

## **Mesoamerican linguistic contacts: the data from Huave borrowings**

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### **1. Introduction**

The Huavean family, generally considered a genetic isolate, is currently spoken in four distinct dialects/languages in four communities surrounding a large lagoon on the Pacific coast of the Isthmus of Tehuantepec in the state of Oaxaca, Mexico: San Francisco del Mar (F), Santa María del Mar (MA), San Dionisio del Mar (D), and San Mateo del Mar (MO). Belmar (1901), in a detailed study of MA, proposed a genetic relationship between Huave and the Mayan languages, but Radin (1916), based on field work on D, rejected the link to Mayan, proposing instead that Huave belonged to the Mixe-Zoquean family. Aside from mostly vague typological parallels and a few morphological commonalities, both authors relied on lexical resemblances, which were striking and numerous enough to permit a somewhat plausible hypothesis of genetic relatedness.

Suárez (1975) then offered a detailed reconstruction of Proto-Huave (PH), convincingly establishing that no external genetic relationships could be demonstrated. Since that time no further work on comparative Huavean has been published, although quite a number of descriptive materials and grammatical studies have become available, most importantly a grammar and dictionary of MO (Stairs & Stairs 1981) and a dissertation on the phonology and morphology of F (Kim 2008). Also in recent years descriptive work has resumed (after a century of neglect) for the other two dialects, D and MA. With this large body of

new data, along with Radin's unpublished field notes, the present author has compiled a large comparative and etymological dictionary of Huavean (Noyer 2012, henceforth DECH: *Diccionario etimológico y comparativo de las lenguas huaves*), which contains all available lexical materials, both published and unpublished, a more complete reconstruction of the PH root lexicon, and extensive attention to the origin of Huave loanword vocabulary. The present paper offers a summary of the results of this last topic.

Excluding borrowings from Spanish, DECH contains 1595 reconstructed PH roots. Of these, 256 (16%) are analyzed as “certainly” or “likely” to be borrowings from other Mesoamerican languages. An additional 138 roots are identified more cautiously as “possible” loanwords, giving a total of 394, or 24.7% of the Huave root lexicon. Put differently, this investigation suggests that between one sixth and one quarter of the (indigenous) Huave lexicon has resulted from interlanguage contact.

Table 1 below breaks down the data by originating language family. In cases where two or more language families could have been the donor they were given a fractional amount; fractional totals were rounded down to the nearest integer.

family	borrowings			percentage of	
	likely	possible	total	likely	total
Mayan	106	72	178	.41	.45
Mixe-Zoquean	85	39	124	.33	.31
Zapotecan	21	13	34	.08	.09
Totonacan	5	6	11	.02	.03
Oaxaca Chontal	7	8	15	.03	.04
Nahuatl	4	0	5	.03	.01
Mixe-Zoquean (areal diffusion)	13	0	13	.05	.03
Diffusion (other or unknown source)	10	0	10	.04	.03
Nahuatl (post-colonial diffusion)	5	0	5	.02	.01
Total	256	138	394		

Table 1: Loanwords in Huave by Language of Origin

As can be seen, Mayan languages have provided the most loanwords, over 40%, followed by Mixe-Zoquean languages, which produced about one third of borrowings. Although currently Isthmus Zapotec is the only indigenous language spoken in an area contiguous with the Huave zone, the Zapotec loanwords comprise less than 10%. Finally, along with minor contributions from Totonacan, Oaxaca Chontal and Nahuatl, about 7-11% of borrowings are evidently areally diffused words (German *Wanderwörter*) for which it is impossible to determine the most proximal source of the loan, and even in some cases the originating language family.

After an introduction to Huave phonology (§2) the remainder of the paper provides a sampling of the data in DECH, focusing on the Mayan (§4), Mixe-Zoquean (§4) and Zapotecan (§5) loans, as well as cases of areal diffusion (§7). The conclusion provides some speculation on the significance of the data for the study of pre-contact Mesoamerica and the origin of the Huave people.

### Notes on transcription

All Huave data are in **boldface** and, unless otherwise indicated, appear in standard Huave orthography (see Appendix A). Bolded forms preceded by \* are proto-Huave; Huave forms enclosed by double brackets [[...]] are taken from Suárez (1975) (henceforth JS) and those enclosed by [...] are taken from Paul Radin's unpublished field notes.

Angled brackets ⟨...⟩ enclose data taken verbatim from historical source documents. Non-Huave forms, when written in a standard orthography, are enclosed between doubled angled brackets ⟨⟨...⟩⟩.

Data from other languages appears in italics, and when not enclosed in brackets are phonological representations: for Mayan I follow the transcriptional system of Kaufman & Justeson (2003) and for Mixe-Zoque languages the representation is usually that of Wichmann (1995). Forms taken from Dienhart's (1997) comparative Mayan dictionary are enclosed in ⟨[...]⟩ to indicate that they are phonologically interpreted data from historical sources. A hyphen preceding or following a single morpheme is included either when (a) the form was written this way in the data source, or (b) if the morpheme is a bound root or affix.

Read > as 'borrowed as'; < 'borrowed from'. Abbreviations for sources are given after the author's name in the References section. Abbreviations enclosed in square brackets indicate if a borrowing has been mentioned by a previous author, e.g. [JS] means that Suárez (1975) noted the same or a similar connection.

## 2. Huave Phonology

Before proceeding it will be useful to review the phonology of PH and briefly survey the development of the contemporary dialects.

### 2.1 Proto-Huave Phonology

#### 2.1.1 Inventory

The segment inventory of PH is shown in the table below, with phonetic interpretation of ambiguous symbols given at right:

vowels	<b>i e a o i</b>	
voiceless stops/affricate	<b>p t c k k<sup>w</sup></b>	<b>c</b> = [ts]
prenasalized stops	<b>mb nd nc ng ng<sup>w</sup></b>	<b>nc</b> = [nts], <b>ng<sup>(w)</sup></b> = [ŋg <sup>(w)</sup> ]
fricative	<b>s</b>	
sonorant consonants	<b>m n l r r̃</b>	<b>r</b> = [r], <b>r̃</b> = [r̃]
glides	<b>y w h</b>	

Table 2: Proto-Huave Segment Inventory

### 2.1.2. Prosodic properties

PH syllables were always open, i.e. of the form \*CV or \*V only. In addition, the syllable nucleus (V) could be lengthened by a second, ordinarily voiceless, mora: \*CVh. Stress fell on the penultimate syllable. There was also a contrast in two types of pitch-accent, high and falling, but this is maintained (marginally) only in MO.

### 2.1.3. Phonotactic restrictions

Root morphemes ordinarily have 2 syllables, i.e. are CV<sub>1</sub>CV<sub>2</sub>, but occasionally have just one, CV<sub>1</sub>; most trisyllabic roots are borrowings or result from reduplication or suffixing. PH appears to have system of vowel harmony which, in roots, normally places significant cooccurrence restrictions on V<sub>1</sub> and V<sub>2</sub>, permitting only the following types:

- (1)a. V<sub>1</sub> = V<sub>2</sub>: \*CiCi, \*CeCe, \*CaCa, \*CoCo, \*CiCi
- b. V<sub>1</sub> and V<sub>2</sub> differ in backness. Only the back vowel has a height contrast.
  - i. V<sub>1</sub> is back: \*CaCi, \*CoCi, \*CiCi (\*i is of underdetermined height)
  - ii. V<sub>2</sub> is back and V<sub>1</sub> agrees in height with V<sub>2</sub>: \*CiCi, \*CeCo, \*CeCa.

Study of the full range of roots collected in DECH has revealed an additional phonotactic restriction:

- (2) *Prenasalized Stop Restriction* (PSR): No PH root contains two *distinct* prenasalized stops. In other words, although \*mbVmbV or \*ndVndV roots do occur, no roots have the form \*ngVmbV, \*mbVnc or \*ncVmb, for example.

The PSR has important consequences for the analysis of borrowing data (§3.2.1).

## 2.2. Development of contemporary Huave

Four historical processes completely altered the phonological system of the proto-language:

- (3)a. *Apocope*: posttonic vowels were deleted, including all word-final vowels

- b. *Diphthongization*: Complex diphthongs developed through assimilation of properties of following vowels.
- c. *Palatalization*: Plain and secondarily palatalized consonants, in PH conditioned allophonically by the following vowel, became contrastive, giving in all dialects two series of consonants: palatalized (C') and plain (C).
- d. *Vocalic chain shifts*: Current dialects show the results of a chain shift in vowel place, with F generally the most conservative and MO the most innovative; PH \*i was nowhere preserved intact, becoming F MA u /u/, D yu /ü/, MO e /e/:
  - i. \*kati 'fish' > F katy /kat'/ [katʲ], MA D küty /kit'/ [kitʲ], MO küet /kit'/ [kietʲ]
  - ii. \*mbese 'nail' > F MA D mbex /mb'es'/ [mbeš], MO mbeax /mb'as'/ [mbeʃ]
  - iii. \*ndiki 'sea' > F ndyuik /nd'uk'/ [ndʲuikʲ], D ndyuk /nd'ük'/ [ndʲüikʲ], MA ndyuk /nd'uk'/ [ndʲuk], MO ndek /nd'ek'/ [ndek]

In almost all contexts \*CiCi and \*CiCi have merged; where the distinction cannot be reconstructed I write \*CiCt.

### 3. Borrowings from Mayan

Mayan languages have provided the source for the largest number of loan words in Huave. Many of these come from Ch'olan languages (a few from Tzeltalan), with surprising correspondences with Ch'ol, Ch'orti' and the colonial records of Ch'olt'i. In addition a substantial number of loans have Yucatecan origin, while a few have attested cognates known only from eastern Mayan or Huastecan.

Mayan borrowings can be classified and partially dated according to various criteria. In some cases only a particular language or subfamily has a source form whose specific properties closely approximate those of PH; borrowing then probably post-dates the innovation of such these properties. Beyond this, however, the way the Mayan ejectives were adapted in PH defines two distinct groups of loans:

- (4)a. Group 1: Mayan ejectives > PH (voiceless) plosive stops and affricates
- b. Group 2: Mayan ejectives > PH prenasalized stops and affricates

These two groups partly correlate with other criteria. Group 1 borrowings are frequently older, or at least, the source form is reconstructible to PMA or to one of its major subgroupings. Group 2 borrowings are often from Ch'olan-Tzeltalan sources, not infrequently from a particular Ch'olan language, with source forms often not reconstructible further back than proto-Ch'olan, or else other criteria show that they must have been borrowed late. Yet others have demonstrably Yucatecan sources; but borrowings which have *no* plausible Yucatecan or Ch'olan-Tzeltalan source are absent from Group 2. Semantically Group 1 borrowings sometimes have a looser semantic connection to their source form

meanings, whereas Group 2 borrowings often show surprising semantic coincidence.

This difference in adaptation of the Mayan ejectives in Huave requires an historical explanation and two possibilities are immediately available.

On the one hand, Group 1 might consist of historically *earlier* borrowings whereas Group 2 borrowings might consist of *later* ones. This explanation relies on several assumptions. First, that changes in the phonology of proto-Mayan or proto-Huave, or both, led to the Mayan ejectives being perceived differently by Huave speakers in different periods of time. Second, that Huave contact with Mayan was sufficiently longstanding that two such periods of adaptation could have taken place. Third, to the extent that Group 2 borrowings are chiefly from Ch'olan sources, we may hypothesize that they represent contacts between Huave speakers and late classical or post-classical Mayan civilization.

On the other hand, the difference in treatment of ejectives could also reflect the *route* by which loan words arrived in Huave. In particular, Group 1 borrowings might be *indirect*, having passed from Mayan sources into Huave through an intermediary language which first adapted the ejectives as voiceless stops. (Unfortunately there are many potential intermediary languages for which we have either scant information or none at all.) Group 2 borrowings would then have to result from *direct* contacts between Mayans and Huaves.

Since the data at present appears insufficient to decide among these alternatives, Group 1 will be called early/indirect and Group 2, late/direct.

### 3.1. Early/indirect borrowings

#### 3.1.1. Mayan ejectives > Huave plosives

- (5) \*t' > \*t  
 \*hoto 'whetstone'  
 • YUC TZO TZEL *jot* 'to scratch'; CHOL *jot* 'scrape, hollow out'
- (6) \*tʰ, \*č' > \*t  
 a. \*póti 'tick (animal)'  
 • PMA \**potʰ* 'bedbug' (> e.g. MCH *poch* 'biting animal such as a tick')  
 ☞ Very early if directly from PMA since must predate \*tʰ > \*č'; CHO 'bodi 'tick' and ZOCOP *poti* 'ringworm, mange' suggest diffusion
- b. \*tohpo, \*tehpo 'blind in one eye' > MO *netoob*, MA *ñutyojp*, F [[-tru:p]]; D *atyop* 'blind'; D ⟨|atēop|⟩ 'lose an eye'  
 • pYU \*č'oHp 'blind; missing an ear or leg' > ITZÁ *č'oop*; cf. JAK ⟨|t'op|⟩ 'blind' [JS]  
 ☞ Direct borrowing would not explain \*č' > \*t

- (7) \**tʰ*’, \**c*’, \**č*’ > \**c*
- a. \***cini** ‘poorly developed (animals)’ > MO **chin**
    - PMA \**tʰi:n* ‘small’ > TZEL TOJ JAK MAM *ch’in*
  - b. \***cahca** ‘to rinse’ (truncated < pre-PH \***caha-caha**)
    - PMA \**c’ah* > JAK *ch’aj* ‘to wash’; CHLT ⟨*çaha*⟩ *tz’aha* ‘immerse in water’; CHOL *tz’aj* ‘to soak’, TZO *tz’aj-el*
  - c. \***còhci/cihci** ‘to suck, kiss’
    - PYUC PCHOL \**c’uhc*’ ‘to suck, kiss’ [FB]; cf. also PMX \**cu:ʔkš* ‘to kiss’, PMZ \**cuʔc* ‘to suckle, to chew’
  - d. \***cehe** ‘mojarra’
    - CHLT ⟨*xche*⟩ *x-ch’ej*, MOP *ch’eh* (BS)
  - e. \***cìhki** ‘mirror’
    - PMAOCC (diffused) \**č’uk* ~ \**tʰ’uk* > YUC *ch’úuk* ‘spy, sneak up’; PCHOL \**č’uk* ‘spy, keep watch on’ > CHLT ⟨*chuqui*⟩ *ch’uki* ‘watch from hiding’; CHRT ⟨*ch’uhku*⟩ ‘watch, find out about, gape at’; CHOL *ch’ujch’uj* ‘gazing’
  - f. \***koci** ‘to scratch’
    - HUAS ([*kotz’iyal*]) ‘to scratch’, CHOL *koch*’ † ‘prick with a piece of glass to make bleed, give an injection’ > ‘adverb related to long objects’
- (8) \**kʷ*’, \**k*’ > \**c*
- a. \***wihci** ‘disperse, spread’ (perh. dim. of lost root \*\***wehce**) > MO **awiich** ‘spread, throw’; MO **wijchiüm** ‘disperse’; MO **wijchiüm tiüt** ‘spilled, sprinkled’; D **awijch** ‘to dump; pour (liquid)’; D ⟨*a’viheč*⟩ ‘throw soft or thin objects’; MA **awijch** ‘to throw, toss’; F **wijchiol** ‘stinking toe (large resin-producing tree)’ < \***wijch-xiol** ‘disperse-tree’
    - PMABAJ \**wekʷ*’ ‘to water, splash, spill’ > ITZÁ *wek* ‘splash vi. (liquids, grain); PCHOL \**wech*’ ‘scatter (seeds), spill (liquids)’ > CHLT ⟨*veche*⟩ *wech’e* ‘to sow’
    - ☞ \**c* implies a Ch’olan source, but absence of prenasalization suggests an early/indirect borrowing; \***ih** does not match Mayan \**e*, although cf. CHLT ⟨*viti*⟩ *witi* ‘to sow’, CHOL *wit* ‘adverb relating to manners of falling’
  - b. \***ihci** ‘chigoe flea’ > D [[**yu:ci**]], **yuch**
    - PMA \**ʔo:k-VC k’aq* ‘chigoe flea’ lit. ‘flea that enters’ > HUAS *otx-ax tx’ak*, JAK ⟨*juč*⟩, CHRT *och-em ch’ak* (TK), TOJ *och-um k’ak*
    - PMA \**ʔuk*’ ‘louse’ > HUAS *utx*’, CHRT CHOL TZO TZEL *uch*’ (TK), CHOL *uch’-ja* ‘mosquito’, previously also † ‘colmoyote (a fly that puts its eggs under the skin)’
    - ☞ Mayan etyma poss. related (or confused); ZOR *uhsuk* ‘fly’ and MOLU *ʔi:c* ~ *ʔi:s* ‘buzz (bees)’ suggest diffusion to or from MZ.
- (9) \**k*’, \**q*’ > \**k*
- a. \***kaya** ‘angry; venom’ > MA **ajküy** ‘get angry’ F **ajkay**; MO **ajküy** ‘get angry, become jealous or indignant’; D ⟨*ah’küy*⟩ ‘get angry; scold; answer insolently’; MA ⟨*ahkëi*⟩ ‘get angry, argue; quarrel’
    - YUC *k’ayah* ‘to quarrel with words’; CHLT ⟨*caye*⟩ *k’aye* ‘to quarrel’
  - b. \***sihki** ‘cigarette’
    - PMACTR \**si:k*’ ‘cigarette, tobacco’ [JS]
  - c. \***lohki** ‘uproot, extract’
    - PMAOCC+PMABAJ \**loq*’ ‘go out’ > PCHOL *lok*’ ‘go or come out’ > CHOL *lok*’ ‘remove’

- PMA *\*lok* ‘to scratch’ > MAM TEKTITEKO *t-lok* ‘root’, MAM *lok* ‘to scratch, wash’, HUAS *lotx’-iy* ‘scratch, scrape’ vt., POQOMAM *ihrulok’ej* ‘made furrows, grooves’
  - d. **\*kele** ‘to guard’ > MA {-kel}; D {**|akyel**} ‘take care of, protect’
    - PZO *\*ken* ‘see’ vt. (> ZOCOP *ken-u* ‘looked at’) > PMAOCC *\*k’el* ‘look at’ > CHOL TZO TOJ *k’el* (TK)
    - ☞ Probably borrowed by PMAOCC from PZO (TK). Problematic: although **\*I** suggests a direct borrowing, PMAOCC *\*k’* does not correspond to **\*ng**.
  - e. **\*kiki** ‘bird’
    - PMA *\*q’uʔq’* ‘quetzal, feather’ > ITZÁ TZEL CHOL *k’uk’um* ‘feather’; LAC *hun-k’uk’* ‘bird of prey, eagle’
  - f. **\*hiki** ‘close the mouth’ > D {**|ahhikhhik**}
    - **\*haka** ‘open the mouth’ > MO **ajakak**; D MA **ajakjak umbey** ‘pant’, MO **ajakjak ombeay**; D {**|ahakumbey**} ‘open the mouth wide as if gasping for air’
    - PMA *\*jiq’* > CHOL *jik’i* ‘breathe’; CHOL TZO TZEL *jik’* ‘choke’ (TK)
    - PMA *\*jaq’* ‘open the mouth’ > CHRT *jak’i* ~ *ajk’i* ‘swallow quickly or recklessly, gulp down carelessly’; CHRT *jak’i ik’ar* ‘breathe’; CHOL *jak’* ‘inhale’; MAM *jaq’* ‘choke’
- (10) **\*k’u-** > **\*k<sup>w</sup>**
- **\*k<sup>w</sup>ala** ‘son, daughter’
    - PMAOR *\*k’uʔa:l* > TEKTITEKO *kwaʔl* ‘child’, MAM *k’waaʔl* ‘man’s son’; CHRT *k’wa’r* ‘nephew, niece’ (TK)
    - ☞ A surprising resemblance with eastern Mayan, noted as early as Brasseur de Bourbourg (1861). The Mayan etymon is restricted to the eastern branch, but CHRT *k’wa’r* suggests further areal diffusion

### 3.1.2. Early/indirect on other grounds (selection)

- (11)a. **\*mangala** ‘half-ripe (corn cob)’ > MO **amangal axil** ‘half-ripe corn cob’
- PMA *\*ŋal* ‘corn cob’ > CHUJ JAK MCH *ŋal*
  - CHIC {*[ wal isis]*} ‘maize kernels’
  - ☞ Only CHUJ JAK MCH retain *\*ŋ* so if **\*mangala** < PMA *\*ŋal*, it is either very early or indirect
- b. **\*ti** ‘eat’ > F **a-ty**, MA MO **ü-ty**, MO **üe-t**; D {**|üet**} ‘eat or bite flesh’
- PMA *\*tiʔ* ‘eat meat, bite’ > TZO TZEL *ti*; TOJ *ti* ‘eat’
  - ☞ An irregular archaic verb in Huave
- c. **\*paci** ‘chachalaca’
- YUC *baach*, ITZÁ *b’ach* (HF), MOP {*[ bač ]*}
  - ☞ Probably indirect: Yucatecan *\*b’* should have given PH **\*mb**
- d. **\*mbiti** ‘sew’
- MOP ITZÁ *puutz’* ‘needle’ (HF), YUC {*pudz*} [JS]
  - CHRT {*buch*} ‘point, pointed object, needle, sliver’, CHRT *b’uchur* ‘sticking up, protruding, bulging’
  - ☞ Not close enough phonologically to be direct source
- e. **\*řiwi** ‘catfish’ > MA **rruw**, MO **rew**, D **rriw**, F **rruy**
- YUC {*h luu*}, MOP {*[luʔ]*}, ITZÁ *aj-lu’* (HF), CHLT {*lu, ahlu*}; CHOL *ajlu’, xlu’* ‘type of catfish’; LAC {*[luʔ]*} ‘type of fish lacking scales’
  - ☞ Since PH has **\*I**, the etymon must have passed through some other language in which *\*l* > *r* (cf. LAC {*[ruʔ]*} ‘little bobo (fish)’)

### 3.2. Late/direct borrowings

#### 3.2.1. Mayan ejective > Huave prenasalized stop

- (12) \*t' > \*nd
- \***ndohki** ‘to cut, burst’ > F **ndojky-** ‘snap in two (rope, cord)’; D **andujk** ‘cut, cut the neck of’; MA **ndeikyen** ‘burst (e.g. bottom of a sack)’ dim.
    - YUC *t'ook* ‘burst, break (noose, cord)’
    - poss. < PMZ \**tuk* ‘to pick fruit’; PZP \*(*n*)toʔo(*ki*) ‘to cut’ [SZ] may suggest an early diffusion
  - \***ndoho** ‘stabbing, sharp’ > MO **ndójan tiüt** ‘loud sound’; MO **nendojndoj** ‘beating, stabbing, sharp’
    - YUC *t'óoh* ‘to bite, sting’
  - \***ndihi-ndihi** ‘tap one’s fingers’ > MA **andujnduj** ‘palpitate (heart)’; D ⟨**and'uhinduh**⟩ ‘to play; tap with fingers’
    - CHRT ⟨*t'oh*⟩ ‘tap one’s fingers’
  - \***ndahpa** ‘burn’ vi.
    - YUC *t'áab(-al)* ‘light on fire’; ITZÁ *t'aab'i* ‘start burning’, MOP *t'aʔabi*
    - ☞ Yucatecan \**t'aab* > PH \***ndahmba** but the PSR (constraint on adjacent prenasalized stops in PH, §2.1.2) dissimilates \***mb** to \***p**.
- (13) \*č' > \*nc
- \***ncelele/\*ncilili** ‘the evil eye; newborn’s colic’ > MO **nchaleael**, MA **nchilil**, D **ndxilily**
    - CHOL *ch'e'lel* ‘crying’ (< *ch'e* ‘noise’); cf. LAC ⟨[*ch'e'j*]⟩ ‘noise’; YUC *ch'e'ej* ‘loud noise that hurts the ears’
    - ☞ Morphology and meaning of *ch'e'lel* are specific to Chol
  - \***lonco, \*lenco** ‘yagual (padded ring); faja (girdle, band, strip)’ > F **lonts** ‘yagual; hanging net to keep food in’; MA [[**lonc, lonc**]] ‘faja’, D [[**lonc**]], F [[**lunci**]]; D **lonts** ‘net made of palm leaves or vines used to hold large round tortillas (totopos)’
    - TZO *loch'-ol* ‘encircling (object), perched’ (BS), CHLT ⟨*locho*⟩ *loch'o* ‘encompass, embrace’
  - \***ncahya-** ‘moist’ > MO **ntsajyan**
    - PMA \**c'ah* ‘to soak’ > TZEL *tz'aj*; CHOL *tz'aj* ‘to dip’; CHRT ⟨*tz'ah*⟩ ‘moisture, humidity’; CHRT ⟨*tz'ayi*⟩ *tz'ahyi* ‘to wet, humidify, irrigate’
  - \***ncàha** ‘gum’
    - PYUC \**ča(:)ʔ* ‘gum’ > ITZÁ MOP *chaʔ*; PMAOR \**č'aʔ* > TUZANTEC *ch'aʔ* ‘chew something rubbery’ [JS]
    - ☞ Source form unclear: \***nc** suggests a direct borrowing from a Mayan ejective, which however appears not in PYUC \**č* but only in geographically distant PMAOR \**č*'.
  - \***moci-moci/mici-mici** (~ \***mece-mece**) ‘to blink’
    - > MO **amochmoch**, MO D MA **amechmech**
    - \***monco((-mon)co)/\*minci-(min)ci** ‘to close, join together’
    - > MO †**amontsmonts** ‘to blink’, MO **amenchmench** ‘to close (eyes), to blink’; F **amontsos** ‘to close (hand, eye)’, MA **amontsots** ‘to join (hands), MA [[-**munciuci**]] ‘to close, join’, D ⟨**amondz**⟩ ‘to close (pages of a book, eyes, knife blade’, D ⟨**amondzoots**⟩ ‘to close’ vt.

- PMA *\*muc* ‘close the eyes’ > TZO TZEL TOJ CHOL CHUJ QAN *mutz*’; CHRT ⟨*mo'tz'-i*⟩ ‘to close, sink (e.g. body part)’, CHRT ⟨*mo'tz'i e chihhr*⟩ ‘close a net bag’
  - ☞ An interesting doublet: the prenasalization expected from *\*c*’ appears in *\*mincipi* but not in *\*mici*.
  - f. *\*tinci* ‘spill out’ > D *ajtindx* ‘to spill (from full container)’, MO *ajtinch tiüt*; D *ajtindx tixiñik* ‘I have reflux’ (*tixiñik* ‘in my neck’) (RN)
    - YUC *tits* ‘jump (drops of spilled liquid)’
  - g. *\*nciht* ‘edible part of a fish attached to the intestine, popularly called the “navel” of the fish’
    - CHOL *ch'uyit* ‘anus’
- (14) *\*k*’ > *\*ng*
- a. *\*ngaya* ‘to pay’
    - PMA *\*k'a:y-* ‘buy’ > YUC ⟨*kaay*⟩, cf. KCH ⟨[*k'ay*]⟩
  - b. *\*-h-ngoto* ‘arrive’
    - PMA *\*q'ot* ‘arrive, get there’ > PCHOL *\*k'ot* > CHOL TZO *k'ot-el*, CHLT ⟨*cotel*⟩, CHRT *k'ot*
  - c. *\*hongoko* ‘scoop up with both hands’ (dissimilated < *\*hongo-ngo*, redup. of *\*hongo*) > MA *ajongok* ‘pick up everything that can be grasped or gathered in two hands’; D ⟨*lahongok*⟩ ‘grab object like maize, earth, etc.’
    - PMAOCC *\*jok* ‘pull out, dig’ > CHOL *jok* ‘dig out, scoop out with one’s hand’; CHRT *jok* ‘pull out’
  - d. *\*tanga* ‘grow’
    - PMA *\*t'aq* ‘ripe’ > YUC *tak'an* ‘grown, ripe’; LAC MOP *täk'an* ‘ripe’, PCHOL *\*täk'-an* ‘ripe, cooked’ > CHRT *tak'an*, CHLT ⟨*tacan*⟩, TZEL *tak'an*
  - e. *\*ngoloso* ‘with a brittle noise’ (e.g. palm leaves, totemoxtle, something toasted, inside of a container) > MO *angolosüy* ‘make a noise, to crunch’, MA *ñungolosüy* ‘noise like animal rummaging through garbage’
    - CHOL *k'olina* ‘making a sound (something inside a container)’, TZO *k'olet*; CHLT ⟨*colai*⟩ ‘hand mill’; cf. YUC *k'ol* ‘strike, hurt, flay’ (BS)
  - f. *\*ngähka* ‘bitter, bile’ (poss. from redup. in pre-PH *\*ngah-kah*)
    - PMA *\*k'ah* ‘bitter; bile’ > LAC ITZÁ MOP JAK *k'aj* ‘bitter’, YUC *k'áaj*; YUC *k'áak'áaj* ‘extremely bitter’; PCHOL *\*č'ah* ‘bitter’ [JS]
    - ☞ Source presumably Yucatecan since PCHOL has *\*č*’

### 3.2.2. Late/direct borrowings on other grounds

Phonological or semantic criteria establish that the following loanwords must be late or have a specific Mayan source language.

- (15)a. *\*tílt* ‘turkey’
- TZO TZEL *tuluk*’ < PZO *\*tu?nuk* [JS, in part]
  - ☞ The *\*l* shows that *\*tílt* is specifically from Tzeltalan, but an indirect borrowing via CHO *dulu* is also possible.
- b. *\*sirt* ‘long, sharp and pointed (head of an animal)’ > F *xur xing* ‘needlefish’; MO *pemb xor* ‘white pelican’; MO *xor jüm* ‘swamp crocodile’

- CHRT ⟨*ah xur mut*⟩ ‘type of bird with a sharp-edged bill’; CHRT ⟨*xur-i*⟩ ‘cut open or cut up, cut with a knife’
  - PMAOCC \**šul* ‘to stab, poke’ > CHT *xul* ‘stick through a crack’
  - ☞ Mayan \**l* > \**r* and the specific connection to birds point to a loan specifically from CHRT.
- c. \***loko** ‘bobo (fish)’ > MO MA **lok**
- CHLT ⟨*loc*⟩ ‘porgy (fish)’
- d. \***masi** ‘canoe’ > F **max**, MA D MO **müx**; MA **müx sow** ‘pig trough’ (made from a hollowed out trunk)
- CHRT ⟨*max*⟩ ‘hole, cavity, hollow; weevil’; CHRT ⟨*maxir*⟩ ‘bored, hollowed out, weevily’; CHRT ⟨*maxmax uwoy te*⟩ ‘hollowed out tree trunk’
- e. \***ni-ngicili** ‘president’ > F [[**nunguciol**]]
- PMABAJ+PMAOCC \**kuč* ‘to load, carry’ > CHOL *x-kuchijel* ‘carrier, porter’; CHOL *kuchijel* ‘to load, carry’ (initial \***ng** unexplained)
- f. \***loco/lici** ‘sharp point’ > MO **alech** ‘be a bullfighter, provoke into following; to fish with a hook’; F [[**niluci**]] ‘fish hook’
- CHOL *lujch-in* ‘to gore (bull)’
- g. \***toño-co** ‘disabled (in limb)’
- CHOL *tor-ol* ‘missing an arm’; CHOL *tur* ‘missing a limb’
- h. \***cepele** ~ **cipiye** ‘skin wound; to peel’ > F **achepely** ‘peel’ vt.; F **chepely-** ‘be lacerated (skin)’; MA ⟨**achupei**⟩ ‘to peel’, MO **achepeay**
- CHOL †⟨*tsep, zep*⟩ ‘cut, injure’; CHOL †⟨*tzepel*⟩ ‘cut’ adj.; CHOL †⟨*tzejpel*⟩ ‘cut oneself’
- ☞ The alternation \***cepele** ~ **cipiye** is curious given that PH has no suffix \*-**ele** (although \*-**ye** could be an old reflexive); this establishes a borrowing from the Chol derivatives in *-el*
- i. \***wele-(we)le**/\***wili-(wi)li** ‘throw, toss, turn over’ > MO **awealeal** ‘to throw, toss’; D **awilyily** ‘throw, toss (small object)’; MA **awilil** ‘turn over, turn around’ vt.
- PCHOL \**wihl* ‘turn around’ > CHOL *wejlel* ‘to fly’; CHOL *welwelña* ‘flying’; TZEL *wihl* ‘to fly’, TZO *vil, vel, vilel* (BS)
- j. \***pohko/pihki** ‘throw away; insert somewhere’ > D **apojk** ‘insert somewhere’; D **apyujk** ‘id. (dim.)’; MO **apeek** ‘sow small seeds’; MA **apujk** ‘sow, throw or put seeds on the ground’
- CHRT ⟨*buka*⟩ ‘sow (seed), scatter broadcast’; TZO *pukel* ‘distribute, scatter’; CHOL *puk* ‘distribute’, CHRT *puki*
- k. \***tahta** ‘shake out (to clean)’ (poss. from lost dim. \*\***tihti**) > D **atajt** ‘to shake’, F **atajtajt**, MO **ataad** ‘to clean; to shake, thresh’
- CHOL *tojton* ‘to shake’; CHOL *tjtin* ‘shake out, dust’; CHLT ⟨*tjtin*⟩ ‘shake out (to clean)’; CHRT *tjti* ‘to shake’; YUC *tít* ‘to beat’
- l. \***kali** ‘to wait’
- CHOL †⟨*kälel*⟩ ‘to wait’
- m. \***lamba** ‘to calm’ > F **alamb** ‘grow calm (wind)’; F MO **lamban** ‘calm’; MA **lambaw** ‘calm (wind)’
- CHOL *lajm* ~ *läm* ‘calm down (illness)’
- n. \***sehnde** ‘lean against’
- CHOL †⟨*sejn-il*⟩ ‘wedge, supports, supporting cushions’

☞ **\*nd** from sporadic word-final fortition

- o. **\*imi** ‘to moan’; **\*ema** ‘complain’ > D [[**ayam uleh**]] ‘gnash one’s teeth’; F **aiom** ‘to bellow, moo’; MA **ayüm** ‘moo, complain (animals)’; MO **aiüm** ‘to moan, moo, roar’; D [[**aiom**]] ‘to sigh, groan; rustling (wind); pealing (bells); swell (ocean); bellowing (bull)’  
 • CHLT ⟨*yam*⟩ ‘quarrel, brawl’
- p. **\*misi** ‘little’ > F **namix** ‘small, very little’, MO **namix** ‘medium, average; change (coins)’, MA MO **namix kich** ‘boy’, D [[**namiš**]] ‘very small’  
 • CHRT ⟨*kumix*⟩ ‘smallest, youngest, least of a series’
- q. **\*cepe** ‘to flame’ > D, MA **achepchep** ‘make sparks’; MO **chajpean** ‘hot; burning (in courage)’; D ⟨**ačepčep**⟩ ‘to burn (from a sting)’; D ⟨**čehe pěšov**⟩ ‘to burn, flame’  
 • PCHOL **\*čäp** ‘to cook, boil’ > CHRT ⟨*chap-i*⟩; CHLT ⟨*chapa*⟩ ‘cook on the fire’; CHOL *chäp* ‘to boil’

### 3.3. Mayan **\*b**, **\*p**, **\*p** and Huave vacillation between **\*mb**, **\*p**

The Mayan labial obstruents, like the ejectives, show interesting developments in Huave loanwords. Generally speaking PMA **\*b** appears as **\*mb**:

#### (16) **\*b** > **\*mb**

- a. **\*h-mbóko** ‘to smell (produce an odor)’  
 • YUC *bok* ‘odor’, YUC ⟨*[tu-bok]*⟩ ‘stinking’, MOP ⟨*[bok]*⟩ ‘aromatic; odor’, cf. Q’EQCHI ⟨*[book]*⟩ ‘odor, aroma’
- b. **\*kamba** ‘(of the) opposite side, other side’ (diss. by PSR < **\*ngamba**)  
**\*kembe**, **\*kemba** ‘left (hand)’ > MA **ñikyemb**, D **kemb**, MO **kiamb**, F [[**kiamb**]]  
 • PMA **\*q’ab** ‘hand, arm’ (via, e.g. CHRT *tz’ej-k’ab* ‘left hand’)
- c. **\*cemba** > ‘quiet, still’ > MA [[**aciemb**]]; D [[**ahčamb**]] ‘become less intense’  
 • PCHOL **\*č’ab** ‘silent, not talking’ (TK) > TOJ *ch’ab’an*; TZO *ch’ab’-* ‘be quiet, stop talking’ (TK); CHOL *ch’äb* ‘to quiet’  
 ☞ From **\*č** we expect **\*nc** but the PSR dissimilates **\*nc** to **\*c** before **\*mb**
- d. **\*mbéte** ‘price; expensive’ > MO **ombeat** ‘price’, F **umbety**; MO **nembeat** ‘expensive’, MA D **ñumbety**, D ⟨**ambet**⟩ ‘scarcity’, MA ⟨**shou ambete**⟩ ‘to lack’  
 • PMABAJ **\*b’et** ‘debt’ > CHOL TZO TZEL CHRT *b’et* (TK)  
 • cf. ZPZGO *be<sup>4</sup>te<sup>4</sup>* ‘buy (completive)’, ZPAT *be<sup>4</sup>tti<sup>4</sup>*
- e. **\*mbaka** ‘fin’ > MA **mbak**, D ⟨**mbak**⟩, MO **mi-mbak küet** ‘operculum’  
 • PMA **\*b’a:q** ‘bone’ > ITZÁ CHRT TOJ *b’ak*; YUC *b’aak* ‘bone; skinny’, LAC TZO TZEL *b’ak* (TK)
- f. **\*mbalono** ‘striped or spotted (animal)’ > MA **mbalon**, MO **balon**  
 • PMA **\*b’ahlam** ‘jaguar’ > TZO *b’olom*, CHRT ⟨*bahlan*⟩ (TK)

On the other hand, Western Mayan **\*p** typically appears as **\*p**:

#### (17) **\*p** > **\*p**

- a. **\*pese** ‘weigh’  
 • PMA **\*b’is** ‘weigh, count’ > YUC ITZÁ *p’iis* ‘weigh’, MOP CHOL TZO TZEL *p’is* (but: CHRT TOJ CHUJ *b’is*) (TK) [JS]
- b. **\*htipi** ‘grow’ > F [[**-htip**]], D ⟨**ahtip-miond**⟩ ‘sigh deeply, inhale’, MA **atyup miyünd** ‘to gasp (dying); be asphyxiated’

- YUC *tip'* 'get big, be excessive in portion, size or weight', CHLT ⟨*tipil*⟩ *tip'il* 'swollen', CHLT ⟨*tipcael*⟩ *tip'k'ael* 'swell up' (BS)
- c. \***polongo** 'skin eruption' > MO **polong** 'rash, swelling, wheal', MA **polong** 'itchy, painful skin blemish', F **pelong mal** 'mosquito, large fresh water insect', D [[**polong mal**]] 'large midge', MA **polong mal** 'large hurtful fly which bites hard'
  - PMABAJ \**p'ol* 'to increase' > TZO *p'ol* (TK), TZEL *p'ohl*, CHLT ⟨*pola*⟩ *p'ola* 'multiply' vi., CHRT ⟨*boron*⟩ 'swelling, swollen place', CHRT ⟨*bor*⟩ 'growth, increase, swelling, wealth'
- d. \***pata** 'fierce'
  - CHOL *p'ät*, *p'ätäl* 'strong', HUAS ⟨[*paθay*]⟩ 'brave, fierce', ITZÁ ⟨[*nojoč patal*]⟩ 'powerful',
- e. \***sipi** 'fat, swollen' > D F MA MO **naxip** 'fat', F **axip**, **axipxip** 'swell up, get fat', MO **axip** 'get fat; ferment (dough); swell up'
  - PMA \**sip* 'swell up' > YUC MOP *sip'* 'swollen', CHRT *sib'* 'have stomach discomfort, bloat, inflate'; IXIL *sip-* 'get a stomach upset from overeating', KCH *sip-* 'swell up, rise (bread)' (WL)

However, Mayan sources with labial stops produced at least three doublets in PH, one with \***mb** and another with \***p** (18a-b, d); in (18c) PH has only \***mb** < \***p**':

(18) \***b**/\***p**' > \***mb**/\***p**

- a. \***mbali** ~ **pahli** 'twist, turn, spin, untangle'
 

MO **ambüel** 'twist' vt., D **ambüly**, MA ⟨**ambuel**⟩  
 D **apüjly** 'twist (one's foot)', F **apajly tiot** 'id.', MO **apüüel** 'untangle, unfold',  
 D ⟨**a'pühel**⟩ 'unwind a cord', MA ⟨**-puëhli**, **-puehli**⟩ 'unwind, untangle, unroll, unfold; to twist'

  - PMA \**b'al* > TZEL *b'al* 'roll up, twist'; TOJ *b'al* 'roll up'
  - TZO *p'al*, MOP *p'äl*, ITZÁ *p'äl* 'untwist' (WL), CHLT ⟨*palbil*⟩ *p'albil* 'untwist' [JS, in part]

☞ Mayan etyma for 'twist' and 'untwist' have been confused in Huave
- b. \***simbe**, 'bathe' > MA †⟨**-shuump**⟩, MO **axejmbeach** vt., F **axumbech** vt.  
 \***sihpi** 'bathe' vi. > D **axyujp**, MA **axujp**, MO **axeeb**, F **axijp**
  - CHRT ⟨*subi*⟩ 'dip up and down, rinse'
  - CHOL *sujp'-el* 'submerge, dunk'
- c. \***mbiti-ki** 'load or carry on the shoulders' > MO MA **ambitik**
  - CHRT ⟨*biti*⟩ 'carry on head or shoulders, support on upper end', CHLT ⟨*piti*⟩ *p'iti* 'carry on the shoulders', YUC *p'it-kuch* 'carry lightly on shoulders' (BS)
- d. \***mbilt** 'to burn' > F **ambuly** 'to burn', D **ambyuely**; MA **ambuly** 'set fire, burn', MO **ambel**  
 \***pilt** 'burn' vi. > F MA **najpuly** 'spicy', D **ajpyuely** 'to burn, sting (chile)', MO **ajpel** 'to burn', MO **najpel** 'burning, spicy', D ⟨[**püpüel**]⟩ 'prickle'
  - CHOL *pul* 'to burn'; CHT ⟨[*pulu*]⟩; TZEL ⟨[*s-pulet*]⟩ 'flaming', CHRT *puruy* 'burn' vi., CHLT ⟨*pulpul*⟩ 'having an upset stomach; to burst open'
  - PMACTR \**b'u(:)l* 'foam; to boil, to bubble' > TZEL *b'ul-an* 'to boil'
  - CHOL *bu'lich* 'sweat' n.

☞ Huave forms show semantic differentiation: \***pilt** expresses the sensation of heat, whereas \***mbilt** refers to the physical process of burning.

The explanation for these borrowing doublets is probably to be found in the complex (and controversial) evolution of *\*p* in Western Mayan. Wichmann (2006) has argued that *\*p* did not develop by regular sound change in proto-Ch'olan. Instead, it was only in Yucatecan that *\*p* emerged in well-defined phonological contexts (from *\*b* and *\*p*). Yucatecan source words with *\*p* then diffused individually through the Mayan lowlands into Ch'olan (and elsewhere), so that ultimately *p* appears only sporadically in Ch'olan (with geographically remote Ch'orti' untouched).

### 3.4. Mayan borrowings of uncertain chronology or provenance

In many cases, although a Mayan source is fairly evident, there is no secure evidence regarding its dating or route into Huave. Selected examples are shown below:

- (19)a. **\*ci-(kɪ)** 'it is said' (evidential particle) > MO **chük**, **chek**, D **chük**, F **chu**
- PMAOCC *\*ček-el* 'is seen, is noticeable'; CHRT *ček-ta* 'appear, result'
  - PMABAJ (diffused) *\*čik-aʔn* > MOP *ča''kaan* 'is seen, is noticeable'; TZEL TZO *chikan* 'visible, seen'
- b. **\*taha-mbiyi** 'motmot (bird)' > MO **tajmbey**
- YUC *toj ~ taj* (isolated datum)
- c. **\*silt** 'buzzard'
- PMAOCC *\*šulem* 'buzzard'
- d. **\*paya** 'hooded skunk' > MO **püy**
- PMA *\*pahar* 'skunk' > YUC *<paay>* 'skunk (malodorous)', etc.
  - cf. also PZO *\*payaʔ* 'draw lines on', zFL *payaʔ* 'be streaked, to streak'
- e. **\*sewe** 'jay bird'
- PMACTR *\*še:w* 'blue bird; jay bird' (also > CHO *<<xewih>>* (*šɛ'wiʔ*)
  - ☞ No Ch'olan or Yucatecan cognates but CHO borrowing suggests diffusion
- f. **\*kowo** 'quern': PMA *\*ka:ʔ* 'quern' [JS]
- g. **\*hele** 'clothes, skirt': PMAOCC *\*jal* 'to weave'
- h. **\*kilt** 'chest made of palm leaves' > MA **kuly** 'smaller woven basket; †chest made of palm leaves', MO **kiel** 'suitcase made of palm leaves'
- MOP *kuul* 'type of palm; heart of palm' (BS), CHLT *<cuuhl, culh>* 'type of palm'
- i. **\*pakɪ ~ paha** 'shoe, sandal' > F **napaik**, MA **napaky**, D **napük**, MO **napüik**; MO **-paj**, D **sokol apaj**, MA †**<-pah>**
- CHIC *<[pajáu]>* 'sandal'
- j. **\*-kisi-kisi** 'dysentery'
- PMA *\*ki:s* 'fart' > ITZÁ MOP *kis*
  - cf. also CHOL †*kis* 'spoiled (meat), rancid (oil)', *<kis-güelul>* *kis-we'eläl* 'rotten meat, scraps of food'; CHOL *k'is* 'adverb related to fish smells'
- k. **\*wáɪɪ** 'forehead' > MO **owül**, F **xuwaly** 'crest', D **[[-wɪl]]**, D **<[u'wüol]**
- CHIC *<[wal, eual]>* 'forehead, eye'
  - ☞ CHO *<<-abali>>* *-a'bali* 'forehead' suggests diffusion
- l. **\*ihtɪ** 'excrement': PMA *\*ʔi:t* 'arse, anus'

- ☞ Possibly quite old; cf. also TTNX *i:tin* ‘animal excrement’; TTNN *it'tin* ‘faeces; fly eggs, mosquitoes’
- m. \***pa-wala** ‘round’ (dissimilated < \***wol**) > MA MO **pawal**, D ⟨**pawal**⟩  
 • PMA \**wol* > YUC *wol* ‘make a ball, make round’, PCHOL \**wol* ‘spherical’ > CHOL TZEL *wol-ol* (BS)
- n. \***siki** > F **axuk** ‘mend clothes’, F ⟨[-**sruksuk**]⟩ ‘to place’, MO **axek** ‘insert’  
 \***soko** > F ⟨[-**sok**]⟩ ‘hook together’, D **asok umbiem** ‘weave palm leaves of a house’ (RN); MO MA **asok** ‘insert’, MO ⟨**asook**⟩ ‘put something into something similar’, MA ⟨**asoksok**⟩ ‘intertwine’  
 \***sohki** > MO **asojkiay** ‘joint (of the body); knot (tree)’, **asooig** ‘hold hands, intercalate’, D **asujkey** ‘get dressed’, MA **asajikyey**; D ⟨**asuhk**⟩ ‘set a broken bone’  
 • PMAOR \**šo:k* > MAM KCH *xook* ‘hook’, POQOMCHI *xooka*  
 • PCHOL \**sohk* ‘get tangled’ > CHOL *sok* ‘entangle (string, cord)’ (TK)
- o. \***mohko/mihki** ‘to cover’ > F ⟨[-**muh**]⟩, MA ⟨-**mohk**⟩; D **mojk** ‘palapa (open-sided dwelling with thatched palm leaf roof)’, F **mojk(k)** ‘kitchen made of palm leaves’, F **ñumujk** ‘hat’, MO **mojk** ‘storage hut with thatched roof’,  
 • PMA \**muq* ‘bury, hide’ vt. > YUC ⟨*muc*⟩ ‘to cover’, CHRT ⟨*muk*⟩ ‘bury, hide, store’, CHRT ⟨*muhk*⟩ ‘anything buried, etc.’, CHOL *muk* ‘bury, hide; to cover’, CHOL ⟨*[ma:k-il, mä:k-il, mu:k-il]*⟩ ‘lid’
- p. \***cipi** ‘to fill’  
 • YUC ⟨*[čup-saj]*⟩ ‘fill’, LAC ⟨*[k-u-čup-ik]*⟩; CHOL ⟨*[čep]*⟩ ‘full’
- q. \***sihci**, \***sihci** ‘root’ (> ‘lightning’)  
 • LAC ⟨*[(?u)-ši:č-(e:r)]*⟩ ‘vein, root’; LAC ⟨*[ši:č]*⟩ ‘tendon’, YUC *xiich*; MOP ⟨*[šič]*⟩ ‘vein, artery, tendon’; TZO ⟨*[be-č'ic]*⟩ ‘vein’; CHRT ⟨*noh chich*⟩ ‘vein, prominent artery’

#### 4. Borrowings from Mixe-Zoque

Borrowings from Mixe-Zoque can be divided into three groups:

- (20) a. Possibly very old: the source form can be reconstructed in PMZ.  
 b. Mixe origin: the source form occurs only in PMX or in a Mixean language  
 i. Source in PMX, in Tapachultec, or in Veracruz Mixe  
 ii. Source limited to Oaxaca Mixe.  
 c. Zoque origin: source form occurs only in PZO or in a Zoquean language.

For reasons of space the examples below contain only loans which are not mentioned in previous literature, or for which especially confirming new data has come to light.

##### 4.1. Potentially early borrowings from MZ

- (21)a. \***pówi** ‘oven’: PZO \**pow* ‘cook in steam’  
 ☞ cf. TTNN *pu:-wa:’tín* ‘pot for cooking tamales’ (*pu:-* ‘container’)
- b. \***cahka-ca** ‘sky; heaven’ > F **nangaj tsajkats**, MA **umbas akats**, D ⟨**sakats**⟩; MO †**mbas akats** ‘heaven of glory’  
 • PMZ \**ma:ca?((a)k)* ‘star’ > MOLU *ma:ca:ʔk*

- ☞ cf. TTNP TTNX *staqu*, TTNN '*staky*
- c. \***mehce** 'heavy, heaviness' > MO **nemeech omeaats** 'heavy-hearted'
- PMZ \**hemec* 'heavy' (but perh. > CHOL *mech* 'bad (heart)')
- d. \***newe** 'weave (a fence)' > MO [[-**niow sok i:Emb**]]; MA **añow sok yüm** 'make one's house (i.e. out of palm leaves)', MO ⟨**Uñocang**⟩ (BB) prob. /**on'ow kang**/ 'Mountain of Rocks' (name of an island)
- PMZ \**neʔw* 'make a fence with stones' > MTOT *ne''v* 'wall', ZOR *neʔη* 'to position (e.g. stones to make a wall)'
- e. \***capahci** 'bobcat, lion' > F **tsapajch** 'bobcat', MO **tsapüüch**; D **tsapüjch** 'lion', MA †⟨**xahpuehxi**⟩
- PMZ \**capac* 'red': MSAY *cabac-ka:hau* 'cougar, puma' (< 'red jaguar'), MOLU *capas-ka:haʔu* (CO)
- f. \*(**h**)-**coti** 'to ooze; anus', \***cohti** 'squeeze or crush out'
- PMZ \**cot* 'come out (object)' > MTOT *coht* ~ *cot* 'take something off its handle, e.g. shovel, pickax', ZOTEX *cot-put* 'to fall (shit); emerge crossing over'
- g. \***kòhci** 'to cut': PMZ \**ko:ʔc* 'to tan (hide); to break' > ZOCOP *koʔc* 'sink, hang vi., break vti.; destroy'
- h. \***kawáka** 'sapodilla, mamey sapote': PMX \**kaʔwak* 'marmalade fruit'
- i. \***hini-hini** 'rapid' > MA **najuñ**, D **nafen**; MO **najen** 'then, in a hurry, immediately, urgent', F **ajuñ** 'to hurry'
- MSAY *hunhúʔn*, ZOCOP *hiʔnhiʔniʔk*
- j. \***pópo**, \***poposi** 'foam'
- PMX \**ʔu:ʔp-ʔi(k)* 'mole' (kind of sauce) > MOLU *ʔu:piʔk*
  - PZO \**ʔup-ʔah* 'beat mole'
  - PMX \**ʔo:ʔp* 'to foam' > MOLU *ʔo:p* 'produce foam', MOLU *ʔo:p-i-pa-ʔ* 'something which produces foam, bejuco asquiete'
  - ZOCHMG *ʔopx-aʔ* 'foam'
- ☞ cf. also TTNS *puput*, TTNP, TTNX *púput*, TTNN *pu'put*, TTNPXN *-pu'pu* 'make foam'; poss. > TOJ ⟨*pu''x*⟩ 'foam'
- k. \***piwi** 'remove seeds, card' > MO **apiw**
- PMZ \**piw* 'rummage, scavenge, go through' > MOLU *piw-piw-naʔ* 'picking at (like a chicken with corn)', MSJP *piw* ~ *pi-w* 'pick small objects (e.g. coffee beans)'
- l. \***wahci** 'to whip' (diss. < \***wohci**) > MA **awüjch** 'to hit, beat', MO **awüüch**, F **awajch** 'to hit', D [[**avühč**]] 'strike with whip, stick, etc.'
- PMZ \**wocʔ* 'to puncture' > MSAY *wocʔc* 'scratch, play guitar', ZOCOP *wohc* 'place stakes in the ground', ZOFI *wohc* 'to puncture, bite, sting'
- m. \***wahki** 'mash or grind thoroughly (corn dough)' (diss. < \***wohki**) > MO **awüüig**
- PMZ \**wo:ʔk* 'grasp a fistful of something' > ZOCOP *woʔk*; MSAY *woʔk* 'remove (a fistful of something)'
- n. \***i(h)ci-weka** 'monkey' > MA **uchwyak**, MO **echweak**
- PZOG \**ʔu:cuʔ* 'monkey' (< NAH *ozomatli* ⟨*vçomatli*, *oçomahтли*, *uzomatli*) poss. > HUAS *uθu*)
  - PMZ \**wi(?)yuk(s)* 'kinkajou (animal), *Potos flavus*', Sp. *mico de noche* lit. 'night monkey' > MOLU *vijuʔk*, ZOR *wiʔyuk*, etc.
- o. \***caca** 'bramble' > MO MA **waj tsats** (**waj** = 'surface')

- **\*řan-caca** ‘itch’ > D MO **arrantsats**; MO **rantsats** ‘hives’
  - PZO **\*cac** ‘crack’ vi.; PMX **\*ca:hc** ‘century plant, agave’ (spiny)
- **\*ya-caca** ‘itch’ > F **ayatsats**; MA **(yatsats)** ‘pimple, pox’
  - PMZ **\*yak-** ‘causative prefix’ or PMXO **\*yoʔc, yoʔc** ‘pierce’
- p. **\*cìhti** ‘untie, let loose’
  - PMZ **\*ko-ciʔt** ‘slip away’ > MTOT **ku-ciʔt ~ kuciʔt** ‘dislocate’, ZOCOP **kociʔt-u** ‘escaped, got loose, got dislocated’
- q. **\*aha, \*(a)ha-ya, \*(h)aya** ‘melt’
  - PMZ **\*hi:yʔ** ‘melt; to cry’
- r. **\*piwi, \*pihi** ‘bud, sprout’
  - PMZ **\*pihi(k)** ‘flower’ > ZOCOP **poʔu** ‘budded, sprouted’, MSAY **pih-p**, MOLU **pih-i**  
 ☞ cf. TTNX **puʔn** ‘germinate’
- s. **\*pihti** ‘rip out sewing; pick fruit’ & **\*poto** ‘rough’
  - PMX **\*poht** ‘tear something long and thin’ > MTOT **poht ~ pot** ‘break, e.g. rope’,  
 MTLC **toht** ‘to burst’, MSJP **poht ~ pot** ‘break (e.g. rope, vine, chain)’
  - PMZ **\*po:ʔt** ‘cut with machete’ > MTLC **po:t**, MIXISTLÁN MIXE **po:t**, MSJP **po:t ~ po:t** ‘chop wood’ [JS, in part]
- t. **\*kin-iki** ‘salt’ (< **\*ken** ‘salt’ + **\*ik-i** ‘ground’, derived from **\*ik-i** ‘ground toasted corn; grind finely’)
  - PMZ **\*ka:na** ‘salt’ > ZOCHMG **kana**, MTOT MSAY **ka:n**, MTAP **(quen, queng)** ‘salt’ [JS in part]
- u. **\*ceko** ‘ant’: PMXO **\*cukn** ‘ant’ > MTOT **cokin** [PR, JS in part]
  - PROTO-VERACRUZ MIXE **\*cukut(ik)** > MOLU **cukutiʔk** (CO)
  - PZO **\*hah-cuku** (> MSAY **háh-cuk**) > ZOCOP **hah-čuku**

#### 4.2. Mixean source

- (22)a. **\*awawa** ‘annatto’ > D [[**awaw**]]
- MOLU **ʔa:wowa** ‘annatto’
  - cf. TTNP **(ahuáug)** ‘annatto’ (García Vidal & García García 1972)
- b. **\*pici** ‘yellow mombin’ > MO **piüts**; MO **kants piüts** ‘orange oriole’
- PMZ **\*puʔc(V)** ‘yellow’ > MOLU **pi:tz-kuy** ‘orange’, ZOCOP **puʔči** ‘yellow; light (in complexion)’, MSAY **šiti-piʔčik** ‘mombin’
- c. **\*himbi** ‘to sweep’
- PMX **\*hin** ‘to scrub’ plus verbal suffix **\*-pa**, e.g. MOLU **-hi:m-pe** ‘be scrubbing, scouring’ vt.
- d. **\*(h)oyoko/\*hiyiki** ‘ball’ > F D MA **oyok**, MO **ajoyok** ‘make into a ball, roll up’
- PMZ **\*ʔuyuk** ‘bent, warped’ > MSAY **ʔuyuk** ‘curved’
- e. **\*osipi** ‘tomorrow’
- MOLU **ʔušiʔp** ‘in the afternoon or evening; it is late’; ZOCOP **išoʔpyi hama** ‘later today’
  - PMX **\*ʔV-šihwi** ‘yesterday’ > PMXO **\*ʔušihwi**; MOLU **ʔušivi** ‘last night’
- f. **\*piho** ‘sapodilla’ > F **piuf**: MOLU **piho** ‘yellow zapote’

#### 4.3. Source in Oaxacan Mixe

- (23)a. **\*wehka** ‘laughing falcon’
- PMXO **\*mak-wehkš-n** ‘turkey vulture’

- ZOCHMG *ʔawaktowaʔ* ‘laughing falcon’
- b. \***pohco** ‘smallpox; sacred, divine’ >
  - MA **manapojts** ‘smallpox’
  - MA **tyempojts** ‘church’, D [[**tümpoots**]]; MO **te(a)mpoots** ‘in church’, MO ⟨**Monopostiac**⟩ ‘Enchanted Hill’ (place name), MO **monopoots** ‘church officers’
  - F [[**munapoc**]] ‘cedar, D **manapojts xiel** (RN), MA **napojts xiel**, MO **monopoots xiül**
- PMXO \**pu''hc* ‘grano de la piel’ < PMZ \**pu:cʔ-(i)* [JS]
- ☞ The connection between smallpox and the sacred developed from traditional Huave medicine, which classified smallpox as one of the “divine” illnesses, that is, caused by the will of God, as opposed to by witchcraft or the victim’s behavior (Signorini 1979)
- c. \***mówo** ‘grasshopper’: PMXO \**mu''* ‘grasshopper (small, green)’
- d. \***kepe** ‘make incisions’ > D **akep**, MO **akepeap** (< \***a-kepe-pe**)
  - PMXO \**ke:ʔp* ‘cut with scissors’
- e. \***p̄inci** ‘soft, pliable’: PMXO \**p̄iʔŋʷkʷ* ‘soft (pillow, etc.)’ [PR]

Some cases where PH \***e** corresponds to a different vowel in PMZ point to a Oaxacan Mixe language where the verb stem displays apophonic alternations:

- (24)a. \***teye** ‘stretch out, hang’
- PMZ \**tiy* ‘stretch out, hang’ > MSAY MÖLU *tiy*, MATAMOROS MIXE *t̄i:y, t̄'e''-p̄y* ‘to rock, sway’
- b. \***wèhke** ‘mange’ > F **wej**, MO **wëaaig**
- PMZ \**woʔk* ‘move the hand in a concave position to pick something up or to scratch oneself’ (RZ) – influenced by PMZ \**wi:yi* ‘mange’ – ATITLAN MIXE *wo:k, w̄ʷöʔk̄y-p̄y* ‘to scratch’, ZOCHMG *hup-woʔk-š* ‘scratch or scrape the skin by pulling’
- c. \***meye** ‘to sleep’
- PMZ \**ma:hʔ* > COTZOCÓN MIXE *ma''w, ma:p, t̄i:-m̄æ''y*, etc. [PR, JS]

#### 4.4. Zoque origin

- (25)a. \***tàci** ‘cocoplum’
- ZOCHMG *tacuʔ* ‘cocoplum’ < PMZ \**taʔc(k)V(k)* ‘jinicuil; inga’
- b. \***cepini** ‘red and black wasp’ > MO **chapen**
- PZO \**cinu-pin* ‘bee’ (‘honey-person’)
- c. \***ci-ti** ‘broken, split, unsewn’ > F **achiot** ‘to tear, break’, MA **achiet** ‘break accidentally’, MO **achiüt** ‘to break’
- PZO \**cic* ‘to scratch’ > ZOCOP *čihc-* ‘to tear, break, scratch’
  - PZO \**cih* ‘to break’ > ZOFL *cih-* ‘get chipped’
- d. \***hàci** ‘owe money’: PZO \**haʔc* ‘owe’ > ZOCOP ZOR *haʔc-i* ‘debt’
- e. \***naha** ‘black wax: PZO \**nahi* > ZOCHMG *nahi* ‘wax; beeswax’
- f. \***kahpa-kay** ‘epidemic’ > MO **kaabküy**; MA ⟨**kahp këy, kap kei**⟩ ‘fever, plague’
- PZO \**kaʔ-kuy* ‘sickness, death’
- g. \***hayaki** ‘Mexican beaded lizard’ > F **jayaik**, MO **jeyak, jayak**
- PZOG \**pon-ha:yaʔ* ‘salamander’
- h. \***tikaya** ‘few, a little’ > F **tyukay**, MA **tyuküy**, MO **tegüy**, D [[**tiküoy**]]

- PMZ \**tik(ay)* > SANTA MARÍA CHIMALAPA ZOQUE *-tigay* plural suffix
- PMZ \**tuk* ‘three’
- i. \***wici** ‘orange oriole’ > MO **wiüts**
  - ZOCOP *wicu* ‘tejocote (orange-colored fruit like mombin)’
- j. \***pak** ‘fish with a net’ > MO **apak**
  - PMZ \**ma:kʔ* ‘wash nixtamal; fish with a net’ > AYUTLA MIXE *mba:ʔyi* ‘fish it!’, *ma mbak* ‘it was fished’, ZOTEX *bak* ‘to fish’
- k. \***sapani** ‘canistel, white zapote’ > MO **sapün**
  - PZO \**sapane* ‘sapodilla’
- l. \***tapı** ‘wart’ : PZO \**tapu* ‘wart’ > ZOCOP ZOFL *tapu*, ZOTEX *ta:piʔ*
- m. \***haca** ‘play the accordion’ > D ⟨|**ahatsats**|⟩
  - PZO \**hec* ‘to scratch’ > ZOCOP *hehc* ‘scratch, play (e.g. guitar)’, ZOFL *hvehc-u* ‘play (the guitar)’
- n. \***kʷalanga**/**kʷilingi** ‘to jingle, rattle’ > F **akualangé** ‘make a sound (like seeds in shell)’, MO **akwalang** ‘to jingle’, MO **akwiling** ‘to rattle, tinkle’
  - ZOCOP *kihling* ‘to jingle’
- o. \***wani** ‘inspire’ > ‘sing’ > MA **awüñ** ‘inspire’, MA **awüñ son** ‘sing’, MO **newüneya** ‘type of shaman’
  - PZO \**wan* ‘sing’, PZO \**wan-e* ‘song’
- p. \***in(d)t** ‘rolling pin for a grindstone’ > MO **end kow**
  - ZOCOP *tza’-une* ‘id.’ < PMZ \**ʔunV(k)* ‘child’
  - > EPIGRAPHIC MAYAN ⟨*yu-ne*⟩ ‘child, baby’, CHUJ CHRT *unen* ‘man’s son’

#### 4.5. Totonacan sources

A few loans from Totonacan sources appear to have passed into Huave:

- (26)a. \***cewa** ‘atole’ > F **jichaw**, D **chaw**, MA **jechaw**, **chaw**, MO **chaw**, **jachaw**
- TTNS ⟨⟨*chuj* ~ *chau*⟩⟩, TTNX ⟨⟨*chauj*⟩⟩ *čauh* ‘tortilla’, cf. MSAY *-tsaw-* ‘make (tortillas)’
- b. \***chiyi** ‘mouse’ > D MO **chiy**
- TTNS TTNX ⟨⟨*tzi’ya*⟩⟩ *tsj:yg* ‘rat, mouse’, TTNN ⟨⟨*tzi:’ya*⟩⟩ *tsj:yg* ‘mouse’
- c. \***piwi** ‘daughter-in-law’: see §4.6

#### 4.6. Kinship terminology from Mixe-Zoque-Totonaco

A large number of Huave kinship terms resemble those of MZ (and Totonaco in some cases):

- (27)a. \***piwi** ‘daughter-in-law’ > D **piw**, MA **puw**, MO **-pew**; F **puy** ‘daughter-in-law; woman’s mother-in-law’
- TTNS ⟨⟨*pūhui’ti’t*⟩⟩ *pu:wijit* ‘daughter-in-law’, TTNX *įspuwiti* ‘daughter-in-law, son-in-law’, TTNX *puwiti* ‘father-in-law’, TTNN ⟨⟨*ta:pu:witi*⟩⟩ *ta:pu:witi* ‘sibling’s brother-in-law or sister-in-law; child’s mother-in-law or father-in-law’
- b. \***sihri** ‘old man, grandfather’
- PMZ \**cuʔ-si* ‘woman’s father in-law’; MÖLU *cuʔši* ~ *cuʔiši*, ZOCOP *cuʔsi*; but cf. also *šits’* ‘uncle’ in San Agustín de Loxicha Zapotec (Sierra Sur) (Mikko Salminen, p.c.)

- c. **\*teye** ‘younger brother’ (vocative) > MO **teay**
- PZO *\*t̥wi* ‘brother’ > ZOCOP *t̥wiy* ‘friend, companion; relative’ (affectionate vocative); ZOR *t̥wi* ‘friend, companion, son (addressing affectionately)’
- d. **\*mindt** ‘woman’s last child’ > MA **mundy**, MO **-mend**
- MSAY *miʔt-na* ‘man’s father-in-law’, MOLU *muʔt-naʔaʔw*
- ☞ In the PH kinship system, as in many languages in the region, the same term is used for son-in-law and father-in-law (likewise for daughter-in-law and mother-in-law). Thus ‘woman’s last child’ could plausibly develop as follows: ‘father-in-law’ > ‘son-in-law’ > “newest” son, in virtue of daughter’s marriage’ > ‘youngest son’
- e. **\*cihki** ‘younger sibling’
- MSAY *máhcik*, MSAY *makciʔk* ‘younger brother’, MSAY *čičik* ‘little’; cf. PZO *\*čiks* ‘little’ > ZOCOP *čiks*
- f. **\*kici** ‘skinny; child’ > MA MO **kich** ‘child’; MO **nekich** ‘skinny’, MA **ñikich**
- MSAY *kiʔč* ‘boy’, MSAY *kiʔčway* ‘child’ (unknown etym.)
  - TTNN *k̥iʔs̥i:swa* ‘little and ripe, but underdeveloped’ [JS]
- g. **\*nasi** ‘girl’: PMX *\*ni:š* ‘daughter’ [PR]
- h. **\*apa** ‘woman’s father-in-law’ > F **ap**: PMZ *\*ʔapu* ‘grandfather’
- i. **\*haya** ‘consuegro’ (one’s child’s father-in-law) > F **hay** ‘one’s child’s mother-in-law’, MA MO **jüy** ‘one’s child’s spouse’s parent’, D [[**hiy**]]
- PMZ *\*hayá(w)* ‘man’ > ‘husband’: ZOCOP ZOR *hayah*, ZOCHMG *haya*
  - PMZ *\*hiyi* ‘man’s brother-in-law’

Radin (1916) first noted this resemblance in kinship terms, taking it as a sign of a Mixe-Zoque-Huave genetic relation. If, however, these resemblances result from interlanguage contact, we might reasonably conclude that they arose through frequent intermarriage between the two communities. Support for this conjecture comes from the semantic changes observed in the borrowings. Specifically, in several cases (30 b, d, h, i) a MZ source word for a blood relation corresponds to a PH etymon for a relative through marriage (or vice versa). For example in (30 b) PH ‘old man, grandfather’ resembles MZ ‘woman’s father-in-law’: a Mixe-Zoque woman with a Huave husband might address her father-in-law with *\*cuʔ-si*, the meaning of which would then be transferred to ‘grandfather; old man’ in Huave.

## 5. Zapotec sources

It is hardly surprising that there are a good number of recent loans from ZPIST to Huave given that the two speech communities are now adjacent and have long had important commercial ties. More interesting however is that certain other loans have no plausible source in ZPIST, and instead resemble proto-Zapotec or dialects of the Sierra Sur:

- (28)a. **\*kiti** ‘hen’ > D **kity**, MO **kit**
- PZP *\*gidi*
- b. **\*sena** ‘sir’ > MO **xan**; MA **tyety xan** ‘boss’

- PZP \*šana ‘sir’
- c. \***konci**, **kinci** ‘to mix, grind’ > F **kunché** ‘to grind’, MA **akunch** ‘grind (small object)’, MO **nekiench kants** ‘grindstone’
  - PZP \*koʔonča ‘to mix’ [SZ] > ZPIST ru<sup>4</sup>guʔu<sup>4</sup>ča<sup>2</sup>, Coatlán Zapotec ngo<sup>1</sup>ča<sup>3</sup>
- d. \***yawa** ‘swamp (Sp. estero)’ > D MA **yaw**; F **Tiyaw** ‘Puerto Estero’ (lit. ‘in swamp’)
  - PZP yawu ‘river’

In (28a) for example, no reflex of PZP \*gidi exists in ZPIST; in (28b) the ZPIST form šuaʔa<sup>4</sup>naʔ<sup>4</sup> ‘patriarch, matriarch, person responsible for a festive event’ reflects PZP \*šu<sup>1</sup>waʔana instead of \*šana, which must be the source of \*sena; in (28c) only PZP \*koʔonča has the nasal of \***konci**.

This finding supports the view that there were early contacts between Huaves and a southern Zapotec population different from the ancestors of the current community of the Isthmus, who arrived in the region only shortly before the Conquest.

## 6. Huave as donor language

There are few clear cases in which Huave is the donor language instead of the receiver in a borrowing. That the two plausible cases in (29) are both names of fish is not surprising since fishing is the basis of the Huave economy and the Huaves undoubtedly traded their catch with peoples living further inland:

- (29)a. \***cili** ‘black mojarra’  
 > CHO <<-atsili>> ‘mojarra’
- b. \***mili** ‘lisa’ (fish)  
 > ZPIST mi<sup>41</sup>li<sup>41</sup> (no other Zapotec cognates)

## 7. Ambiguous sources: Diffusion and Wanderwörter

Finally we turn to areally diffused vocabulary. At least half of such cases can be traced to MZ etyma which spread to Huave either directly or via another language, often Mayan:

- (30) Diffused from Mixe-Zoquean
- a. \***pomo** ‘copal’ < PMZ \*po:m(o) ‘copal’ > PMA \*po:m (TK) [JS], CHO *boma*
- b. \***t̃iñ** ‘mombin (fruit)’ < PMZ \*tu:ni ‘plum-like fruit’  
 > CHO *duni* ‘tree that produces a fruit called bobo’ (type of mombin)  
 > HUAS <[te:n]> ‘mombin’
- c. \***paci** ‘lizard’ > MA **tarr püch** ‘lizard-like reptile’, D **torr püch** ‘long-tailed iguana’  
 • PMZ \*paci ‘lizard’ > YUC <h pach> ‘type of crested lizard’  
 > CHO *ba'tsiʔ* ‘chameleon’
- d. \***ceka** ‘woodpecker’  
 • PMZ \*cehe ‘carpenter’ > ZOCOP *ceʔ* ‘woodpecker’, MOLU *ceh-oʔk*  
 > PMA \*čeh-(C) ‘woodpecker’ > CHOL *x-ch'ejku*, etc.  
 > ZPIST 'čaʔ<sup>1</sup>kaʔ<sup>4</sup> ‘woodpecker’

- > CHO *'tsego?* 'red-headed woodpecker'
- e. \***pipi** 'to blow' (poss. redup. of \***pi-pi**) & \***pihi** 'wash a little'
- PMXO \**poh* 'wind' [PR]
  - PMZ \**puh* 'to wash' (?) > ZOCHMG *puh* 'to inflate, blow', ZOCOP *puh* 'blow (e.g. water on fire to put it out)'
- f. \***toko**/\***tiki** 'cut, injure' > F **atyuk** 'hurt, injure'; \***tokò-co**/\***tiki-ci** 'cut off' adj. > F **tokats**, MA **tokots**, dim. **tyukuch**, MO **tokots**, dim. **tekech**, D **tokotson uleyjiw** 'short (in stature)' (RN)
- PMZ \**tuk* 'pick fruit' > ZOCHMG *tuk*; MSAY *tuk* 'pick (coffee, oranges etc.)', ZOCHMG *ho-tuk* 'break into pieces, tear', ZOCHMG *təŋ-tuk* 'slice with a machete' > CHOL *tuk* 'pick (fruit, coffee)', YUC *t'ook* 'to harvest fruit'
- g. \***sàhki** 'medicine' > MA **saij(k)**, MO **süüig**, F **ñurang saj** 'folk healer', D **ñuransüjk** 'doctor'
- CHLT ⟨*çak*⟩ *sak* 'medicine' < PCHOL \**c'äk* (< MZ) [JS]
- ☞ Ultimate source is MZ, but likely arrived via Mayan; the \*s is unexplained, unless from CHLT

Other cases are more ambiguous and for these Wanderwörter we cannot offer a hypothesis for the originating language:

- (31)a. \***ceka** 'bad sign' > D [[**aciak**]], MA **achake**, **achákan**
- PCHOL \**č'äk* 'to wound, injure, bewitch' > CHOL *ch'äk* 'to curse', CHOL *ch'äk-oñel* 'witchcraft', CHRT ⟨*chek*⟩ 'image, reflection; image used by a shaman; signal, sign, portent, symptom, doll', CHLT ⟨*chacta*⟩ *ch'akta* 'wretched'
  - PMXO \**ci?ki* 'fear, fright', MTOT *ci''ga*
  - ZOR, ZOCOP *yača?kuy* 'evil, perversity' (← *yac-yak-* < 'to cause or do ill'), cf. also ZOCOP *č'akhayu* 's/he harmed'
- ☞ Unusual absence of word-final truncation in MA **acháke** suggests late borrowing, but we expect prenasalization if this is a direct borrowing from Ch'olan. Nevertheless a MZ source is also possible.
- b. \***wéka** 'horn'
- PMA \**ʔu:k'a:ʔ* > JAK QAN KCH *uk'a?*, MAM *uuk'a* [JS]
  - ZOCHMG *weka?* (!)
- c. \***cilt** 'urinate'
- PMAOR \**ču:l* 'urinate' (diffused) > TOJ CHUJ KAQCHIKEL *chul* [FB, JS]
  - TTNS ⟨⟨*tzulut, tzuluy*⟩⟩ 'urine; urinate, TTNP ⟨⟨*tzulú, tzúlut*⟩⟩
  - CHO - *'tsala?* 'urine', CHO - *'tsulu?* 'saliva, sputum'
- d. \***tisími** 'shrimp'
- CHO ⟨⟨*dixmu*⟩⟩ 'sea shrimp'
  - PMAOR \**čo?om* 'shrimp'
  - PMXO \**ki:ʔšm* 'sea shrimp' [JS]
  - YUC *xex*, PCHOL \**šeš*
  - MTAP ⟨*xuxú*⟩, CHOL *xux*
- e. \***pahtema** < ? pre-PH \*\***pahti-tima** 'calabash tree' > MO **napajteam**, F **napatiam**
- PMA \**pa:t* 'back, bark' > CHOL ⟨*pat-tié, patié*⟩ *pat te* 'bark'
  - PMX \**cima* 'gourd bowl' > PMA \**cima(?)* 'gourd bowl' > HUAS *tima?*, TZO TZEL QAN ACA JAK *tzima*

- f. \*ngosi ‘partridge’ > MO MA F **ngox** ‘quail’, MA D MO [[ngois]] ‘partridge’, D ⟨**ṅguoš**⟩ ‘tail’
- YUC †⟨*cox*⟩ ‘another type of pheasant’, CHRT ⟨*ah kox*⟩ ‘large-plumed and brightly-colored bird’, ITZÁ (HF) CHOL †*kox* ‘crested guan (bird)’; CHOL †*chan-wox* ‘spotted wood quail’; LAC *kutz* ‘wild turkey’
  - NAH ⟨⟨*coxolitle*⟩⟩ ‘pheasant’
  - MTOT *kušə''hk* ‘bobwhite, quail’, ZOCOP *kuʔši-hon* ‘quail’ [JS]
- g. \*yo(h)ko ‘joint (of the body)’
- PMZ \**yoʔk(-tu)* ‘neck’
  - PMA \**ʔo:q* ‘foot’
  - CHO - ‘*ahok*’ ‘neck’
- h. \*lopo/\*lipi ‘to wet’
- CHIC ⟨[*lop*⟩⟩ ‘wet’; HUAS ⟨[*lup-el*⟩⟩ ‘sink’ vi.
  - ☞ poss. ZPAT *luʔppaʔ* ‘moist’, ZPIST *naʔ-guʔpa* ‘moist (from night air)’
- i. \*tipi takı ‘fodder, sedge; soaproot’ > MA **tyup taik**, MO **tiptüik**; D **tyup tük** ‘jointed flatsedge’
- PMACTR \**tʔup-aq* ‘soaproot’ > SAKAPULTEK *ch'ip-aq*; TZEL *ch'up-ak(ʔ)* ‘soap’, TOJ *ch'up-ak*, KCH *ch'ip-aq*
  - PMZ \**ciʔV* ‘edible green’ > MOLU *ciʔpi*, ZOCOP *ciʔi*, MTOT *ci''p*
- j. \*pohpo ‘palm basket’ (cf. also MO **nepoob** ‘weak’)
- \*pohpo sili ‘beach hibiscus’ > MO **poob xiül**
- \*pahpa, \*pohpo ‘stalk, beam, stake’ (\*niti ‘palm’) > F **puj ñity** ‘palm stalk’, MA **paj ñit**, MO **paab nit**
- PMA \**pohp* ‘(rush) mat’ > CHRT ⟨*pohp*⟩ ‘sedge (tule), mat woven from sedge bark’, CHRT *poj* ‘mat’; cf. also ZOCHMG *pahpa* ‘basket for beans’
  - PZO \**poʔwah* ‘beach hibiscus’ > ZOCHMG *woppoʔ kuy*, ZOCOP *poʔah*
- k. \*yese ‘avocado’ > MA **yex**, MO **yax**
- ZPIST *yaʔsuʔ* ‘avocado’
  - PCHOL \**yäš* ‘dark blue’ > CHLT ⟨*yax*⟩ ‘dark blue, green, green fruit’, CHRT ⟨*yax*⟩ ‘green, light, fresh’
- l. \*pici ‘cottonseed’ > MO **pich**; MA MO **mipich sow** ‘white specks in pork that indicate trichinosis’
- YUC *piits* ‘cotton’
  - PMZ \**pistin* ‘ceiba’ > MTOT *pištın* ‘cotton’, MSAY *pištın*
  - ZPIST *biʔjuʔ* ‘cottonseed’
- m. \*peca ‘tortilla’
- PMAOCC \**paʔtʔ* ‘tortilla’ > PCHOL \**pac* ‘bean tamale’ > CHOL TZEL *patz*’; CHLT ⟨*pech*⟩ ‘press with the hands to make tortillas’, CHOL *pechan* ‘make tortillas’ (BS)
  - PMZ \**pici* ‘leached cornmeal, nixtamal’
  - ☞ cf. proto-Uto-Aztec \**paʔtz-i/a* ‘corn cob, grain of corn, seed’, poss. > TTN *paʔsma* ‘corn cob’ (Hill 2006)
- n. \*caka ‘thigh’ > MO MA **tsak**; F D **tsak** ‘leg’
- LAC ⟨[*ʔu-čak-bäk-e:r*⟩⟩ ‘his/her leg, thigh’, YUC †⟨[*čak bak, čak-bak-el*⟩⟩ ‘thigh’ (Ticul, Motul)
  - cf. TTNP ⟨⟨*ch'a:ke:-n*⟩⟩ ‘thigh’, TTNX ⟨⟨*chēkē-n*⟩⟩

- o. \***parah(w)a** ‘type of cactus’ > F **paraf** ‘cactus other than pitahaya with a red fruit’, MA **parawf** ‘type of tall pitahaya’; MO **paraj** ‘organ cactus’
- MTOT *pará* ‘guinea grass, *Megathyrsus maximus*’ (< ?) [JS]
  - PMA \**pehtaq* ‘nopal (cactus)’
- p. \***tícti** ‘to push’ > F MA **atyuch**; MO **atech** ‘to push, to pole (boat)’, D {**atyuöč**} ‘pole a boat’
- PZO \**toc* ‘raise with lever’ > ZOFL *toc-teʔn*, ZOTEX *toc* ‘pick fruit from a tree using a pole’
  - ITZÁ *tutz’-ik* ‘to push’ [JS], YUC *túutúulch’in*
  - CHOL †*tutz’* ‘spoon, stick for extracting food’, CHOL {*[tots-el]*} ‘to raise’, *tech* ‘raise (bed, stone, log)’, *tejchel* ‘be raised (heavy object)’
- q. \***mingt** ‘fish tortilla’ > MO **meng, meink**
- PMAOR \**mu:qu:n* ‘thin tortilla’ > MAM *muuqin, muuqan*
  - PMX \**miʔk-i* ‘tamale’ > MOLU *miʔki*, MSAY *miʔk*
  - MTAP {*bong, pon*} ‘tortilla’, poss. < PZO \**puʔŋ* < PMZ \**puʔw* ‘to break’, cf. ZOCOP *puʔŋ* ‘hit, crush (e.g. grain)’
- r. \***pímpi** ‘gourd’ > MA **pumb, pump, pumpo** ‘gourd, old-fashioned pitcher; calf (of leg)’, MO **pemb** ‘calabash’, F {**[pum]**} ‘gourd, squash’
- COPOYA ZOQUE *pumpo* ‘gourd’ (< unkn.); MTAP {*púmpu*} ‘tecomate’
  - TOJ {*[pumpo bajab, pumpuwahap]*} ‘drum’, cf. TOJ *wajab* ‘drum’
  - CHIAPAS SPANISH *pumpo* ‘gourd’ (RN)
- s. \***ndopo** ‘gourd cup’ > MO **ndop**, D {**[mindop -wiš]**} ‘palm of the hand’
- CHT *dup ~ tup* ‘gourd cup’, CHUJ {*[lum t’ob]*} ‘type of small clay plate’
  - CHO *duba* ‘handleless palm leaf basket’
  - PZP \*(*n*)*toʔopa* ‘basket’ [SZ]

## 8. Conclusion

The Huave community is frequently alleged to have migrated in the early post-Classic period (c. 1100 CE) to their present location from some southern location such as Nicaragua or even Peru. As Hernández Díaz & Lizama Quijana (1996) show, however, these largely groundless conjectures by earlier scholars entered into the popular consciousness of the Huaves and then were reinforced after being repeated to ethnographers. For this reason an empirical basis for the pre-conquest history of the Huaves must now rely only on archeological and linguistic data.

The contribution of the data from interlanguage contact to this debate remains somewhat open. Nevertheless the sheer quantity of borrowings, possibly approaching a quarter of the Huave vocabulary, speaks to an intensity of interaction between the Huaves and speakers of Mayan and Mixe-Zoquean languages in particular.

It is also certainly significant that most loan words from Mayan come from Ch’olan sources; that many closely resemble more archaic representatives

(geographically remote Ch'orti' and extinct Ch'olti') supports the hypothesis that these languages were a *lingua franca* of the Mayan elite during the period of greatest contact with Huave speakers. Nevertheless, loans from Yucatecan and from other Mayan sources (Huastecan and diffused Eastern Mayan) are also represented. Two layers of borrowings from Mayan were identified, based on the manner in which ejectives and implosives are adapted in proto-Huave; this may indicate a long period of interaction or various indirect routes of diffusion to the Huave zone.

Loans from MZ sources are nearly as numerous as from Mayan sources; they include not only vocabulary diffused early on from PMZ, but also direct loans from every subpart of the family. Specific kinship term loans from MZ sources are best explained by an early period of frequent intermarriage between the two communities. Borrowings from the Veracruz Mixe languages, such as Oluta Popoluca – known for its exceptional archaism with respect to PMZ – are particularly striking and numerous. More research will be required to determine if the Huaves were once in close contact with the ancestors of Oluta speakers or if in fact these borrowings took place as early as the proto-Mixe-Zoque epoch. Either scenario, however, would require a significant revision of the received view of the sociolinguistic circumstances of the Isthmus in the Classic and Pre-classic periods.

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## Appendix

### A. Interpretation of practical Huave orthography

Each dialect of Huave has its own practical orthography. The following equivalences are true for all four systems unless indicated otherwise: **x** /s/ [š]; **ch** /tʃ/ [č]; **j** /h/ [h ~ x]; **ts** [tʃ]; **mb** [m̄b]; **nd** [n̄d]; **nts** [n̄tʃ]; F MA MO **nch** nts' [ n̄tʃ ]; D **ndx** /nts' [ n̄dʒ ]; **ng** [ŋg]; **kw** /kʷ/; **ngw** [ŋgʷ]; **ü** /i/; F MA D **ñ** /n'/ [nʲ ~ ɲ]; **f** [ɸ]; D **yu** [y]; D **yue** /üe/ [ɸe]; MA **uo** [uɔ]; D **uo** [uɔ]; D MA **ie** [ie ~ iə]; MO **iü** [i̥]; MO **iow** [iɔw]; F **iu** [iu]; F **io** [io]; F **ia** [ia]; F MA **ai** [ai]; **rr** [r]; F MA D **r** [r]; MO **r** [r] or [r] between vowels where it is always [r]; D MA F **y** (following a consonant) represents secondary palatalization; MO **eo**, **io** ['o]; MO **ea**, **ia** ['a]; MO **oe**, **oi** [o] before palatalized coda; MO **ae**, **ai** = [a] before palatalized coda.

### B. Language abbreviations and default data sources

#### 1. Huave

Unless otherwise specified, historical data are from Peñafiel (1886).

F	San Francisco del Mar	Yuni Kim, field notes
D	San Dionisio del Mar	Mikko Salminen, field notes
MA	Santa María del Mar	Rolf Noyer, field notes historical: Belmar (1901)
MO	San Mateo del Mar	Stairs & Stairs (1981)

#### 2. Proto-languages

Unless otherwise specified, Mayan reconstructions are from Kaufman & Justeson (2003) except proto-Cholan, which is taken from Stross (2007), citing Kaufman & Norman (1985). Mixe-Zoque reconstructions are from Wichmann (1995) and Zapotec reconstructions are from Fernández de Miranda (1995), except those indicated [SZ], which are from Suárez (1973).

PMA	Proto-Mayan
PMABAJ	Greater Lowland Mayan
PMACTR	Proto-Central Mayan
PMAOCC	Proto-Western Mayan
PMAOR	Proto-Eastern Mayan
PYUC	Proto-Yucatecan
PCHOL	Proto-Ch'olan
PMZ	Proto-Mixe-Zoque
PMX	Proto-Mixe
PMXO	Proto-Oaxaca Mixe
PZO	Proto-Zoque
PZOG	Proto-Gulf Zoque
PZP	Proto-Zapotec

#### 3. Mayan languages

Unless otherwise specified, contemporary data is from Kaufman & Justeson (2003) and historical data is from Dienhart (1997):

HUAS	Huastec
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CHIC	Chicomuceltec	
YUC	Yucatec Mayan	contemporary: Gómez Navarrete (2009)
LAC	Lacandon	
MOP	Mopan	
CHT	Chontal de Tabasco	
CHOL	Ch'ol	contemporary: Aulie & Aulie (1978) historical: Hopkins, Josserand & Cruz Guzmán (2011)
CHRT	Ch'orti'	contemporary: Hull (2005) historical: Wisdom (1950)
CHLT	Ch'olti'	Stross (2007)
TZEL	Tzeltal	
TZO	Tzotzil	Delgaty & Ruíz Sánchez (1978)
TOJ	Tojolab'al	
QAN	Q'anjob'al	
JAK	Jakaltek (Popti')	
KCH	K'iche'	

#### 4. Mixe-Zoque languages

Unless otherwise specified, data is from Wichmann (1995):

##### i. Mixe

MTOT	Totontepec	Schoenhals & Schoenhals (1965)
MTLC	Tlahuitoltepec	
MSJP	San José El Paraíso	
MOLU	Oluta Popoluca	Zavala Maldonado (2000; n.d.)
MSAY	Sayula Popoluca	Clark (1995)
MTAP	Tapachultec	Sapper (1929)

##### ii. Zoque

ZOTEX	Texistepec	
ZOCOP	Copainalá	Harrison, Harrison & García H. (1981)
ZOFL	Francisco León	Engel & Engel (1987)
ZOR	Rayón	Harrison & Harrison (1984)
ZOCHMG	San Miguel Chimapala	Johnson (2000)

#### 5. Zapotecan languages

Unless otherwise specified, data is from Fernández de Miranda (1995):

ZPZGO	Zoogocho	Long & Cruz M. (2000)
ZPAT	Atepec Serrano	
ZPIST	Isthmus (Juchitán)	Pickett (2007)

#### 6. Other languages

CHO	Highland Chontal	Turner & Turner (1971)
TTNS	Sierra Totonac	Aschmann (1962)
TTNX	Xicotepec Totonac	Reid & Bishop (1974)
TTNP	Papantla Totonac	Aschmann (1973)
TTNN	Upper Necaxa Totonac	Beck (2011)
NAH	Classical Nahuatl	Wood & Sullivan (n.d.)