

More on history of ejective bilabial stops *p'* in Cholan languages

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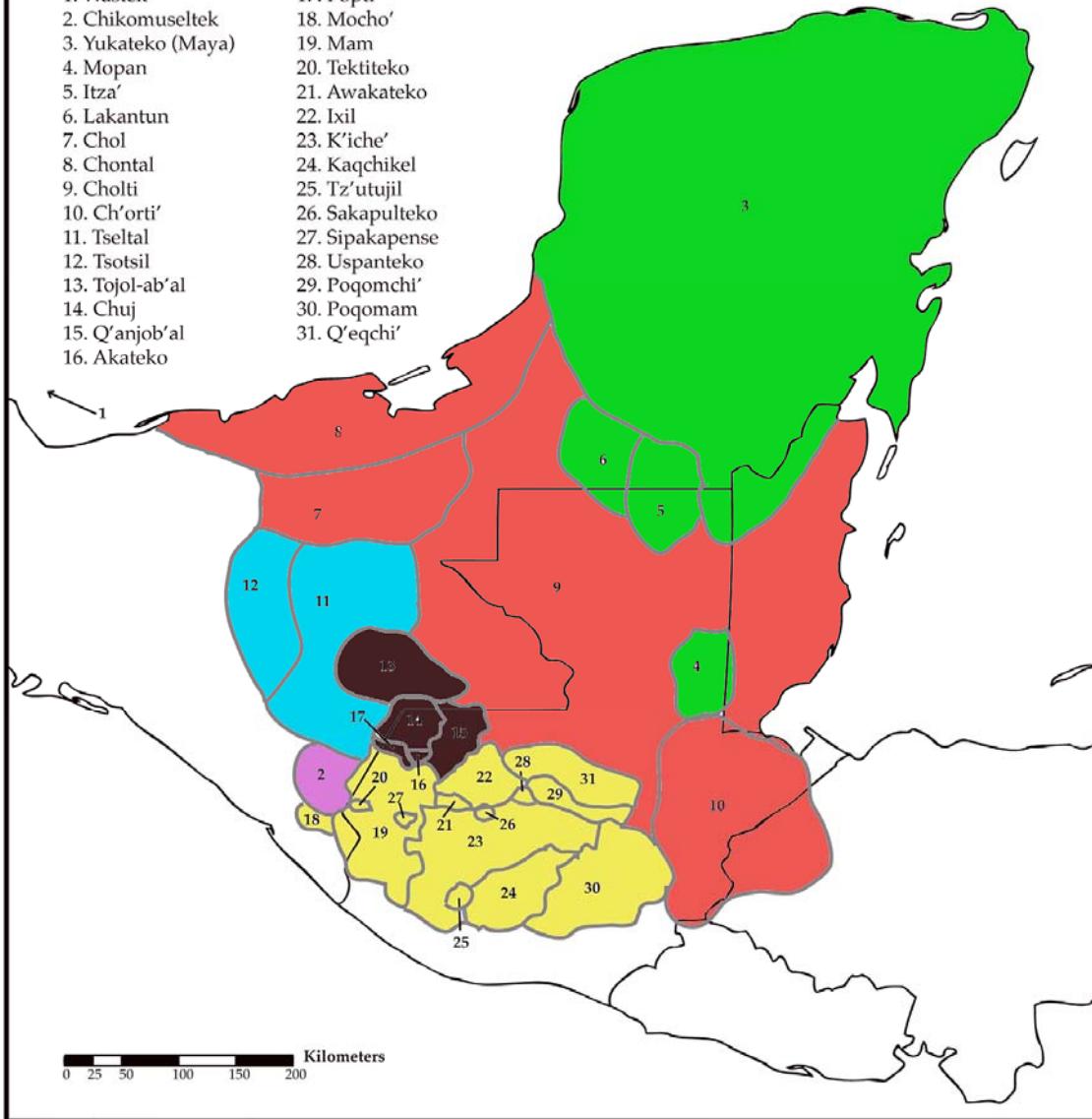
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Classification of Mayan Languages.

1. **Huastecan** – Wastek, †Chikomuselteck.
2. **Yukatekan** – Yukatek, Lacantun; Itzaj, Mopan.
3. **Cholan** – Western Cholan: Chol, Chontal, Eastern Cholan: Ch'orti', †Cholti, †Hieroglyphic Mayan.
4. **Tzeltalan** – Tzeltal, Tzotzil.
5. **Kanjobalan** – Chuj, Tojolobal; Kanjobal, Motosintlek, Jakaltek, Akatek.
6. **Eastern Mayan** – Mamean: Mam, Teko, Awatepek, Ixil; Kichean: Kekchi, Uspantek, Pokomchi, Pokomam, Kiche, Sipakapa, Sakapultek, Kakchikel, Tzutuhil.

The Mayan Languages before the Spanish Conquest

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Proto Mayan Phonological System.

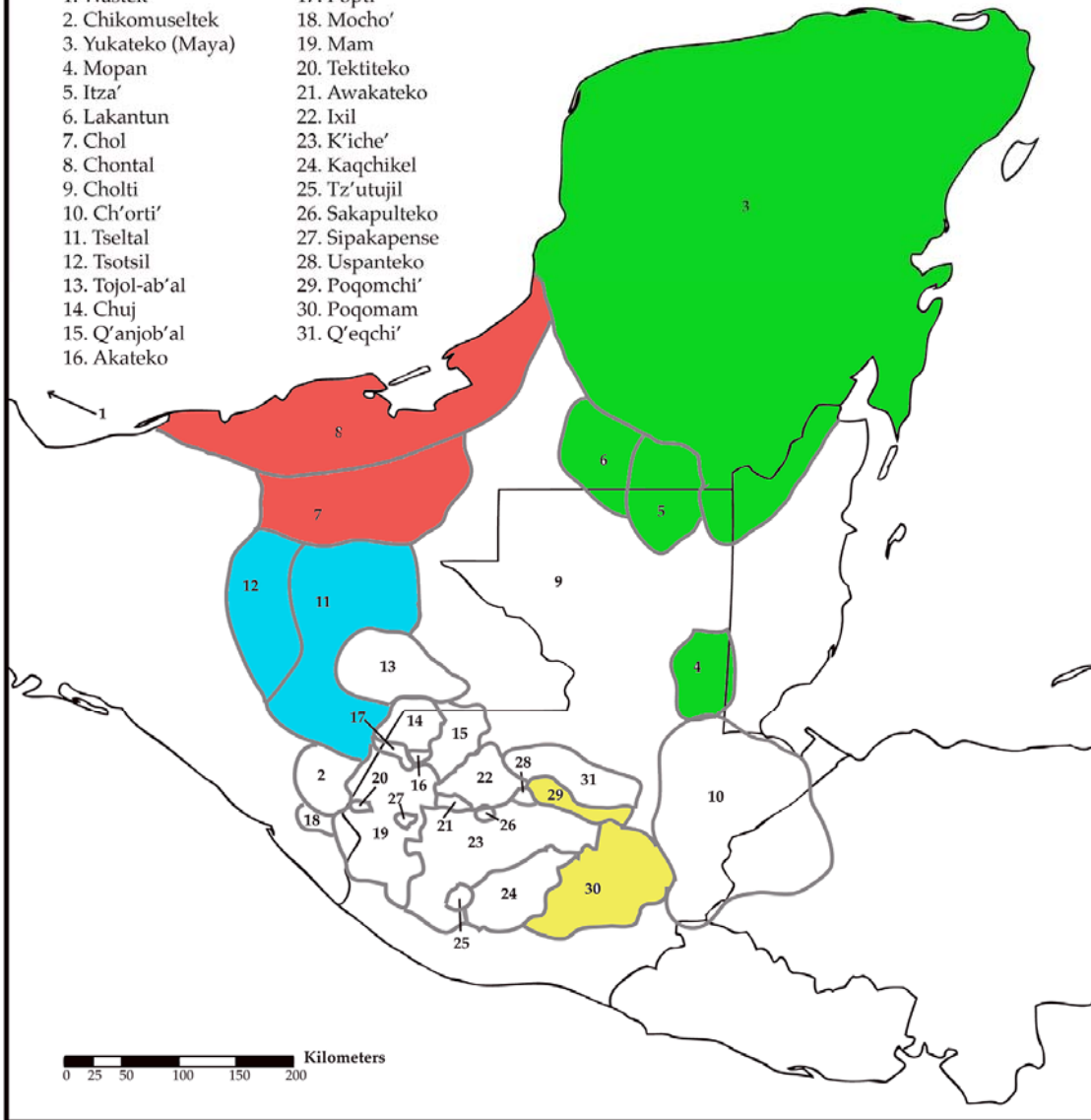
Consonants:							
*p	*t	*ty			*k	* <u>q</u>	*ʔ
	*t'	*ty'			*k'	* <u>q'</u>	
*b							
	*tz	*ch					
	*tz'	*ch'					
	*s	*x			*j	* <u>χ</u>	*h
*m	*n		* <u>r</u>	*l	*ŋ		
*w		* <u>y</u>					

Vowels:				
*i				*u
	*e		*o	
		*a		

Syllabic nuclei:
*CVC, *CV:C, *CV?C,
*CVhC, *CVjC, * <u>CVχC</u> ,
*CVsC, *CVxC

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Distribution of languages with the contrast $b : p'$.

Kaufman and Norman (1984: 85) state that Cholan, Tzeltalan and Yukatekan share the innovation of a contrast between *b* and *p'*. They note that *p'* occurs both in initial and final position, roughly with the same frequency. Regarding the possible phonological contexts that could have given rise to *p'* they observe that “with the exception of **p'*aj- all the roots in which *p'* occurs contain one of the apical consonants /t s l n ch x/. However, *b* also occurs in roots that contain apicals ...” Since the groups that occupy the area are not closely related they believe the contrast *b* : *p'* to be an areal feature.

Proto-Cholan (Kaufman and Norman 1984):

**p'* /_# (14):

**p'*aj ‘to curse’, **p'*ehl ‘generic n.c.’, **p'*eht ‘(clay) pot’, **p'*el ‘to saw, slice’, **p'*en ‘to copulate’, **p'*en-el ‘child, offspring; sperm’, **p'*ich ‘stuff, make tacos’, **p'*is ‘to measure, weigh’, **p'*ix ‘to wake up’, **p'*ol ‘to abound’, **p'*ol ‘to sell’, **p'*ul ‘indigestion (with), piled up’, **p'*ul ‘smallpox’, **p'*us=pat ‘hunchback’

**p'* /#_ (10):

**lap'* ‘sticky’, **nap'* ‘attach, stick to’, **nup'* ‘marry’, **sep'* ‘pinch’, **sip'* ‘swell’, **sop'* ‘frothy, light’, **sup'* ‘submerge’, *tep'* ‘wrap a child’, **tip'* ‘bouncing, hopping, jumping, throbbing’, **top'* ‘break, burst, fly’, **nejep'* ‘half-ripe’

Campbell (1996) makes an attempt to explain the sound changes involving *p'* as at least partly regular, and suggests that the changes not explained by his regularities could be due to onomatopoeia or affective symbolism.

Wichmann (2007) presents more cognate sets involving *p'*, revisits the contexts of the sound change, stresses the absence of *p'* in Ch'orti', interprets Cholti <*p*> cognates as Yukatek borrowings and suggests that the spontaneous change **b*/**p* > **p'* originated in Proto Yukatekan and did not reach Cholan languages until around 1000 AD.

*C ₁ Vp > C ₁ Vp'	*pVC ₁ > p'VC ₁
*sep > sep' 'to cut with scissors' (Itz, Chl, Tzo) *sip > sip' 'to swell up' (Yuc, Mop, Itz) *lap > *lap' 'to stick' (Tze, Tzo, Chl)	*pich > p'ich 'to stuff' (Chl, Cht) *paʔj > p'aj 'to fall (rain)' (Chl, Tzo) *poʔ > p'oʔ 'to split' (Chl, Chn) *puʔs > p'uʔs 'to bend' (Yuc, Lac, Mop, Itz) *peet > p'it 'carry (on head or shoulder)' (Chn, Chl) *peht > p'eht 'pot' (Chl, Chn, Cht) *paat > p'at 'to leave behind' (Cht, Mop, Itz, Yuk, Lac) *pul > p'ul 'to cense' (Mop, Itz, Yuk, Lak) *pul > p'uhl 'jug, pitcher'
*C ₁ Vb > C ₁ Vp'	*bVC ₁ > p'VC ₁
None (<i>sic!</i>)	*bis > p'is 'to measure' (Yuc, Mop, Itz, Chl, Chn, Tzo) *boʔl > p'ol 'to sell' (Chl, Tzo, Tze) *bol > p'ol 'to multiply' (Yuc, Mop, Tzo, Tze) *bus > p'us 'hunchback' (Yuc, Cht, Tze, Pqm)

*bVC₁ > p'VC₁/bVC₁; *bVC₂ > bVC₂ C₁ stands for t, ʔ, s, j, ch, n, l, y

*pVC₁ > p'VC₁/pVC₁; *pVC₂ > pVC₂ C₂ stands for b, p, t', k', ch', tz', m, w

*C₁Vp > C₁Vp'/C₁Vp; *C₂Vp > C₂Vp C stands for any consonant

*CVb > CVb

Conditions for the rise of the bilabial ejective (Wichmann 2007): *p and *b optionally become p' in CVC roots unless the other consonant is a voiceless bilabial stop, a glottalized stop or a voiced consonant other than *l.

Conditions for the rise of the bilabial ejective revisited: *p and *b optionally become p' in CVC roots unless the other consonant is a bilabial or a glottalized consonant.

Reflexes of Proto-Cholan *p' in Ch'orti':

*p'aj 'to curse', *p'ehl 'generic n.c.', *p'eht '(clay) pot' (beht), *p'el 'to saw, slice', *p'en 'to copulate', *p'en-el 'child, offspring; sperm', *p'ich 'stuff, make tacos', *p'is 'to measure, weigh' (bis-), *p'it 'to carry on shoulders (bit-), *p'ix 'to wake up' (bix-), *p'ok 'knot' (bok-), *p'ol 'to abound' (bor-), *p'ol 'to sell', *p'ul 'indigestion (with), piled up', *p'ul 'smallpox', *p'ul 'jar' (buhr-), *p'us=pat 'hunchback' (bus-), *p'uy 'to diminish' (buy-),

*lap' 'sticky', *nap' 'attach, stick to', *nup' 'marry' (nuhb-), *sep' 'pinch', *sip' 'swell' (sihb-), *sop' 'frothy, light' (sob-), *sup' 'submerge', tep' 'wrap a child', *tip' 'bouncing, hopping, jumping, throbbing' (tihb-), *top' 'break, burst, fly' (tob-), *nejep' 'half-ripe' (ne?p)

The sound change(s):

- 1) The sound change fills a gap in the phonological system.
- 2) The sound change is incomplete, both *b and *p are sources for p'. The change *p > p' is more advanced than *b > p'; the last found in one context, the former in two.
- 3) The sound change is lexical, it creates minimal pairs (functioning as a marker of semantic extension) and sometimes the root shifts part of speech.

*paat 'back' > *p'at- 'to leave behind'

*peet- 'round' > *p'eht 'pot'

*pul- 'to draw water' > *p'uhl 'jug, pitcher'

*bus- 'to bend' > *p'us=paat 'hump'

*pul- 'to burn, cook' > *p'ul- 'to cense'

*nup- 'to unite' > *nup'- 'to marry'

*baj- 'to pound, nail' > *p'aj- 'to curse'

*pich- 'to wrap' > *p'ich- 'to stuff'

*paak 'custard apple' > *p'aak 'tomate'

- 4) The sound change might result from sound symbolic alternations (affective verbs).

*lap' 'sticky' ~ *nap'- 'to attach, stick to'

*tip'- 'to bounce, jump' ~ *top'- 'break, burst, fly'

*sip'- 'to swell' ~ *sit'- 'to swell'

*p'aj- 'to fall (about drops, rain)' ~ *ch'aj 'to drip'

5) Surprisingly, many of widely distributed p' words are related to trade.

*p'eht '(clay) pot' (Chl, Chn, Cht, Chr)

*p'uhl 'water jar' (Cht, Chr, Mop, Itz, Yuk, Lak)

*p'entaak '(sold or bought) slave' (Chn, Cht, Yuk)

*-p'ehl 'numeral classifier (generic)' (Chl, Chn, Mop, Itz, Yuk)

*p'ax- 'to owe', *p'aax 'debt' (Mop, Itz, Yuk)

*p'iht 'little' (Chl, Itz, Yuk)

*p'it- 'carry (on head or shoulder)' (Chn, Chl, Chr)

*p'is- 'to measure', *p'ijisib 'balance' (Tze, Tzo, Chl, Chn, Cht, Chr, Mop, Itz, Yuk, Lak)

*p'ol- 'to multiply' (Tze, Tzo, Chl, Cht, Chr)

*p'oʔl- 'to sell' (Tze, Tzo, Chl, Cht)

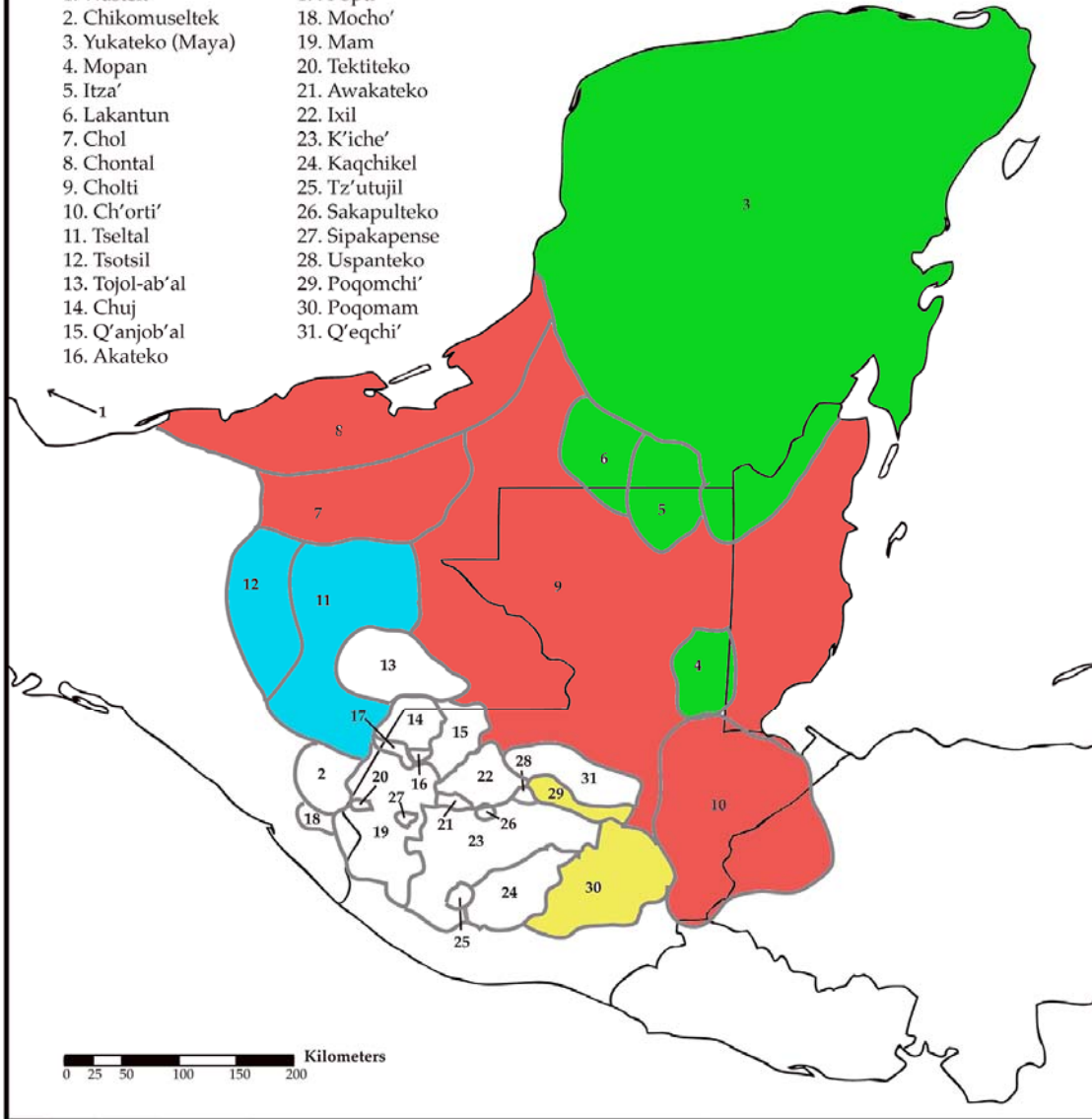
*p'otz 'short' (Tzo, Chl)

*p'uy- 'to diminish' (Cht, Chr, Mop, Itz, Yuk)

6) A few etyma that contain p' are attested in more than one subgroup. If they are attested in more than one subgroup, one of them is Cholan.

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Shared cognates containing p' in Lowland Mayan languages.

Pokomam, Pokomchi'	Tzetal, Tzotzil	Chol, Chontal, †Cholti	Yukatek, Lakantun, Mopan, Itza
*p'us- 'to bend, hunchback' (1)			
	*p'al- 'to shell (beans)', *p'is- 'to measure', *p'o?k 'knot (of tree)', *p'u?k 'cheek' (4)		
	*p'ah 'chicken louse', *p'at- 'to leave behind', *-p'ejl 'numeral classifier (generic)', *p'el- 'to shell, saw', *p'en- 'to fuck', *p'entaak 'slave', *p'iht 'little', *p'ik- 'to break off', *p'il- 'to open (eyes)', *p'ix- 'to be awake', *p'o?- 'to wash', *p'uhl 'water jar', *p'ul- 'to swell', *p'uy- 'to diminish' (14)		
	*p'aj- 'to fall (drops)', p'ol- 'to multiply, engender', *p'o?l- 'to sell', *p'otz 'short' (4)		

*p'it- 'to jump, leap' (Tze, Tzo, Yuk, Lac), cf. *tihp'- 'to bounce, jump' (Chl, Chn, Cht, Chr)

Conclusions:

- 1) The contrast between p' and ɸ should be reconstructed for Proto Cholan (with ɸ as regular of *p' in Ch'orti').
- 2) Ch'orti' were the speakers of an Eastern Mayan language who shifted to Cholan.
- 3) The sound change is lexical, fills a gap in the system, frequents in the semantic field of trade.
- 4) The distribution of both p' languages and reconstructed p' words indicate that Hieroglyphic Mayan was responsible for the lexical diffusion of the phoneme.
- 5) The phoneme which fills the gap was borrowed as expressive and easily became part of the system.
- 6) Five syllabic signs are likely to be present in Maya script, in Classic and, perhaps, even Preclassic Period.