‘cloth, clothes’; pMZ \**nuʃs* ‘cover’

\**tʸəʔkš* | pTn \*čaqš- ‘cut off, cut down, snap off’; pZ \**təʔks* ‘to break or

cut’ [pMZ \**təʔks*]. [Note: NE *təʔks* ‘cut with a machete, chop into chunks’.]

\**pOtʸ* | pTn \*pu'č{a} ‘tear, break, snap (something long and thin)’; pM \**poht* ‘tear something long and thin’ [pMZ \**pot*].





# pTz Consonants

p	pTn *p	t	pTn *t	t <sup>y</sup>	pTn *č	k	pTn *q	ʔ	pTn *q	∅
	pMZ *p		pMZ *t		pMZ *t		pMZ *k		pMZ *q	
m	pTn *m	n	pTn *n	n <sup>y</sup>	pTn *l	k <sup>y</sup>	pTn *k	h	pTn *∅,#h	
	pMZ *m		pMZ *n		pMZ *n		pMZ *k		pMZ *h	
w	pTn *w	ɸ	pTn *s	š	pTn *š	x	pTn *x	ɸ	pTn *∅,#h	
	pMZ *w		pMZ *s		pMZ *s		pMZ *h		pMZ *h	
		ç	pTn *ç	č	pTn *č					
			pMZ *ç		pMZ *č					
		l	pTn *l	y	pTn *t					
			pMZ *y		pMZ *y					
		λ	pTn *λ							
			pMZ *y							
		ɸ	pTn *ɸ							
			pMZ *y							

8

33

2

- there are 3 segments reconstructed that are not found in either daughter language
- 2 of these are represented in very few sets and have to be regarded as tentative
- the \*k<sup>y</sup> (where pTn \*k ~ pMZ \*k) is robust





# pTz Consonants

\**k<sup>y</sup>a* | pTn \*ka{x} ‘sour, bitter’; pMZ \*ka{øu(ø)} ‘sour, bitter’.

\**k<sup>y</sup>in* | pTn \*kin- ‘nose’; pZ \*kinə ‘nose, point, peak’ [pMZ \*kin{ə}].

\**pik<sup>y</sup>š* | pTn \*pikš- ‘itch<sub>v</sub>’; pMZ \*piks ‘to tap, pick at’.

\**sk<sup>y</sup>ɔ* | pTn \*ska{w} ‘rabbit’; pMZ \*ko{ya} ‘rabbit’. [Note: Huastec (Mayan) koy ‘rabbit’, a probable loan from a MZ language.]

\**kUʔt* | pTn \*qu't- ‘drink, swallow’; pZ \*kuʔt ‘eat something soft’ [pMZ \*kuʔt].

\**kɔš* | pTn \*qa'š{i} ‘strike with hand’; pMZ \*kos ‘hit with fist’.

\**nak* | pTn \***naq**- ~ \***nik**- ‘beat, hit’; pMZ \*nak{s} ‘to whip, beat’.

- \**k<sup>y</sup>* where pTn \**k* ~ pMZ \**k* is found in 33 sets
- \**k* where pTn \**q* ~ pMZ \**k* is found in 38 sets
- it may be that both pTz \**k* and pTz \**k<sup>y</sup>* were \**k*, and pTz \**k* was realized variably as pTn \**k* or \**q*
- there is a lot of *k* ~ *q* alternation within and across Totonacan languages





# pTz Consonants

- most of the proposed pTz consonants are supported by multiple cognates sets
- two of the reconstructed consonants that are not synchronically attested are represented by fewer than 10 sets
- on the whole, not bad results

pTz	pTn	pMZ	# of sets
ʔ	∅	ʔ	67
k	q	k	38
p	p	p	37
t	t	t	37
š	š	s	36
kʸ	k	k	33
h	#h, ∅	h	31
n	n	n	21
m	m	m	19
s	s	s	19
č	č	ç	14
ç	ç	ç	14
w	w	w	13
l	l	y	11
q	q	ʔ	10
y	t	y	9
tʸ	č	t	8
ɸ	ɸ	y	6
x	x	h	6
λ	λ	y	4
nʸ	l	n	2





# pTz Vowels

i(:)	pTn *i(:)	ɨ(:)	pTn *i(:)	u(:)	pTn *u(:)
	pMZ *i(:)		pMZ *ə(:)		pMZ *u(:)
ɪ(:)	pTn *i̇(:)	ɨ̇(:)	pTn *i̇(:)	U(:)	pTn *u̇(:)
	pMZ *i(:)		pMZ *ə(:)		pMZ *u(:)
e(:)	pTn *i(:)	ə(:)	pTn *a(:)	o(:)	pTn *u(:)
	pMZ *e(:)		pMZ *ə(:)		pMZ *o(:)
ɛ(:)	pTn *i̇(:)	ə̇(:)	pTn *ȧ(:)	O(:)	pTn *u̇(:)
	pMZ *e(:)		pMZ *ə(:)		pMZ *o(:)
		a(:)	pTn *a(:)	ɔ(:)	pTn *a(:)
			pMZ *a(:)		pMZ *o(:)
		A(:)	pTn *ȧ(:)	ɔ̇(:)	pTn *ȧ(:)
			pMZ *a(:)		pMZ *o(:)

- pTn shifts to a simplified 3-vowel system
- pMZ simply neutralizes \*ɨ vs. \*ə and \*o vs. \*ɔ
- an additional set of pTz vowels corresponding to pTn laryngealized vowels can be hypothesized
- vowel modality seems to play no role at all in pTn – pMZ correspondences
- pTn \*ɨ̇ may correspond to pTz \*ɨ̇, or something else could be at play—time will tell





# pTz Vowels

i(:)	pTn *i(:)	ɨ(:)	pTn *i(:)	u(:)	pTn *u(:)
	pMZ *i(:)		pMZ *ə(:)		pMZ *u(:)
ɪ(:)	pTn *i̥(:)	ɨ̥(:)	pTn *i̥(:)	U(:)	pTn *u̥(:)
	pMZ *i(:)		pMZ *ə(:)		pMZ *u(:)
e(:)	pTn *i(:)	ə(:)	pTn *a(:)	o(:)	pTn *u(:)
	pMZ *e(:)		pMZ *ə(:)		pMZ *o(:)
ɛ(:)	pTn *i̥(:)	ə̥(:)	pTn *ḁ(:)	O(:)	pTn *u̥(:)
	pMZ *e(:)		pMZ *ə(:)		pMZ *o(:)
		a(:)	pTn *a(:)	ɔ(:)	pTn *a(:)
			pMZ *a(:)		pMZ *o(:)
		A(:)	pTn *ḁ(:)	ɔ̥(:)	pTn *ḁ(:)
			pMZ *a(:)		pMZ *o(:)

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# pTz Vowels

i(:)	pTn *i(:)	ɨ(:)	pTn *i(:)	u(:)	pTn *u(:)
	pMZ *i(:)		pMZ *ə		pMZ *u(:)
ɪ(:)	pTn *i̇(:)	ɨ̇(:)	pTn *i̇(:)	U(:)	pTn *u̇(:)
	pMZ *i(:)		pMZ *ə		pMZ *u(:)
e(:)	pTn *i(:)	ə(:)	pTn *a(:)	o(:)	pTn *u(:)
	pMZ *e		pMZ *ə		pMZ *o(:)
ɛ(:)	pTn *i̇(:)	ə̇(:)	pTn *ȧ(:)	O(:)	pTn *u̇(:)
	pMZ *e		pMZ *ə		pMZ *o(:)
		a(:)	pTn *a(:)	ɔ(:)	pTn *a(:)
			pMZ *a(:)		pMZ *o(:)
		A(:)	pTn *ȧ(:)	ɔ̇(:)	pTn *ȧ(:)
			pMZ *a(:)		pMZ *o(:)

- pTn shifts to a simplified 3-vowel system
- pMZ simply neutralizes \*ɨ vs. \*ə and \*o vs. \*ɔ
- an additional set of pTz vowels corresponding to pTn laryngealized vowels can be hypothesized
- vowel modality seems to play no role at all in pTn – pMZ correspondences
- pTn \*u̇ may correspond to pTz \*u̇, or something else could be at play—time will tell





# pTz Vowels

i(:)	pTn *i(:) pMZ *i(:)	ɨ(:)	pTn *i(:) pMZ *ə(:)	u(:)	pTn *u(:) pMZ *u(:)
ɪ(:)	pTn *i̥(:) pMZ *i(:)	ɨ̥(:)	pTn *i̥(:) pMZ *ə(:)	ʊ(:)	pTn *u̥(:) pMZ *u(:)
e(:)	pTn *i(:) pMZ *e(:)	ə(:)	pTn *a(:) pMZ *ə(:)	o(:)	pTn *u(:) pMZ *o(:)
ɛ(:)	pTn *i̥(:) pMZ *e(:)	ə̥(:)	pTn *ḁ(:) pMZ *ə(:)	o̥(:)	pTn *u̥(:) pMZ *o(:)
		a(:)	pTn *a(:) pMZ *a(:)	ɔ(:)	pTn *a(:) pMZ *o(:)
		A(:)	pTn *ḁ(:) pMZ *a(:)	ɔ̥(:)	pTn *ḁ(:) pMZ *o(:)

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# pTz Vowels

i(:)	pTn *i(:) pMZ *i(:)	ɨ(:)	pTn *i(:) pMZ *ə(:)	u(:)	pTn *u(:) pMZ *u(:)
ɪ(:)	pTn *i̇(:) pMZ *i(:)	ɨ̇(:)	pTn *i̇(:) pMZ *ə(:)	ʊ(:)	pTn *u̇(:) pMZ *u(:)
e(:)	pTn *i(:) pMZ *e(:)	ə(:)	pTn *a(:) pMZ *ə(:)	o(:)	pTn *u(:) pMZ *o(:)
ɛ(:)	pTn *i̇(:) pMZ *e(:)	ə̇(:)	pTn *ȧ(:) pMZ *ə(:)	ɔ(:)	pTn *u̇(:) pMZ *o(:)
		a(:)	pTn *a(:) pMZ *a(:)	ɔ̇(:)	pTn *a(:) pMZ *o(:)
		A(:)	pTn *ȧ(:) pMZ *a(:)	ɔ̇̇(:)	pTn *ȧ(:) pMZ *o(:)

- pTn shifts to a simplified 3-vowel system
- pMZ simply neutralizes \*ɨ vs. \*ə and \*o vs. \*ɔ
- an additional set of pTz vowels corresponding to pTn laryngealized vowels can be hypothesized
- vowel modality seems to play no role at all in pTn – pMZ correspondences
- pTn \*ɨ̇ may correspond to pTz \*ɨ̇, or something else could be at play—time will tell





# pTz Vowels

i(:)	pTn *i(:) pMZ *i(:)	ɨ(:)	pTn *i(:) pMZ *ə(:)	u(:)	pTn *u(:) pMZ *u(:)
ɪ(:)	pTn *i̥(:) pMZ *i(:)	ɨ̥(:)	pTn *i̥(:) pMZ *ə(:)	ʊ(:)	pTn *u̥(:) pMZ *u(:)
e(:)	pTn *i(:) pMZ *e(:)	ə(:)	pTn *a(:) pMZ *ə(:)	o(:)	pTn *u(:) pMZ *o(:)
ɛ(:)	pTn *i̥(:) pMZ *e(:)	ə̥(:)	pTn *ḁ(:) pMZ *ə(:)	ɔ(:)	pTn *u̥(:) pMZ *o(:)
		a(:)	pTn *a(:) pMZ *a(:)	ɔ̥(:)	pTn *a(:) pMZ *o(:)
		A(:)	pTn *ḁ(:) pMZ *a(:)	ɔ̥̥(:)	pTn *ḁ(:) pMZ *o(:)

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# pTz Vowels

- most of the proposed pTz vowels are supported by multiple cognates sets
- the reconstructed vowels that are not synchronically attested are represented by more than 10 sets each
- not as neat as we'd like, but seems like a reasonable working hypothesis

pTz	pTn	pMZ	# of sets
a/A	a/ḁ	a	51
i/I	i/ḷ	i	38
u/U	u/ṽ	u	38
o/O	u/ṽ	o	21
ə/Ə	a/ḁ	ə	18
ɔ/ɔ̄	a/ḁ	o	15
e/E	i/ḷ	e	14
ɨ/ɨ̄	i/ḷ	ə	14





# pTz Clusters

- these are not very robust
- it may be that the Cw clusters represent labialized consonants
- these issues will have to await discovery of larger numbers of cognate sets

pTz	pTn	pMZ	# of sets
nkW	#n, nk#	w	6
kW	k	w	6
nK	nq	k	4
mW	w	m	4
nk	nk	k	2
nKw	#n, nq#	w	2
nq	nq	?	1





# Conditioned changes

$pTz * \#C_{\text{fricative}}C_2 \rightarrow pMZ * \#C_2$  26

$pTz *V_{\text{}} \rightarrow pMZ *V$  11

$pTz *V_{\text{}}? \# \rightarrow pMZ *V?$  4

$pTz * \check{C} \rightarrow pTn *k / C_{\text{affricate}}V(\text{})_{\text{}} \#$  3

$pTz *V_{\text{}}h \rightarrow pMZ *Vh$  3

- fricative/consonant cluster simplification in pMZ is very robust
- final vowel shortening also pretty good
- the remaining rules are not yet well-supported





# Discussion

- our data provide support for the claim that languages of the Totonacan and Mixe-Zoquean families are descended from a common ancestor.
- this study is the first to compile extensive comparative evidence for the hypothesis
  - previous proposals were part of larger schemes of related families
  - the basic hypothesis has typically been presented in the absence or near-absence of explicit, supporting evidence

The present work differs in two important ways from previous proposals for a genetic link between Totonacan and Mixe-Zoquean:

- earlier compilations of lexical similarities are nowhere close in size (188 good sets, plus almost as many possible sets)
- our comparison proceeds from reconstructed pTn and pMZ lexica





# Discussion

- pTz supported by work by the Automated Similarity Judgment Program (ASJP) consortium, which uses computers to classify languages by lexical similarity:
  - ASJP has produced a classificatory tree for more than half of the world's approximately 6,500 languages (Müller et al. 2009);
  - Tn and MZ languages are branched together to the exclusion of any other languages, attesting to special lexical resemblance, if not genetic affiliation.

The ASJP consortium also calculates estimated time-depth (Holman et al. 2010).

- on a scale from 0 to 100, with 0 indicating no similarity, and 100 indicating identity, the average lexical similarity between Tn and MZ languages is 5.55
- this compares to an average of 5.56 between languages in the different major branches of Indo-European
- this suggests the chronological depth of proto-Totozoquean is about the same as that for proto-Indo-European
- similarity scores within Tn and MZ are similar to Slavic and Romance





# Discussion

- Lexical similarity among languages of the Tn and MZ families has also been recognized by Kaufman and Justeson (2008), who attribute it largely to diffusion:
  - a number of the forms regarded by these authors as loans (see especially Kaufman 2007) are included in our Totozoquean cognate sets
  - decisive evaluations of individual instances of lexical similarity have yet to be made

Given the large number of supporting cognate sets and the systematicity of sound correspondences, we are confident that ours is a convincing case for Tn and MZ lexical similarity being due, in greatest part, to common inheritance.



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**a complete version of the talk, including pTz cognate sets, is available at: <http://www.ualberta.ca/~dbeck/TzEILNXI.pdf>**