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Hokan II: Labial and coronal obstruents[1]

The article continues the series of publications focused on the reassessment of the controversial Hokan hypothesis. In this paper, the traditional comparative method is applied to sound correspondences involving labial and coronal obstruents. The obtained results are compared to Terrence Kaufman's (1989) reconstruction of Proto-Hokan.

Keywords: comparative method; Hokan languages; Native American languages; historical phonology.

0. Introduction

The first paper in this series (Zhivlov 2024) surveyed comparative Hokan studies from Dixon & Kroeber up to the present. The conclusion was that the traditional comparative method has almost never been applied to Hokan, the work of Terrence Kaufman (1989) being the main exception. Now that a good deal of new data on Hokan languages has become available as a result of both fieldwork and archival research, it's time to revise the arguments for Hokan in the light of new data. While the Hokan hypothesis is widely (and correctly) viewed as "unproven" (i.e., not substantiated by the application of the standard comparative method), this does not mean that the investigation should be abandoned (Campbell 2024: 354).

My interest in Hokan began more than ten years ago, when I read Kaufman (1989). Since this work gives Proto-Hokan reconstructions, but does not cite data from daughter languages[2], the first task was to compile a database where each of Kaufman's protoforms is accompanied by reflexes. In most cases, this was not hard to do, since Kaufman took his etymologies from other publications on Hokan cross-branch comparisons. The next step was more time-consuming. I had to check all reflexes against primary sources — dictionaries and grammars of Hokan languages. As a result, some of Kaufman's comparisons had to be discarded (Zhivlov 2024: 176–177). This further led to a revision of Kaufman's correspondences and reconstructions. Eventually, I came to a view of Proto-Hokan significantly different from that of Kaufman — with fewer daughter languages, fewer etymologies and a more compact phonological system.

The aim of this paper is not to "prove" that Hokan languages are related. Leaving aside the ill suitability of the word "proof" for historical sciences, the eventual consensus on a once controversial hypothesis can only result from a cumulative work of several scholars. But such a work will only be possible if someone starts to apply the comparative method to an as yet

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[2] Kaufman's Hokan slip files are now available online at The Archive of the Indigenous Languages of Latin America (https://ailla.utexas.org/collections/1663/).

"unproven" family. Thus, my aim in the present work is to improve on Kaufman's reconstruction of Proto-Hokan.

Kaufman's Hokan includes the following languages and families: Pomoan, Chimariko, Yana, Karuk, Shastan, Achumawi-Atsugewi, Washo, Esselen, Salinan, Yuman, Cochimí, Seri, Coahuilteco, Comecrudoan, Chontal, Tol. This is nearly identical to Sapir's Hokan-Coahuiltecan, except that Kaufman's version of Hokan includes Tol and does not include Chumashan, Tonkawa, Karankawa and Tlapanec-Subtiaba (the latter is now known to be a branch of Otomanguean).

I agree with Kaufman that Chumashan, Tonkawa and Karankawa should be excluded from Hokan, since I do not find recurrent correspondences or even a sufficient number of lexical resemblances in basic vocabulary between Hokan and these languages. *Pace* Kaufman, I also exclude Coahuilteco for the same reason.

The main difference with Kaufman and all previous Hokanists starting from Dixon & Kroeber is that I do not accept the Hokan affiliation of Washo. The reason for this is the fact that lexical parallels between Washo and Hokan found in the literature are mostly resemblances between Washo and just one of the branches of Hokan, most often Karuk (see Jacobsen 1958 for some of the relevant lexical parallels). The most widely distributed and stable Hokan lexical items, such as *a-k^{h}á 'water', *a/i-pál̇ 'tongue', *a-x^{w}át 'blood', *a-mát 'earth' and others do not have counterparts in Washo[3]. In my view, resemblances between Washo and Hokan languages are due either to chance or to borrowing.

The situation with Tol (Jicaque) is different. There are few lexical parallels between Tol and Hokan, but most of these are resemblances with reconstructible Proto-Hokan items rather than with isolated forms in individual Hokan languages: PH *k^{wh}ú· 'negative' ~ Tol *k^{h}uwá* 'not to have; there is not', *a/i-pál̇ 'tongue' ~ Tol *m-pelam* 'my tongue', PH *a/i-wá 'house' ~ Tol *wa* 'house', PH *a-mát 'earth' ~ Tol *ʔamá* 'earth', etc. Still, these comparisons are not numerous. Thus, Tol is either a distant relative of Hokan, a genuine Hokan language which suffered a massive lexical replacement, or a language which borrowed some of its basic lexical items from Hokan. In any case, it seems reasonable to exclude it from the first attempt to formulate sound correspondences.

Some poorly attested languages and families claimed to be Hokan are Cochimian (Mixco 1978), Comecrudoan (Sapir 1920), Cotoname (Sapir 1920), Esselen (Webb 1980, Shaul 2019), Quinigua (Gursky 1964), Waikuri (Gursky 1966) and Yurumanguí (Rivet 1942). I see no compelling evidence that Quinigua, Waikuri or Yurumanguí are Hokan. On the contrary, I do think that Hokan affiliation of Esselen, Cochimian (apparently specifically related to Yuman), Comecrudoan and perhaps Cotoname is possible, but they are too poorly documented to include them in the comparison at this stage.

Thus, the languages and families compared in this paper are the following: Chimariko, Karuk, Shastan, Achumawi, Atsugewi, Yana, Pomoan, Salinan, Yuman, Seri and Oaxaca Chontal.

With regard to the selection of lexical comparisons, all major attempts to reconstruct Proto-Hokan or to compile a list of Hokan etymologies (Gursky, Leshchiner & Nikolaev, Kaufman) have followed the "maximalist" strategy and included every comparison which could potentially reflect a Proto-Hokan form. As is well known, borrowing and onomatopoeia tend to muddy the waters in long-range comparisons. In order to minimize their effects, I have systematically excluded certain types of comparisons from this paper.

First, I do not include comparisons limited to Yuman and Seri, since these can be either areal loans or words going back to some protolanguage later than Proto-Hokan. The same can

[3] PH *a-k^{h}á 'water' is traditionally compared to Washo *á:ša?* 'urine', but the meaning is different and the regularity of the correspondence *k^{h} ~ *š* is in doubt.

be said about comparisons limited to Shastan, Achumawi and Atsugewi — these languages are both in contact and potentially form a branch of Hokan. Additionally, I exclude comparisons 1) limited to Shastan and Karuk, since many such comparisons, collected in Silver (1964), seem to be areal loanwords[4], and 2) comparisons limited to Achumawi, Atsugewi and Yana, see Jacobsen (1976: 226) on borrowings from Achumawi and Atsugewi into Yana. There is no doubt that there are other patterns or borrowings (see, e.g., Meroz 2013), but those listed here are the most prominent.

Second, I exclude comparisons with certain types of non-basic semantics, primarily bird names. While the questions of contact between Native languages of California have been insufficiently researched as of yet, it is known that bird names are both largely onomatopoeic and frequently subject to borrowing (Golla 2011; Meroz 2013). Victor Golla says: "The names of game animals were rarely if ever borrowed in precontact California. The names of animals important in myth, such as the coyote, bear, and eagle, were sometimes borrowed, but primarily in the context of the intergroup ceremonial religions of the late precontact period… Bird names, by contrast, were relatively widely diffused in precontact California. Some of these were the names of birds of economic or religious significance, but the key factor in diffusion seems to have been the practice of naming birds with an onomatopoeic interpretation of their cry" (Golla 2011: 228). It seems that excluding bird names from the comparison at this stage would be a net positive because most of them are either onomatopoeic, or diffused, or both. Bird names occupy a significant portion of previous attempts at Hokan comparison. Thus, Gursky (1974) lists 35 bird names, Kaufman (1989: 149–150) lists 36 bird names, while Leshchiner & Nikolaev (1992: 394–396) reconstruct 27 bird names. There are other lexical categories that are best excluded from the initial stage of comparison: words for bow and arrow, words for dog, etc. (Golla 2011: 227–229), but these are not as numerous as bird names.

Apart from these broad categories, I have excluded a number of potentially valid comparisons for various reasons, including problems with semantics, distribution, or seemingly irregular sound correspondences. Thus, the present paper is in no way a full compilation of Hokan comparisons containing labial and coronal obstruent phonemes.

An anonymous reviewer raises one more issue — the length of proposed cognates. Many Hokan etymologies involve comparisons of short roots of the shape CV. I have not excluded such roots from the comparison for the following reason. Short roots are probably an inherited feature, retained by some daughter branches from Proto-Hokan. Margaret Langdon (1997: 33) notes that Oaxaca Chontal has "very short verb roots, maybe CV(C)". Typical Proto-Yuman root is monosyllabic and has the shape *(C)V(C) (Langdon 1990: 59). For Proto-Pomoan, McLendon (1973: 55) states that most stems contain roots with the probable shape *CV́ (·). Judging from the list of Northern Yana verb stems in Sapir (1922: 217–224), typical Yana verb root has the shape CV, less commonly CVC. Internal reconstruction leads Mary Haas (1980: 69) to postulate for pre-Karuk verbal roots of the shape CVC (less often CV). Excluding short roots from comparison is tantamount to excluding the most basic part of the lexicon of the languages being compared.

This paper is organized as follows. In Part 1, I survey the phonological systems of Hokan languages and branch-level protolanguages. In Part 2, I analyze sound correspondences pertaining to the reconstruction of Proto-Hokan labial and coronal obstruents and systematically compare my reconstructions with Kaufman's.

[4] Some of them are found also in neighboring unrelated Yurok: Shasta *ʔú·r* 'chokeberry' (Silver 1964: 172), Karuk *pu·n* 'cherry; originally the wild cherry; western choke-cherry *Prunus demissa*', Yurok *pu·n* 'cherry' (Garrett 2024); Shasta *pú·ʔas* 'sack' (Silver 1964: 175), Karuk *pû·viš* 'sack, bag', Yurok *pu·wiš* 'sack, bag, pocket' (Garrett 2024). Others demonstrate sound correspondences not found in items with a wider Hokan distribution: Shasta *xan·ár* 'leaf' (Silver 1964: 173), Karuk *sá·n* 'leaf' (the correspondence Shasta *x* ~ Karuk *s* is unique).

1. A survey of Hokan phonological systems

1.1. Chimariko

Chimariko has the following phonological system (Tables 1 and 2)[5].

p	t	ṭ	c	č	k	q	ʔ
p^h	t^h	$ṭ^h$	c^h	$č^h$	k^h	q^h	
ṗ	ṫ	ṭ̇	ċ	č̇	k̇	q̇	
			s	š	x	ẋ	h
m	n						
	r						
	l						
w				y			

Table 1. Chimariko consonants (Jany 2009: 16)

(1) It is unclear whether /l/ and /r/ are in contrast; the contrast between /x/ and /ẋ/ is also doubtful. (2) Single consonants between two vowels in a disyllabic word can be realized as geminated: /CVCV/ [CVCCV] (Berman 2001).

i		u
e		o
	a	

Table 2. Chimariko vowels (Jany 2009: 20)

(1) The existence of vowel length is under question. (2) The default source for Chimariko data are J. P. Harrington's fieldnotes (available online at https://sova.si.edu/record/naa.1976-95/contents). Harrington's fieldnotes are cited by volume, reel and frame, e.g., (2.20.0024) means Volume 2, Reel 20, Frame 0024.

1.2. Karuk

Karuk has the following phonological system (Tables 3 and 4).

p	t		č	k	ʔ
f	θ	s	š	x	h
m	n				
	r				
v			y		

Table 3. Karuk consonants (Garrett et al. 2024: 1173)

(1) Karuk /s/ is realized as [s̩]. (2) Karuk /θ/ goes back to /s̩/ as attested in early sources (Conathan 2006: 225–227). (3) Karuk /š/ goes back to /s/ after /y/ and front vowels (even if another

[5] Americanist transcription (Goddard 1996: 10–16) is used throughout this paper.

consonant intervenes between the vowel and the sibilant); it was phonemicized due to loans. (4) Karuk has diminutive sound symbolism: in diminutives /θ/ shifts to /č/, /r/ to /n/ and /v/ to /m/.

i, i·		u, u·
e·		o·
	a, a·	

Table 4. Karuk vowels (Garrett et al. 2024: 1173)

(1) As has been shown by Haas (1980), mid vowels, which are always long, result from contraction: "The vowels *i i·* contract with *a a·* through *v*, *y* to give *e·*, and *u u·* contract with *a a·* through *v*, *y* to give *o·*" (Haas 1980: 68). (2) Karuk has a system of pitch accent. (3) The default source for Karuk data is Bright & Gehr (n.d.).

1.3. Shasta

Shasta has the following phonological system (Tables 5 and 6).

p	t	c	č	k	ʔ
ṗ	ṫ	ċ	čˇ	ḳ	
		s		x	h
m	n				
	r				
w			y		

Table 5. Shasta consonants (Silver 1966: 22)

Shasta has phonemic consonant length.

i, i·		u, u·
e, e·		
	a, a·	

Table 6. Shasta vowels (Silver 1966: 22)

(1) Silver uses the morphophonological symbol |ɨ| to symbolize an alternation between word-final /a/ and word-internal /i/ (Silver 1966: 76–78). (2) Shasta has a tonal system with high and low tones. (3) The default source for Shasta data is Silver (1964) and other works by the same author. An additional source is Bright & Olmsted (1959), but only data recorded by Bright are used here, since Olmsted's transcription is highly unreliable. (4) Due to the scantiness and poor quality of data on other Shastan languages (Okwanuchu, New River Shasta and Konomihu), a full-scale reconstruction of Proto-Shastan is hardly possible. However, data on these languages demonstrate that Shasta proper underwent at least two significant phonological innovations: intervocalic debuccalization of Proto-Shastan *p and the disappearance of Proto-Shastan intervocalic *w, which corresponds to /m/ in other Hokan languages (Haas 1963).

1.4. Achumawi

Achumawi has the following phonological system (Tables 7 and 8).

p	t	c		k	q	ʔ	
pʰ	tʰ	cʰ		kʰ	qʰ		
ṗ	ṫ	ċ		ḳ	q̇		
		s				h	ḥ
m	n						
ṁ	ṅ						
	l						
	l̇						
w			y				
ẇ			ẏ				

Table 7. Achumawi consonants (Nevin 1998: 84)

(1) The contrast of plain and aspirated stops is neutralized syllable-finally and before a consonant as phonetically aspirated stops (Nevin 1998: 85, 97), which are nevertheless written as plain stops in Nevin (2020). (2) The consonants /ṗ ṫ ċ ḳ q̇/ are not ejectives but laryngealized obstruents (Nevin 1998: 84–85). (3) The symbol /ḥ/ (= /ħ/ in Nevin's transcription) denotes an epiglottal fricative.

i, i·		u, u·
e, e·		o, o·
	a, a·	

Table 8. Achumawi vowels (Nevin 1998: 93)

(1) Achumawi has a tonal system with high and low tones. (2) The default source for Achumawi data is Nevin (2020). Olmsted's (1966) dictionary of Achumawi is problematic in many respects, ranging from unreliable transcription to the inclusion of Eastern Pomo data (Gursky 1987; Nevin 1998).

1.5. Atsugewi

Atsugewi has the following phonological system (Tables 9 and 10).

p	t	c		k	q	ʔ
pʰ	tʰ	cʰ		kʰ	qʰ	
ṗ	ṫ	ċ		ḳ	q̇	
		s				h
		ṡ				
m	n					
ṁ	ṅ					
	r					
	ṙ					
	l					
	l̇					
w			y			
ẇ			ẏ			

Table 9. Atsugewi consonants (Good 2004: 2)

The morphophonological symbol |ĥ| "corresponds to an *h* which does *not* lower an adjacent high vowel to a mid vowel" (Good 2004: 2).

i, i·		u, u·
(e, e·)		(o, o·)
	a, a·	

Table 10. Atsugewi vowels (Good 2004: 1)

(1) Vowels /e/ and /o/ are marginally phonemic. (2) The default source for Atsugewi data are L. Talmy's fieldnotes (Talmy n.d., a; Talmy n.d., b). Atsugewi data in Olmsted's (1984) dictionary are phonologically unreliable.

1.6. Yana

Yana has the following phonological system (Tables 11 and 12).

p	t	c		k	ʔ
p^h	t^h	c^h		k^h	
ṗ	ṫ	ċ		ḳ	
		s		x	h
m	n				
	r				
	l				
w			y		

Table 11. Yana consonants (Sapir & Swadesh 1960: 3)

(1) Following Jacobsen (1976), Hinton (1988: 7) postulates also the existence of glottalized sonorants /ṁ ṅ l̇ ẇ ẏ/. These correspond to clusters of glottal stop and sonorant in Sapir & Swadesh's treatment of Yana phonology: /ṁ/ = /ʔm/, /ṅ/ = /ʔn/, /l̇/ = /ʔl/, /w/ = /ʔw/, /ẏ/ = /ʔy/. In the present paper I follow Sapir & Swadesh's analysis. (2) Diminutive consonant symbolism changes /l/ to /n/. (3) Yana has relics of a now non-productive change /p/ > /w/, /t/ > /r/ in intervocalic position. (4) Syllable-final /m/ and /n/ are replaced by /p/ and /t/ in Northern Yana (for further details see Sapir & Swadesh 1960, Jacobsen 1976).

i, i·		u, u·
e, e·		o, o·
	a, a·	

Table 12. Yana vowels (Sapir & Swadesh 1960: 3)

(1) Yana has a system of verbal ablaut with the following changes: /i/, /i·/ > /e·/; /u/, /u·/ > /o·/; /a/, /a·/ > /o·/. The changed vowels are used in transitive verb stems. The unchanged vowels are used in primary intransitives, passives and imperatives (Sapir & Swadesh 1960: 7–8). (2) The default source for Yana forms is Sapir & Swadesh (1960).

1.7. Pomoan

Proto-Pomoan is reconstructed with the following phonological system (Tables 13 and 14).

b		d					
	t	ṭ	(c)		k	q	ʔ
p^h	t^h	$ṭ^h$			k^h	q^h	
(ṗ)	ṫ	ṭ̇	ċ		ḳ	q̇	
			s		x		h
m		n		$-n^y$			
		l		$-l^y$			
w				y			

Table 13. Proto-Pomoan consonants (McLendon 1973: 52)

(1) The consonants $*n^y$ and $*l^y$ are reconstructed only for word-final position; they account for specific correspondences involving /n/, /l/ and vowel length. (2) McLendon also reconstructs *x̣, but Buckley (2024: 1229), following Moshinsky (1976: 64–65), suggests that correspondences for *x̣ and *h are in complementary distribution.

i, i·		u, u·
e, e·		o, o·
	a, a·	

Table 14. Proto-Pomoan vowels (McLendon 1973: 52)

(1) Stress is phonemic; in verbs it always falls on the root. (2) Proto-Pomoan reconstructions and data of daughter Pomoan languages are given here according to McLendon (1973). When McLendon (1973) does not have an etymon under discussion, I cite Pomoan data from other sources, including Oswalt (1972), but the reconstructions follow McLendon's system.

1.8. Salinan

Salinan has the following phonological system (Tables 15 and 16).

p	t	ṭ	c	č	k	ʔ
ṗ	ṫ	ṭ̇	ċ	č̣	ḳ	
(b)	(d)				(g)	
			s	š	x	h
m	n					
ṁ	ṅ					
	(r)					
	l					
	l̇					
w				y		
ẇ				ẏ		

Table 15. Salinan consonants (Turner 1987: 39)

(1) The consonants /b/, /d/, /g/ and /r/ are found in Spanish loanwords. (2) Migueleño Salinan /ṗ/ regularly corresponds to /ʔ/ in Antoniano Salinan. (3) One more nontrivial sound correspondence is Migueleño /n/ ~ Antoniano zero. This correspondence cannot be united with the trivial correspondence Miguleño /n/ ~ Antoniano /n/, as there is no complementary distribution between them. I propose to reconstruct Proto-Salinan *ŋ for the former and *n for the latter correspondence.

i·		u·
e, e·		o, o·
	a, a·	

Table 16. Salinan vowels (Turner 1987: 39)

(1) According to Turner (1987: 64), "[h]istorically, Antoniaño Salinan had three phonemic vowels, short and long". The contrast between high and mid vowels is thus secondary (cf. a different opinion by Shaul 2020b: 19–21). (2) Salinan has a phonemic stress. (3) The default source for Salinan data are J. P. Harrington's fieldnotes (available online at https://sova.si.edu/record/naa.1976-95/contents). Harrington's fieldnotes are cited by volume, reel and frame, e.g., (2.85.0726) means Volume 2, Reel 85, Frame 0726. Salinan data from Shaul's (2020a) dictionary are mostly phonologically unreliable.

1.9. Yuman

Proto-Yuman is reconstructed with the following phonological system (Tables 17 and 18).

p	t		č	k^y	k	k^w	q	q^w	ʔ
	s	ṣ			x	x^w			
m	n		n^y						
	r								
	l		l^y						
w			y						

Table 17. Proto-Yuman consonants (Miller 2018: 388)

Proto-Yuman had a system of consonant symbolism where underlying /l^y/ was replaced by /n/ in diminutives and by /r/ in augmentatives. The uvular stop /q/ was also used as an augmentative correlate of the velar stops /k/ and /k^y/.

i, i·		u, u·
	a, a·	

Table 18. Proto-Yuman vowels (Miller 2018: 389)

(1) Stress always falls on the root. (2) The Proto-Yuman forms are given according to Langdon & Munro's (1980) reconstruction, updated by Miller (2018). (3) The default sources of Yuman data are: Mixco (1985) for Kiliwa, Crawford (1989) for Cocopa, Miller & Langdon (2008) for Jamul Tiipay (data from speakers Adolph Thing and Jane Thing Dumas) and Barona 'Iipay, Couro & Hutcheson (1973) for Mesa Grande 'Iipay, Munro et al. (1992) for Mojave, Salt River Pima-Maricopa Indian Community — O'Odham Piipaash Language Program (2000) for

Maricopa, Halpern (1946a, 1946b, 1946c, 1947a, 1947b, 1947c) for Quechan, Joel (1966) for Paipai, Watahomigie et al. (2003) for Hualapai, Hinton (1984) for Havasupai, and Shaterian (1983) for Yavapai.

1.10. Seri

Seri has the following phonological system (Tables 19 and 20).

p	t			k	k^w			ʔ
ɸ	s	ɬ	š	x	x^w	x̣	$x̣^w$	
m	n							
	(r)							
		(l)						
			y					

Table 19. Seri consonants (Marlett in print: 993)

(1) Labialized consonants /k^w/, /x^w/ and /$x̣^w$/ developed historically from sequences /ko/, /xo/ and /x̣o/, usually in the syllable after the stressed vowel (Marlett 2025). (2) The lateral approximant /l/ is very rare, and the tap /r/ occurs only in loanwords. (3) Seri wordlists from the 19th century have a labial phoneme /β/ transcribed as ‹v› or ‹b›, which in modern Seri gives zero between vowels, but /i/ syllable-finally.

i, i·		
		o, o·
ɛ, ɛ·		
	a, a·	

Table 20. Seri vowels (Marlett in print: 993)

(1) Stress is phonemic, but it is mostly limited to some syllable of the root. (2) The default source of Seri data is Moser & Marlett (2010). On sources for 19th century Seri, see Marlett (2010).

1.11. Oaxaca Chontal

Proto-Chontal is reconstructed with the following phonological system (Tables 21 and 22).

p	t	c			k	k^w	ʔ
f			ɬ	š	x	x^w	
f̓		ċ	ɬ̓		k̓	$k̓^w$	
m	n						
			l				
w				y			

Table 21. Proto-Chontal consonants

Syllable-finally, plain stops are prohibited, but both fricatives and glottalized obstruents do occur in that position.

i		u
e		o
	a	

Table 22. Proto-Chontal vowels

(1) Stress is phonemic in Highland Chontal. In this paper, it is marked only when it does not fall on the penultimate syllable. (2) The reconstruction of Proto-Chontal follows Waterhouse (1976, 1985) with few modifications. Note that Waterhouse (1985) contains significant changes with respect to the previous version of Proto-Chontal as reconstructed by the same author (1976). Following Kaufman (1989: 73), I reconstruct labiovelar stops as unitary phonemes, although their reflexes are traditionally described as clusters in daughter languages. Note that *x^{w} is reconstructed by Waterhouse as a unitary phoneme *W. (3) The default sources of Chontal data are: Turner & Turner (1971) for Highland Chontal, O'Connor (2013) for Lowland Chontal, and de Angulo & Freeland (1925) for Tequistlateco.

2. Obstruent correspondences

2.0. Introduction

I have chosen to present sound correspondences between obstruents in Hokan languages starting from reflexes in Proto-Pomoan. Pomoan seems to be the most conservative branch of Hokan in terms of both phonology and lexicon, which makes it useful as a starting point of our investigation into the phonological history of Hokan.

Ever since Sapir it has been known that "[a]n important feature of the Hokan group is the occurrence in certain languages of initial vowels which are absent in other languages or in other forms of the same language" (Sapir 1917: 28). Sapir continues: "The distribution in Hokan of forms with and without initial vowel is such as to strongly suggest that the alternation was characteristic of the primitive Hokan language from which the languages accessible to us have diverged. Whether this alternation was primarily a phonetic or morphological feature can hardly be demonstrated at present." (Sapir 1917: 32). The vowels in question are best preserved in Karuk, Shasta, Achumawi, Atsugewi and Proto-Pomoan; they are normally lost in Yana and Proto-Yuman. It seems that the clue to the function of at least a part of these vowels, namely those found in nominal stems, is provided by Seri and Proto-Chontal. These two languages allow us to reconstruct two nominal prefixes: *(ʔ)a- 'absolutive (i.e., non-possessed)' and *i- 'possessed' (Zhivlov 2018: 141–144). The reflexes of these prefixes retain their function also in Salinan (Zhivlov 2018: 142; Shaul 2020b: 49–50).

In cases where the presence of these prefixes can be suspected, I reconstruct them as separate morphemes preceding the root. E.g., the notation PH *a/i-pál̓ 'tongue' means that we deal here with the root *-pál̓ preceded by the prefixes *(ʔ)a- 'absolutive' and *i- 'possessed'. In cases where only some languages show the prefix(es) in question[6], they are put in brackets. E.g., the notation PH *(i-)láx^{w} 'head' means that the reflexes of the vowel *i- are present in some languages (Shasta and Proto-Pomoan) and absent from others (Achumawi and Atsugewi).

This leaves the question of initial vowels in verbal stems. Seri and Proto-Chontal, as well as Chimariko, have verbal stems beginning with both consonants and vowels. In many Hokan

[6] Note that their absence in Yana and Proto-Yuman is predictable.

comparisons the quality and the presence of the stem-initial "thematic" vowels varies between daughter languages. This suggests that here, too, we deal with separate morphemes preceding the canonical root shape *CV(C), e.g., PH *i-p^{h}ít 'to fart'. However, the function of these putative morphemes remains unclear[7]. If the thematic vowel is absent from some languages (save Yana and Proto-Yuman, where its absence is predictable), it is put into brackets, e.g., PH *(i-)p^{h}ú 'to be fat; to swell', where the reflexes of *i are seen in Chimariko and Shasta, but not in Proto-Chontal. Finally, where daughter languages differ as to the quality of the thematic vowel, the different qualities are separated by a slash, as in PH *i/a-k^{h}í· 'to drink', where *i is reflected by Karuk, Shasta and Salinan, and *a by Seri. Of course, this is a preliminary solution[8]. Hopefully, further research on daughter languages may shed light on the functions of verbal thematic vowels in Proto-Hokan.

Where different daughter languages point to different qualities of a non-initial vowel, this is presumed to reflect the operation of Proto-Hokan ablaut, see Kaufman (1989: 76, 103–105) on ablaut in Hokan. E.g., in PH *(i-)k^{h}á/íp 'to extinguish' Chimariko and Salinan reflect the vowel *a, while Karuk and Yuman reflect the vowel *i.

In Karuk the quality of the stem-initial vowel is frequently assimilated to the quality of the following vowel, which itself mostly disappears. E.g, in Karuk *árup* 'navel; navel cord' < PH *a/i-lapú 'navel', the vowel *u* results from an assimilation *a-u > *u-u with the following disappearance of the second vowel.

Proto-Hokan stress is reconstructed on the evidence of Proto-Pomoan, Proto-Yuman and Seri. In the cognate lexemes the place of stress is the same in Proto-Pomoan and Proto-Yuman, while Seri seems to regularly shift the stress one syllable to the left.

The matters of Proto-Hokan stem structure and ablaut, Karuk vowel assimilation, Proto-Hokan stress, as well as consonant length in Shasta and Achumawi and "laryngeal increments" in Pomoan will be treated in more detail in the next papers in this series.

Due to a relative scarcity of cognates in some daughter languages, especially Achumawi, Atsugewi and Salinan, some reflexes of proto-sounds in some languages are encountered only once, i.e., they are not recurrent. In tables of correspondences, such reflexes are given in italics: Ach *pḥ.*

Reflexes whose distribution is still unknown are separated by a tilde: Sha h ~ Ø.

Reflexes whose distribution is known are separated by a comma: Ser x̣, s.

Non-cognate material which cannot be segmented on a synchronic basis is given in square brackets: Kar *ápr[i·h]* 'tongue'.

Forms in a non-phonological transcription are given in angle brackets: Teq ‹mas, mats›.

Morphological segmentation of Yuman forms follows from purely Yuman-internal analysis. Some of the Proto-Yuman affixes involved are: *ʔ- 'dummy nominal prefix' (Langdon 1970: 127; Mixco 1985: 223), *i·- 'prefix in body-part terms' (Halpern 1946c: 208; Langdon 1970: 127; Miller 2001: 79), *m- 'prefix in body-part terms' (Crawford 1989: 116), *n- 'kinship terms prefix' (Miller 2001: 86), *n^{y}- 'alienable' (Miller 2001: 147).

2.1.0. Correspondences involving Proto-Pomoan labial stops

Proto-Pomoan had three labial stops: *p^{h}, *ṗ and *b (McLendon 1973: 20–21). The ejective labial stop *ṗ, however, is reconstructed only in one word: PPom *ṗaʔlá· 'slug'. Since this word has no external cognates, we are left with correspondences for two proto-Pomoan phonemes, *b and *p^{h}.

[7] But see Langdon (1997) for an attempt to determine the function of these vowels in Highland Chontal.

[8] It seems that Seri has /a/ as a root-initial vowel more often than other Hokan branches. Therefore, in this particular instance, Seri /a/ may be an innovation. The Proto-Hokan reconstruction then can be emended to *i-k^{h}í·.

2.1.1. Proto-Pomoan *b

The sound correspondence involving Proto-Pomoan *b is given in Table 23. This correspondence reflects Proto-Hokan plain labial stop *p. Shasta has /h/ or zero intervocalically, but /p/ next to consonants or when geminated. Yana has traces of a change /p/ > /w/ in intervocalic position. Salinan has *ṗ[9] word-finally[10] in nouns, alternating with word-internal /p/. This may be a relic of a nominal suffix *-ʔ. Such a suffix is synchronically found in Chontal languages, where it forms plurals from singulars and vice versa. Alternatively, one may think of a development *-pVʔ > *-pʔ > *-ṗ (Nichols 1982), where the glottal stop was originally automatically added after a word-final vowel.

Words where the same phoneme occurred root-finally are not preserved in Pomoan. Here, Yana has an added glottal stop, perhaps also a relic of a suffix.

PH	Chi	Kar	Sha	Ach	Ats	Yan	PPom	Sal	PYum	Ser	PCho
*(-)p-	p	p	h ~ Ø, p	p	p	p, w	*b	p, *ṗ	*p	p	*p
*-p	*p*	p				*pʔ*		*p*	*p		**f*

Table 23. Proto-Hokan *p.

(p-01) PH *(a-)pá ‘father’s father’

ACH *wa·-pu·-ẇí* ‘father’s father; man’s son’s child; father’s father’s sibling’

ATS *ʔapú-n* ‘paternal grandfather’ (Talmy n.d., b: 182)

PPOM *bá-·ċi ‘father’s father’ > Pk *ba-*, *ba·ṡ*, Ps *-baċ*, Pn *báʔ*, Pne *bá·ċ̌i*, Pse *-baċ*, Pe *bá·[l̇ile]* (PPOM *-·ċi ‘one’s own kinsman in generations above ego’)

PYUM *(n-)pa(·)-w ‘father’s father’ > Ki *-pa·w*[2] ‘be father’s father (and siblings)’, Co *k-nʸ-pa·*, *nʸ-paw* ‘father’s father’, JT *nə-pa·w* ‘grandfather on father’s side’, MGI *pa-nə-pa·w* ‘his father’s father’, Mo *na-paw* ‘father’s father, grandfather’, Ma *n-paw* ‘grandfather (paternal)’, Hu *na-póʔ, na-po·* ‘grandfather, father’s father’, Ha *n-po·ya* ‘grandfather (father’s side)’, Ya *n-pó·* ‘father’s father’ (PYUM *n- ‘kinship terms prefix’ in Miller 2001: 86)

SER *á-pa-š* ‘paternal grandfather; great-uncle (paternal grandfather’s brother); paternal grandfather’s sister’s husband’ (pl. *á-pa-łk* [sg. possessor], *á-pa-łkox* [pl. possessor], abs. *ʔapɛ́-pɛ-š*)

NOTES. (1) This kinship term may be a “nursery word” in origin, but already in Proto-Hokan it formed part of a mini-paradigm of terms for grandparents: PH *(a-)pá ‘father’s father’, PH *(a-)kʷá ‘mother’s father’, PH *(a-)má ‘father’s mother’, PH *(a-)ká ‘mother’s mother’. All four terms for grandparents are preserved in Pomoan, Yuman and Seri. (2) Atsugewi *-n*, Yuman *-w and Seri *-š* are suffixes found in other terms for grandparents. (3) The root vowel *u* in Achumawi and Atsugewi remains unexplained.

Dixon & Kroeber 1919: 106 || Sapir *apud* Dixon & Kroeber 1919: 108 || Olmsted 1956: 75 || Gursky 1968: 32 || Gursky 1974: 191 (#apu# ‘paternal grandfather’) || J. G. Crawford 1976: 312 || Webb 1981: 81 || Gursky 1989: 12–13 || Kaufman 1989: 145 (#[i/a]Pa:(wV) ‘father’s father’ [N/S])

(p-02) PH *(i-)pa- ‘with the mouth; to speak’

KAR *pa-* ‘by means of the mouth’ (Haas 1980: 70), *ípa·* ‘to say (ancient)’

YAN *pa-* ‘to call, invite, shout, carry message’

PPOM *ba- ‘with or affecting the top, top end, or front, frequently the head, and by extension, with the mouth’ > Pk *ba-* ‘with the lips (of human beings), the snout (of animals), the beak

[9] Salinan *ṗ gives Migueleño /ṗ/ and Antoniano /ʔ/.

[10] That is, in a new word-final position which resulted from the apocope of Proto-Hokan word-final vowels.

(of birds). The meaning includes both the organ that produces speech, the mouth, and the organ that detects speech, the ear, thus English translation often rendered speaking or hearing', Pc *ba·-*, Pse *b-* 'with the mouth or tongue', Pe *ba·-* 'with or affecting the top, top end or front end, the important part, frequently the head, and by extension, with speech'

PCHO *-pa- 'to talk' > HCho *di-ba-lay-ʔma* 'he will talk, converse, chat' (*-lay-* 'over and over')

NOTES. This is one of the Hokan instrumental prepounds, see Zhivlov (2018).

Sapir 1917: 4 || Sapir 1920b: 287 || McLendon 1964: 133 || Gursky 1965: 185 || Gursky 1968: 37 || Gursky 1974: 206 || Greenberg 1987: 201 || Kaufman 1989: 129 (#pa [a ~ o] 'to shout, holler, call; speak, say' [N/S], #Pa= incorp prepound 'with the mouth' [N/?S]) || Gursky 1990: 9 || Zhivlov 2018: 146–147

(p-03) PH *k^{h}apá 'cloud'

PPOM *q^{h}aʔbá(·) 'cloud' > Pk *q^{h}aba·*, Ps *k^{h}abʔa*, Pn *k^{h}abá·*, Pc *k^{h}bá·*, Pne *k^{h}áʔba·* 'fog', Pse *x̣bá* 'fog', Pe *xa·bá* 'fog'

PYUM *xpa 'cloud' > Ki *p-xpaʔ^{1}* 'small puffs of smoke, cloud'

NOTES. This word may be a compound with PH *a-k^{h}á 'water' as a first part. The second part may be compared with Sal A *paẏ* ‹pá'j› 'nube' (2.85.0024).

(p-04) PH *pakáy 'manzanita berry'

ACH *pacca* 'black manzanita berry', *paaca* 'black manzanita'

YAN N *pa·cai-na* 'manzanita berry'

PPOM *bahqáy 'manzanita berry' > Pk *bahqay*, Ps *bahkay*, Pn *bakáy*, Pc *ba·káy*, Pne *báhkay* 'berry', Pse *bqay*, Pe *bá·qay*

NOTES. Because of irregular sound correspondences, Karuk *fá·θ* 'manzanita berry' is either unrelated or results from diffusion.

Sapir 1917: 4 || Haas 1964: 79 || McLendon 1964: 133 || Gursky 1974: 197 || J. G. Crawford 1976: 315 || Webb 1979: 2 || Gursky 1989: 22 || Kaufman 1989: 154 (#fa:ɕa 'manzanita' [NC]) || Leshchiner & Nikolaev 1992: 390 (*bāč̬ ã (~-õ))

(p-05) PH *pa-t^{h}áy 'big'

PPOM *bahṭ^{h}é ~ *bahṭ^{h}é[n] 'big (sg.)' > Pk *bahṭ^{h}e*, Ps *bahṭ^{h}e* 'big, many', Pn *baṭ^{h}é* 'many', Pc *ba·ṭ^{h}é*, Pne *-ṭ^{h}i*, Pse *bṭén[ik]* 'big', *bṭé[qa-]* 'many', Pe *ba·t^{h}ín*

PYUM *ptay 'big' > Co *ptay* 'be big, large, fat', Mo *vatay-m, val^{y}tay-m* 'be big', Ma *vtay-m* 'be big', Qu *vatáy* 'to be big', Pa *vte·* 'one is big, important', Hu *vʔteʔ-k, vʔte·-k* 'to be big', Ha *vte·-k* 'to be big', Ya *vté* 'big, large'

NOTES. See (t^{h}-02) for the unprefixed PH *t^{h}ay 'big, many' and its reflexes.

Kroeber 1915: 282 || McLendon 1964: 129 || Gursky 1965: 170 || Gursky 1968: 26 || J. G. Crawford 1976: 315 || Langdon 1979: 636 || Kaufman 1989: 147 (#Pa:-ṭ^{h}ay 'much, many; big' singular [N/S])

(p-06) PH *a/i-pál̇ 'tongue'

CHI *hip^{h}en* ‹hipʿen› 'tongue' (2.20.0024)

KAR *ápr[i·h]* 'tongue'

SHA *ʔéhen[a]* 'tongue' (Silver 1964: 176)

ACH *ipl̇[i]* 'tongue'

ATS *ʔápl̇[i]* 'tongue' (Talmy n.d., b: 116)

YAN N *pawaʔl[a]*, Y *pawaʔn[a]* 'tongue'

PPOM *hibál^{y} 'tongue' > Pk *ha·ba*, Ps *hibʔa*, Pn *habá·*, Pc *háwba·*, Pne *húʔba·*, Pse *bál*, Pe *bal*

SAL A *ṭ-épal̇* ‹trépa'l› 'mi lengua' (2.85.0475)

PYUM *pal^{y} 'tongue' > Ki *haʔ-pal^{1}* 'tongue' (*haʔ^{1}* 'mouth'), Co *m-pał^{y}* 'tongue', JT *xənpał^{y}* 'tongue', MGI *ənəpał* 'his tongue', Mo *i·-pal^{y}* 'tongue', Qu *i·-pál^{y}* 'tongue', Pa *i-m-pal* 'tongue', Hu *yi-pál, yi-ʔ-pál* 'tongue', Ha *m-pal* 'tongue', Ya *hi·-pál, hi-m-pál* 'tongue'

SER *i-pł* (pl. *í-pał-ox*, abs. *ʔa-pł*) ‘tongue’
PCHO *-a-pał ‘tongue’ > HCh *ł-a-báł* (pl. *ł-a-báł’*), LCh *a-pał’*, Teq ‹pala›
NOTES. (1) This word may be related to PH *(a-)pá/íl ‘to lick’ (p-18). (2) Chimariko /p^{h}/ instead of expected /p/ remains unexplained. (3) The nasal /n/ in Chimariko, Shasta and Yahi dialect of Yana is due to the Proto-Hokan diminutive alternation *l ~ *n. (4) The Yana form is a reduplication with a regular change of intervocalic /p/ to /w/: *pawaʔla* < **pa-paʔla*, see Sapir & Swadesh (1960: 7) on the shift /p/ > /w/ in Yana. (5) McLendon reconstructs PPom *haʔbál^{y} ~ *hawba(·) ~ *hibʔa. See Oswalt (1977) for a detailed treatment of the Proto-Pomoan word for ‘tongue’.
Dixon & Kroeber 1913: 651 || Kroeber 1915: 282 || Sapir 1917: 5 || Greenberg & Swadesh 1953: 220 || Bright 1954: 65 || Bright 1956: 45–47 || Olmsted 1956: 77 || Jacobsen 1958: 203 || Sapir & Swadesh 1960: 16 (*pel) || Haas 1963: 52–53 || Haas 1964: 80 || McLendon 1964: 137 || Silver 1964: 176 || Gursky 1965: 187 || Gursky 1974: 209 (#ipa(wa)l/ɬi#) || Campbell 1976: 162 || J. G. Crawford 1976: 320 || J. M. Crawford 1976: 187 || Silver 1976: 200 || Waterhouse 1976: 337 || Oswalt 1977 || Langdon 1979: 638 || Greenberg 1987: 141 || Kaufman 1989: 130 (#[i/a]-pál^{y} [l^{y} ~ n^{y}] ‘tongue’ [N/S]) || Leščiner 1989: 163 (*bale) || Gursky 1990: 17 || Leščiner 1990: 36 (*bă̈le) || Leshchiner & Nikolaev 1992: 375 (*báHlē) || Shaul 2020b: 309

(p-07) PH *a/i-pá/í(w) ‘tail’
SHA *ʔíhiw[aʔ]* ‘tail’ (Silver 1964: 175)
ACH *ippí* ‘tail’
PPOM *hibá· ‘tail’ > Pk *hiba·*, Ps *hiba[ʔak^{h}le]*, Pc *ba·*, Pne *[šíʔ]ba·*, Pse *bá*, Pe *yi·bá·*
SER *ii-p* ‘tail’ (pl. *íi-p-kox*, abs. *ʔaa-p*)
PCHO *(-a-)po ‘tail’ (HCh *l-a-bo* [pl. *ł-a-bó*], LCh *pi-f-po*, Teq ‹napo› ‘back’)
NOTES. (1) Shasta and Achumawi reflect *-pi(w), Pomoan reflects *-pa. This discrepancy is probably due to a Proto-Hokan ablaut *a ~ *i. (2) Proto-Chontal *o may reflect PH *aw.
Sapir 1917: 13 || Dixon & Kroeber 1919: 106 || Olmsted 1956: 76 || McLendon 1964: 136 || Gursky 1974: 208 (#ipiwa#) || Campbell 1976: 162 || J. G. Crawford 1976: 319 || Waterhouse 1976: 339 || Greenberg 1987: 190–191 || Kaufman 1989: 134 (#iHpwa ‘tail’ [N/S]) || Leščiner 1989: 164 (*p^{h}übo) || Gursky 1990: 13 || Leshchiner & Nikolaev 1992: 377 (*p^{h}übó)

(p-08) PH *k^{h}apí ‘metate, grinding stone’
CHI *q^{h}api[na]* ‹ʞhabina› ‘mortar’ (2.20.1080), *q^{h}apʲi[na]* ‹ʞhapʲina› ‘mortar’ (2.22.0249)
PPOM *q^{h}aʔbé ‘rock’ > Pk *q^{h}aʔbe*, Ps *k^{h}aʔbe*, Pn *k^{h}abé*, Pc *k^{h}bé*, Pne *k^{h}áʔbe*, Pse *x̣be*, Pe *xa·bé*
SAL A *t-šxaʔ* ‹tʃqáˀ› ‘a rock’ (2.85.0081), A *t-šxáp-ahnel* ‹tʃqápahnel› ‘stones’ (2.85.0082), M *t-šxapʲ-elat* ‹tʃqápʲélat› ‘stones’ (2.85.0083), A *ṭ-í-šxaʔ* ‹tríʃqaˀ› ‘mi dinero, mi piedra’, *ṭ-mí-šxaʔ* ‹trˈmíʃqaˀ› ‘tu dinero ó piedra’, *ṭ-i-šxáʔ-wo* ‹triʃqáˀwọ› ‘his dinero’ (2.85.0083)
PYUM *(ʔ-)xpi ‘metate’ > Ki *xpiʔ*[3] ‘metate, millstone’, Co *xpi* ‘metate’, JT *xpi* ‘metate’, MGI *ʔə-xpi·* ‘metate’, Mo *ʔa-hpe* ‘metate; name of a cat’s cradle design’, Pa *ʔ-xpi* ‘metate’, Hu *p^{h}i, p^{h}iʔ, ʔ-p^{h}iʔ* ‘metate, grinding stone’, Ha *p^{h}i-ʔi* ‘flat grinding rock’, Ya *ʔ-hpí* ‘metate, grinding stone’
SER *x̣ap* ‘grinding stone’ (pl. *x̣áp-kox*)
NOTES. This word may be a compound with the first part being a shortened form of PH *(a/i-)k^{h}aʔa ‘stone’.
Sapir 1925: 411 (*ixaˀ-pi) || Greenberg & Swadesh 1953: 219 || Gursky 1974: 207 (#ax^{y}aʔpi#) || Campbell 1976: 162 || J. G. Crawford 1976: 315, 319 || J. M. Crawford 1976: 183 || Greenberg 1987: 141 || Kaufman 1989: 138 (#x^{y}á7=PI(y) [x^{y} ~ x̣] compound ‘mortar, metate; stone’ (< *"stone pound" or *"stone stone")) || Shaul 2020b: 306

(p-09) PH *a-pú ‘mouth’
SHA *ʔáw, ʔahu-* ‘mouth’ (Silver 1964: 174)
ACH *áp* ‘mouth; bill’
ATS *ʔápu* ‘mouth’ (Talmy n.d., b: 106)

PPOM *haʔbó > Pk *haʔbo* ‘external part of the mouth, protrusion of the mouth; snout (of animal); beak, bill (of bird)’ (Oswalt & Buckley 2018)

NOTES. (1) Shasta *ʔahu-* is an allomorph used in compounds. (2) The glide *w* in Shasta *ʔáw* reflects PH *u, while PH *p is reflected as zero.

Dixon & Kroeber 1919: 106 || Olmsted 1956: 76 || Haas 1964: 80 || Gursky 1965: 180 || Gursky 1974: 198 || Gursky 1989: 23 || Kaufman 1989: 129 (#ap^{h}u ‘mouth’ [NC]) || Gursky 1990: 26

(p-10) PH *(a-)pú ‘to dig’

KAR *û·p-va/û·p-vu-* ‘to dig (edible roots)’ (*-va* / *-vu-* ‘plural action’)

YAN *[we·]pu-* YN ‘to dig roots’

PPOM *-ʔbu- ‘to bury’ > Pk *-ʔbu-* [verbal root] ‘to bury’ (Oswalt & Buckley 2018)

SER *k-i-p* ‘dig out (using tool); pick (with something pointed); [stitch basket]’ (conjug.: *i-t-áp, i-t-áp-tim; i-t-áp-t, i-t-ápo-tam*), *[ʔá]po-x* ‘stick used to dig up the roots of the "joját" plant’ (pl. *ʔápo-łka*)

PCHO *-pu- ‘to dig’ (HCh *di-bu-ʔma,* LCh *pu-m̀a*)

NOTES. (1) Cf. Chimariko *-op̀u-* ‘to dig’ in ‹ʾámmà hóp̀ùt› ‘he is digging up the ground’ (2.23.0626). (2) Seri *ʔápo-x* contains fossilized absolutive prefix *ʔa-*.

Gursky 1974: 184 || Waterhouse 1976: 340 || Greenberg 1987: 135 (Chi — Cho) || Gursky 1989: 2 || Kaufman 1989: 159 (#pu [p ~ p’] ‘to plant; dig; hoe; (digging) stick’ [N/S]) || Gursky 1990: 24

(p-11) PH *(a-)pú(-p) ‘to weave baskets’

PPOM *k^{h}i-ʔbu(·)- ‘to weave baskets’ > Pk *-ʔbu-* [verbal root] ‘weave with an instrument, stitch, coil a basket, knit, crochet, embroider, weave a net’, *c^{h}i-ʔbu-* ‘weave a basket; knit, embroider, crochet, do needlework’ (*c^{h}i-* ‘by holding a small or constricted part of a larger object, often by an instrument with a handle’) (Oswalt & Buckley 2018), Pe *k^{h}i·-bú·* ‘to coil, weave (baskets)’ (McLendon n.d.: 20) (*k^{h}i·-* ‘with a long, thin, generally flexible instrument (particularly with the side of such an instrument, e.g., a rope, needle, paintbrush, or carrying strap, and, by extension, movement or transport by means of an instrument (frequently nowadays a sack)’, see McLendon 1975: 47)

PYUM *pup ‘to weave baskets’ > Ki *-pip*^{1} ‘weave baskets’, MGI *wə-pup* ‘weaves baskets (by pushing through the strands)’, Ma *po·v-k* ‘weave’ (Gordon 1986: 164), Hu *puv-k* ‘to weave a coil basket with an awl, to coil-weave’, Ha *puv-k* ‘to make a twined basket’, Ya *pûv-i* ‘weave’

SER *k-i-p* ‘[dig out (using tool); pick (with something pointed);] stitch basket’ (conjug.: *i-t-áp, i-t-áp-tim; i-t-áp-t, i-t-ápo-tam*)

PCHO *-puf- ‘to weave’ > HCh *di-buf-ʔma* ‘he will weave it’, LCh *puf-ma* ‘weave’

NOTES. (1) Yuman and Chontal reflect the form *pú-p, which may contain the Proto-Hokan (medio)passive suffix *-p (p-24). (2) It is possible that this verb is related to (p-10) PH *(a-)pú ‘to dig’ (their reflexes in Seri are synchronically treated as one polysemous verb). The semantic connection may lie in the similarity of repeated motions in digging and stitching baskets.

J. G. Crawford 1976: 308 || Kaufman 1989: 158 (#upu [?glott/asp] ‘to weave’ [S]) || Gursky 1990: 20

(p-12) PH *puk^{h}á/íla ‘a kind of basket’

CHI *puq^{h}ela* ‹púĸʿéla› ‘small basket’ (2.20.0038)

PPOM *buhq^{h}ál ‘open-woven pack basket’ > Pk *buhq^{h}al*, Pn *bok^{h}ál*, Pc *p^{h}k^{h}ál*, Pse *[fáli] bx̣àl*, Pe *bu·xál* ‘fish trap basket (open-woven and elongated)’

NOTES. (1) The word may be a compound with the first component *(a)pú(-p) ‘to weave baskets’ (p-11). (2) This word has a limited distribution and belongs to cultural vocabulary, so

borrowing is not excluded. I tentatively retain this comparison because Chimariko and Pomoan are not immediate neighbors.

Gursky 1974: 179 || Gursky 1988: 21 || Kaufman 1989: 158 (#puq^{h}a(l^{y}) [l^{y} ~ n^{y}] 'basket' [N])

The following examples without a Pomoan reflex fit into this correspondence:

(p-13) PH *a/i-pá 'deer'

KAR *í·p* 'deer (*Odocoileus hemionus*)'

YAN *pa-na* 'deer, deer meat', incorporated form *-wa*

SAL A *ṭ-[aʔ]áʔ* ‹traʾáʾ› 'venado', pl. *ṭ̓-á·p-yax* ‹trʾăpjaq›, M *ṭ-[aʔ]a·ṗ* ‹ṭaāpˇ› 'deer' (2.85.1131)

SER *ʔap* 'mule deer (*Odocoileus hemionus*)' (pl. *ʔap*).

NOTES. Kaufman compares also PPom *xiʔbá 'body', which is possible if one assumes the semantic shift 'deer' > 'meat' > 'body'.

Haas 1964: 77 || Silver 1964: 172 || Gursky 1965: 173, 190 || Gursky 1974: 184 (#ipa#) || J. G. Crawford 1976: 310 || Gursky 1989: 1 || Kaufman 1989: 126 (#ipá 'deer; ?body [Pom; š- noun prefix]' [N/S]) || Leshchiner & Nikolaev 1992: 394 (*^{m}b[ō]wʌ́ (~-a̰- ?)) || Shaul 2020b: 297, 300

(p-14) PH *i-pá 'to spill'

YAN *pa-* 'to spill, flow (liquid, grain, leaves, etc.)' (used with directionals)

PCHO *-ipa- > HCh *d-iba-hay-ʔma* 'it (liquid) will spill out or be poured out', *d-iba-fi-ʔma* 'he will pour it (liquid) on top of it' (*-fi-* 'on top of'), LCh *pa-fi-ṁa* 'splash someone or something with water using a bucket or bowl, not with your hands' (*-fi-* 'up on')

Gursky 1989: 27

(p-15) PH *a-pá· 'to handle a round object'

SHA *ap·a* / *ap·i-* ‹ap·i› as in /ráp·aʔ/ 'let him throw a round object' (Silver 1966: 68)

YAN *pa·-* 'stone-like object lies, moves; to handle a stone-like object' (used mainly with specifying suffixes)

PYUM *pa 'set, place round objects down' > Ki *h-paʔ^{1}* 'set, place round objects down'

J. G. Crawford 1976: 312

(p-16) PH *i-pá· 'to hit (with a fist)'

YAN *pa·-* 'to strike, punch, slap' (used with specifying and locative suffixes)

PCHO *-ipa- > HCh *d-iba-ʔma* 'he will hit it (with some object or a fist); he will kick it; he will discharge it (gun)'

NOTES. May be etymologically identical to the previous verb, with 'fist' as a kind of 'round object'.

Greenberg 1987: 235 || Gursky 1989: 17 || Kaufman 1989: 140 (#pa 'to hit'; + 'to break (Cho)' [N/S])

(p-17) PH *i/a-pál 'to be hot'

KAR *(i)pár[iš]* 'to heat (cooking stones)'

PYUM *pal^{y} ~ *pil^{y} 'to be hot' > Ki *ʔ-pal^{1}* 'hot', *ʔ-pan^{1}* 'warm' (diminutive), Co *pin^{y}* 'be warm', JT *pin* 'it is warm', MGI *wə-pin* 'warms up, warms himself', Mo *i-pil^{y}-k*, *i-pi·l^{y}-k* 'be hot', *i-pi·n^{y}-*, *i-pin^{y}-* 'be warm', Ma *pil^{y}-k* 'be hot', *pin^{y}-k* 'be warm', Qu *ʔa-píl^{y}* 'to be hot', *ʔa-pín^{y}* 'to be warm', Hu *pil-k* '(one thing) to burn', Ha *pil-k* 'to burn' (intransitive), Ya *pîl-i* 'be burnt'

PCHO *-epaʔ- > HCh *d-ebaʔ-da* 'it is/will get warm/hot', LCh *paʔ-e-ṁa* 'heat, make something hot or warm' (*-ʔe-* 'causative')

Kroeber 1915: 282 || Sapir *apud* Dixon & Kroeber 1919: 109 || Sapir 1925: 409 || Greenberg & Swadesh 1953: 219 || Gursky 1974: 194 || Gursky 1989: 17 || Kaufman 1989: 141 (#pil^{y} [i ~ a] '(to be) hot, warm; heat; to heat; burn' [N/S]) || Leshchiner & Nikolaev 1992: 399 (*^{m}pa̰lé)

(p-18) PH *(a-)pá/íl ‘to lick’

PYUM *pi·n ‘to lick’ > Ki *h-pi·n-u* ‘to lick’

SER *k-i-pł* ‘to lick’ (conjug.: *i-t-ápł, i-t-ápał-im; i-t-ápł-o*)

PCHO *-peł[k]- ‘to lick’ > HCh *di-beł-ʔma* [cont. *g-a-beɬg-i*], LCh *peł-ṁa* [dur. *pełka-duy*]

NOTES. (1) This verb may be related to PH *a/i-pál̓ ‘tongue’ (p-06). (2) Yuman and perhaps Chontal reflect PH *píl (with a diminutive alternation *l > *n in Yuman), while Seri reflects PH *a-pál. These two protoforms are connected by the Proto-Hokan ablaut *a/i.

Gursky 1974: 209 || Greenberg 1987: 141 || Gursky 1989: 20 || Kaufman 1989: 130 (#pel^{y} [l^{y} ~ n^{y}] ‘to lick’) || Gursky 1990: 25

(p-19) PH *a/i-lapú ‘navel’

CHI *honapu* ‹hónapù› ‘his navel’ (2.23.0387)

KAR *árup* ‘navel; navel cord’

SHA *ʔé·raw* ‘navel’ (Silver 1964: 174)

PYUM *(m-)l^{y}pu(·) ‘navel’ > Ki *npiʔ*^{1} ‘navel’, JT *mə-ɬ^{y}pu* ‘belly button, navel’, MGI *mi-l^{y}əpu·* ‘his navel’, Mo *i-l^{y}pu·* ‘navel’, Hu *rapu·, rapu·ʔ* ‘navel’, Ha *m-rpu-ʔu, m-lpu-ʔu* ‘navel, belly button’, Ya *m-lpū·* ‘navel’

NOTES. (1) The nasal /n/ in Chimariko is due to the Proto-Hokan diminutive alternation *l ~ *n. (2) The vowel *u* in Karuk *árup* results from assimilation to the subsequently lost vowel of the following syllable. (3) The gilde *w* in Shasta *ʔé·raw* reflects PH *u, while PH *p is reflected as zero.

Dixon & Kroeber 1919: 106 || Bright 1954: 65 || Jacobsen 1958: 201 || Haas 1963: 48 || Haas 1964: 80 || Silver 1964: 174 || Gursky 1974: 199 (#i/alak^{w}ï#) || J. G. Crawford 1976: 316 || J. M. Crawford 1976: 183 || Greenberg 1987: 139 || Gursky 1989: 24 || Kaufman 1989: 133 (#(a-)l^{y}afu [l^{y} ~ n^{y}; a$_{1}$ ~ o] ‘navel’ [N/S]) || Leščiner 1989: 163 (*ʔälupʾʌ) || Leščiner 1990: 36 (*ʔäHlúpʾʌ) || Leshchiner & Nikolaev 1992: 376 (*ʔ̈äHlúpʾʌ)

(p-20) PH *a/i-púk ‘neck; nape of neck’

KAR *[v]ú·p* ‘neck’

SHA *ʔé·pk[a]* ‘nape of the neck’ (Silver 1964: 174)

ACH *[w]ápt[i]* ‘neck’

ATS *ʔúpk[i]* ‘neck’ (Talmy n.d., b: 107)

PYUM *puk ‘nape; base’ > Ki *puq*^{1} ‘under, beneath, nether; inside, under cover’, *n^{y}-puq*^{1} ‘a spine, someone’s spine’, Co *m-puk* ‘nape of neck’, JT *i·-puk* ‘nape of neck, back of neck’, MGI *əyə-puk, i·-puk* ‘his neck, nape’, Mo *hi-puk* ‘base, bottom, foundation; root’, Ma *m-i·-puk* ‘neck’, Pa *i-pu·k* ‘neck’, Hu *yi-p^{h}úk* ‘back of the neck’, Ha *puk-l* ‘in the corner; at the bottom, down below’, Ya *púk* ‘bottom, foot (figurative)’, *i·-púk* ‘neck’

PCHO *-epux ‘nape’ > LCh *-epúh* ‘nape’ (Waterhouse 1976: 337)

NOTES. The vowel *u* in Karuk *vú·p* results from assimilation to the subsequently lost vowel of the following syllable. The same explanation is possible also for *u* in Atsugewi *ʔúpki*, but for Atsugewi no additional examples for such an assimilation are known yet.

Dixon & Kroeber 1919: 106 || Olmsted 1956: 75 || Jacobsen 1958: 201 || Haas 1963: 48–49 || Silver 1964: 174 || Gursky 1974: 199 (#i"upaki#) || Waterhouse 1976: 337, 341 || Gursky 1989: 24 || Kaufman 1989: 129 (#[i:/u]-pu(K) ‘nape; neck; shoulder; arm’) || Leščiner 1989: 163 (*wɔpʾuk^{h}i) || Leshchiner & Nikolaev 1992: 375 (*ẘäpʾūk^{h}i)

(p-21) PH *a-pVl(V)-ǩáw ‘fox’

KAR *apra·x* ‘gray fox (*Urocyon cinereoargenteus*)’

PYUM *prxa·w ‘fox’ > Ki *pnxa·w*^{2} ‘fox (probably kit fox; *Vulpes macrotis*)’, Co *prxa·w* ‘kit fox (*Vulpes macrotis*)’, JT *pərxa·w* ‘fox (gray fox, *Urocyon cinereoargenteus*)’, MGI *paṛxa·w* ‘fox’, Mo *marho* ‘grey fox’

NOTES. The word is a compound with the second part PH *ǩaw ‘fox’.

Kaufman 1989: 148 (#(a)pVraẋ ‘fox’ [Kar:NC +Yum]) || Leshchiner & Nikolaev 1992: 394 (*wärə̊)

(p-22) PH *ṫáp ‘to clasp’ (= ṫ-04)

KAR *tá-tap-va*/*tá-tap-vu-* ‘to trap’ (*ta-* ‘with tool or implement’ [Haas 1980: 70], *-va*/*-vu-* ‘plural action’)

YAN *-ṫapʔ-* ‘to squeeze’

PYUM *[x]tap ‘clasp’ > Ki *xtap¹* in *xtap h-u·y* ‘grasp in mouth or with pincer tongs’, *xtap-tay-uʔ* ‘pincers, tongs’, Hu *sitʰav* ‘tongs’, *čitʰáv-k* ‘to clasp between lips’, Ha *stav* ‘tongs for picking prickley pear’, *stav-k* ‘to hang something up (with clothespins); to handle with tongs or other clasping tool’

(p-23) PH *(i-)kʰá/íp ‘to extinguish’

CHI *n-iqʰap* ‹ʾaḇu nikháp› ‘put the fire out!’ (2.23.0840), *n-eqʰap* ‹neкháp› ‘put it out!’ (2.22.0113) (*n-* ‘imperative’, see Jany 2009: 118)

KAR *íšip* ‘to extinguish a fire’, *im-šip* ‘to cool off; (fire) to be extinguished’ (*im-* ‘by heat or fire’ [Haas 1980: 69])

ATS *-cp* in *p-cí-cp* ‘to extinguish a fire’, *ma-cp* ‘to put out a fire with one’s foot’, *phú-cp* ‘to blow out a fire’ (Talmy n.d., a: 41)

SAL A ‹capʾ›, M ‹cɑp› ‘to extinguish, put out’ (Mason 1918: 139), M *šap* ‹cáp› ‘ya está apagado’ (2.88.0068)

PYUM *sip ‘to be extinguished’ > JT *wə-sip* ‘it goes out (said of a fire)’, MGI *ə-sip* ‘goes out, is extinguished’

NOTES. (1) Chimariko and Salinan reflect PH *(i-)kʰáp, while Karuk and Yuman reflect PH *(i-)kʰíp. These two protoforms are connected by the Proto-Hokan ablaut *a/i. (2) Atsugewi *c* instead of expected *cʰ* is due to the synchronic neutralization of plain and aspirated consonants in coda position (Good 2004: 8).

J. G. Crawford 1976: 312 || Greenberg 1987: 136 || Kaufman 1989: 160 (#šiP [i ~ a] [ʔasp] ‘(to die [fire];) to douse (fire)’ [N/S]) || Shaul 2020b: 301

(p-24) PH *p-, *-p ‘(medio)passive’

KAR *-ap* ‘inverse’ (Macaulay 1992)

YAN *-wa-* ‘passive’ (Hinton 1988: 11)

SAL A ‹-aʾ›, M ‹-ap› ‘passive, reflexive’ (Mason 1918: 48–49)

PYUM *p-, *-p ‘medio-passive’ > Ki *p-* ‘mediopassive prefix indicating an action on/by oneself (reflexive), on something of one’s own, or frequently as a general causative, involving the completion of an action’, *-p* ‘(medio)-passive suffix’, Co *-p* ‘be in the state or condition which results from the action of the verb’, MGI *-p* ‘be in a state resulting from a self-induced or spontaneous action or event’ (Langdon 1970: 97), Mo *-v* ‘passive’ (Munro 1976: 240), Ma *-v* ‘medio-passive’ (Gordon 1986: 82–85), Qu *-v*/*-p* (“-v occurs after vowels and most consonants, -p after m and p”) ‘medio-passive’ (Halpern 1947a: 28), Hu *-v* ‘reflexive’ (“[w]hen there is only one noun phrase in the sentence, the reflexive suffix *-v* means that the subject is in a state resulting from the action of the verb”) (Watahomigie et al. 1982: 387–390), Ya *-v* ‘(medio)passive’ (Shaterian 1983: 107)

SER *p-* ‘passive’ (occurs before vowel-initial roots) (Marlett in press: 653–654)

NOTES. (1) Speaking about the Karuk inverse suffix, Mithun (2012: 82) notes that “the distribution of the *-ap* suffix suggests that it may have had a passive origin”. This ties in well with the semantics of the Hokan cognates of the Karuk suffix. (2) Turner (1987: 223) denies that Antoniano Salinan *-aʔ* has a passive or reflexive value.

Kaufman 1989: 121 (#-p [ʔasp] ‘passive’ [N/S]) || Gursky 1995: 147

2.1.2. Proto-Pomoan *pʰ

The sound correspondence involving Proto-Pomoan *pʰ is given in Table 24. This correspondence reflects the Proto-Hokan aspirated labial stop *pʰ. Chimariko has /px/, but /x ~ h/ before /u/, Shasta has /px/, but /p/ before a consonant, Proto-Yuman has *px before *a, but *ps before *i or *u. Judging by the reflexes in Chimariko, Shasta, Achumawi, Salinan, Yuman and Seri, phonetically *pʰ was realized as [px] with velar release rather than as [pʰ] with a following positive VOT. Note that Proto-Hokan *tʰ is apparently reflected in Shasta as /tx/, which suggests that phonologically aspirated coronals also had a velar release. Similar realization of phonological aspiration as velar release is found in Siouan (Rood & Taylor 1996: 442) and Athabaskan (Hoijer 1942) languages. Especially interesting is the situation in Osage, which resembles the developments in Yuman: "*ph*, *th*, and *kh* become *px*, *tx*, and *kx* respectively before back vowels (*o*, *ǫ*, *a*, *ą*), and *pš*, *ch*, and *kš* before nonback vowels" (Quintero 2004: 31). The reason I prefer to reconstruct a unitary phoneme here rather than a cluster is that it would be the only type of morpheme-internal consonant cluster in Proto-Hokan. The typical structure of the Hokan root is *CVC, where C may be either a single consonant or zero.

PH	Chi	Kar	Sha	Ach	Ats	Yan	PPom	Sal	PYum	Ser	PCho
*pʰ	px, x ~ h	f	px	*pḥ*	*ph*	pʰ	*pʰ	*px*	**px*, *ps	pχ	*f

Table 24. Proto-Hokan *pʰ.

(pʰ-01) PH *a-pʰá 'excrement', *i-pʰá 'intestines'

CHI *apχa* ‹ápχa› 'excrement' (Berman 2001: 1060), *hipxa* ‹hipqa› 'guts' (2.20.0023), *ipχa* ‹ípχa› 'intestines' (Berman 2001: 1063)

KAR *á·f* **'**excrement, shit', *fá·[n]* 'guts, intestines'

SHA *ʔi·pxá[y]* 'guts' (Silver 1961: 5)

YAN CN *pʰa[ċi]* 'excrement'

PPOM *ʔahpʰá 'excrement' > Pk *ʔahpʰa*, Ps *ʔahpʰa* (Oswalt 1981: 58), Pn *pʰá*, Pne *fa*, Pse *fa*, Pe *pʰá;* PPOM *ʔihpʰá 'guts, intestines' > Ps *ʔihpʰa* (Oswalt 1981: 60)

SAL A *ṭ-é-pxa[t]* ‹trépqat› 'my guts; my shit', *ṭ-mé-pxa[t]* ‹trʿmépqat› 'yours…', *pxa[t]* ‹pqát› 'shit' (2.85.0648)

PYUM *pxa 'intestines' > Ki *phaʔ*[1] 'abdomen, belly; intestines', Co *pxa* 'guts, intestines', JT *pxa* 'intestines, guts', MGI *pəxa·* 'his guts, intestines', Mo *vaha·* 'guts, intestines', Pa *vxa* 'entrails', Hu *vaháʔ, vʔhaʔ* 'guts, intestines', Ha *vha-ʔa* 'guts', Ya *vhā* 'guts, entrails'

PCHO *-fa[y] 'excrement' > HCh *ł-a-fay* [pl. *ł-a-faye*], LCh *a-fayʔ ~ a-fay*

NOTES. (1) PH *a-pʰá 'excrement' contains the absolutive (non-possessed) prefix *a-, while PH *i-pʰá 'intestines' contains the possessed prefix *i-. (2) Final *-y* in Shasta and Chontal may be a fossilized nominal suffix. (3) Final *-t* in Salinan may be a fossilized plural suffix.

Sapir 1917: 12 || Sapir 1925: 406 || Greenberg & Swadesh 1953: 218 || Haas 1964: 78 || McLendon 1964: 131 || Silver 1964: 173 || Gursky 1965: 175 || Gursky 1974: 186 (#i/apʰa- + -cʾi, -wan, -y#) || J. G. Crawford 1976: 312 || J. M. Crawford 1976: 181 || Langdon 1979: 637 || Webb 1980: 74 || Greenberg 1987: 217–218 || Gursky 1989: 6 || Kaufman 1989: 133 (#i-pχa 'guts' [N/S], #a-pχa 'shit' [N/S]) || Gursky 1990: 24 || Shaul 2020b: 303

(pʰ-02) PH *i-pʰá 'to bake, roast'

SHA *k-ípxa·* 'You (sg.) roast (it)!' (Silver 1966: 26) (*k-* 'hortative', Silver 1966: 118–119)

YAN N *pʰoo[wawai]-* 'to bake roots'

PPOM *ʔihpʰá- 'to cook, bake under ashes' > Ps *ʔihpʰa-*, Pn *pʰá·-*, Pe *pʰá-*

Gursky 1988: 33 || Kaufman 1989: 142 (#pʰa 'to bake' [N/S])

(pʰ-03) PH *pʰi· ‘go (pl.)’

YAN *pʰi·-* ‘plural go, move’ (used with directionals)

PPOM *pʰi[lá]- ‘several to go’ > Pk *pʰil* ‘group go; several go together’ (always occurs with a directional suffix; the form of the stem depends on the form of the suffix) (Oswalt & Buckley 2018), Pn *pʰilí-*, Pc *ha·l ~ hl-*, Pe *pʰi·lá*

Sapir 1917: 13 || Kaufman 1989: 135 (#pʰi [*pʰ or *pχ] ‘to go’ [N])

(pʰ-04) PH *i-pʰít ‘to fart’ (= t-04)

KAR *p-if* ‘to fart, to break wind’ (*p-* ‘iterative’)

YAN N *pʰit?-* ‘to break wind’

PPOM *?ihpʰéṭ- ‘to break wind’ > Pk *?ipʰe·*, Ps *?ehpʰéṭ-*, Pn *pʰé·-*, Pne *fer-én* [*-en* ‘infinitive suffix’], Pse *féd*, Pe *pʰér*

PYUM *psit ‘to fart’ > Ki *i-phit*[1] ‘flatulate’, Co *pṣiṭ* ‘break wind, fart’, JT *psit* ‘he farts, he flatulates’, MGI *pəsit* ‘flatulates’, Mo *i-vθet-k* ‘pass gas, flatulate; burp’

NOTES. (1) The root is onomatopoeic, but it follows non-trivial sound correspondences seen in non-onomatopoeic roots. (2) Yuman shows a regular development *pʰ > *px > *ps before high vowels.

Haas 1964: 77 || McLendon 1964: 130 || Gursky 1965: 171 || Gursky 1974: 181 || J. G. Crawford 1976: 309 || Langdon 1979: 637 || Kaufman 1989: 133 (#(i-)pʰeṭ ‘to fart; skunk’ [N])

(pʰ-05) PH *(a/i-)pʰú ‘to blow’

CHI ‹-xu-, -xuc-, -hus-› ‘to blow’ (Dixon 1910: 379)

KAR *ik-fu[y]* ‘to whistle’ (*ik-* ‘making a sound’, Haas 1980: 72); *fu[m]-* in *fum-puh* ‘to blow (with one’s mouth)’, *fum-tá·p-sur/fum-tá·p-suru-* ‘to blow in a certain manner (in magical procedure)’ (*-sur/-suru-* ‘off’)

SHA *-e·pxu?-* ‘to blow’ (Silver 1964: 171)

ATS *phu-* (instrumental prefix) ‘from matter, propelled by the mouth working egressively sailing into the FIGURE’ [exs.: blown breath, spit, spat-out object] (Talmy 1972: 421)

YAN *pʰu-* ‘to blow, suck, do with mouth’

PPOM *pʰu- ‘with energy of a moving current of air as medium or locus’ > Pk *pʰu-* ‘by blowing’, Pc *pʰ-*, Pe *pʰu·-*‘with energy of a moving current of air as a medium or locus, particularly with the explosive force resulting from the sudden release of air, or other medium that behaves similarly, such as spurting liquids’

PYUM *[x]psu[y] ‘to blow’ > Co *xpṣu·* ‘blow (with the mouth)’, JT *xəpsuy* ‘it blows (said of the wind), he blows’, MGI *xəpəsu·y* ‘blows’, Mo *čavuθuy-k* ‘blow (through one’s lips)’, Qu *c-xavasúy* ‘to blow, breathe on’

SER *k-í-pχo[x]* ‘to blow’ (conjug.: *i-t-ápχo[x], i-t-ápχo-ł-im* [*i-t-ápχ*^{w}*-ł-im*]; *i-t-ápχo-ł, i-t-ápχo-ł-am*)

pCho *-fu- ‘to blow’ > HCh *di-fu-s-?ma* ‘he will blow it, fan it’ (cont. *g-a-fu-s-gi*), *di-fu-ł-ǩo-?ma* ‘he will blow water out of the mouth’ (*-ǩo-* ‘inside’), *di-fu-nċi-?ma* ‘he will blow on the fire’, LCh *fu-h-ṁa* ‘to blow’, *fu-s-ṁa* ‘to blow’

NOTES. (1) The root is onomatopoeic, but it follows non-trivial sound correspondences seen in non-onomatopoeic roots. (2) Yuman shows a regular development *pʰ > *px > *ps before high vowels.

Sapir 1917: 13 || Sapir 1920b: 286 || Sapir & Swadesh 1960: 16 (*phu-) || Haas 1964: 77 || McLendon 1964: 129 || Silver 1964: 171 || Gursky 1965: 170, 189 || Gursky 1968: 26–27 || Gursky 1974: 180 (#phu#) || J. G. Crawford 1976: 309 || J. M. Crawford 1976: 180 || Silver 1976: 200 || Waterhouse 1976: 341 || Greenberg 1987: 134 || Gursky 1988: 25 || Kaufman 1989: 131 (#(i)pχú ‘to blow’ [N/S]) || Zhivlov 2018: 147–148

(pʰ-06) PH *(i-)pʰú ‘to be fat; to swell’, *i-pʰú ‘fat, grease’

CHI *hihu-t* ‹hihut› ‘he is fat’ (2.20.1131), *hihu-nta* ‹híhunda› ‘he is getting fat’ (2.20.1131), *hixu-nta* ‹hiqúntà› ‘she is fat’ (2.23.0243)

KAR *uf* ‘to anoint, to rub grease on (someone)’

SHA *-e·pxu[k·u]-* ‘to swell’ (Silver 1964: 175)

ACH *ipḥo* ‘fat; grease’, *pḥa* ‘to use fat; to dress hair’

YAN *pʰu[i]-* ‘to be fat’

PPOM *ʔihpʰú[y] ‘fat’ > Pk *ʔihpʰuy*, Ps *ʔihpʰuy*, Pn *pʰúy*, Pc *pʰúy*, Pne *fíy[in]* ‘grease’, *fí·* ‘animal fat’, Pse *fuy*, Pe *pʰúy*

SER *í-pχo[m]* ‘firm fat (of animal)’

PCHO *-fu- ‘to swell’ > HCh *di-fu-ʔma* ‘it will swell up’, LCh *fu-ṁa* ‘to swell’; der. PCHO *-fu-nx- ‘to get fat’ > HCh *di-fu-M-ʔma*, LCh *fu-ŋ-ṁa*

NOTES. The vowel *u* in Karuk *uf* results from assimilation to the subsequently lost vowel of the following syllable.

Sapir 1917: 13 || Sapir 1925: 416 (*upʾawi “fat, stout”?) || Greenberg & Swadesh 1953: 218 || Olmsted 1956: 77 || McLendon 1964: 131 || Gursky 1968: 38 || Gursky 1974: 187 (#ipʰu-i ~ upʰi#) || J. G. Crawford 1976: 312 || Greenberg 1987: 197 || Gursky 1989: 7 || Kaufman 1989: 132 (#(iː-)pχu(y) ‘fat, grease’ [N/S]) || Leščiner 1989: 163 (*ʔišˌujə) || Leshchiner & Nikolaev 1992: 376 (*ʔíšˌűjõ)

(pʰ-07) PH *(i-)pʰúl ‘red earth’

KAR *asá-fu·n* ‘red earth, ochre’ (*as*/*asa-* ‘rock; stone’), *fúr-ax* ‘scarlet’ (in compounds) (contains *á·x* ‘blood; (as a postpound) red’)

YAN *pʰun-na* C ‘red paint’, N ‘red earth’

PPOM *ʔipʰólʸ ~ *ʔipʰó·lʸ ‘magnesite’ > Pk *ʔipʰo·*, Ps *pʰo·[ʔo]* ‘magnesite; pollen from wild rose; red clay used by dancers’, Pn *pʰó·*, Pne *fó·*, Pse *fʔol*, Pe *pʰó·l*

NOTES. (1) The nasal /n/ in Karuk and Yana is due to the Proto-Hokan diminutive alternation *l ~ *n. (2) McLendon (1964: 129) remarks that “magnesite beads are red in color”.

McLendon 1964: 129 || Gursky 1968: 35 || Gursky 1974: 202 (#pʰun#) || Gursky 1989: 29 || Kaufman 1989: 156 (#pχuN ‘red earth’ [NC])

The following examples without Pomoan reflexes fit into this correspondence.

(pʰ-08) PH *i-pʰí ‘urine’

CHI *ʔipxi* ‹ʾipqi› ‘urine’ (2.23.0390)

PYUM *psi[w] ‘to urinate’ > Co *pṣi·* ‘(man to) urinate or urinate on’, JT *psiw* ‘he urinates (said of a man)’, MGI *pəsiw* ‘urinates (man)’, Mo *ivθu·-* ‘urinate (of a man)’, Qu *avsúc* ‘to urinate’, Hu *θu·čʔ-k* ‘to urinate’, Ha *θu·č-k* ‘to urinate’, Ya *θŭč-i* ‘urinate’

NOTES. Yuman shows a regular development *pʰ > *px > *ps before high vowels.

J. M. Crawford 1976: 187.

(pʰ-09) PH *(a/i-)pʰusí ‘liver’ (= s-08)

CHI *huši* ‹huʃi› ‘liver’ (2.23.0174)

KAR *[v]áfiš* ‘liver’

SHA *ʔé·psiʔ* ‘liver’ (Silver 1964: 173)

ATS *ʔúpsi* ‘liver’ (Talmy n.d., b: 104)

PYUM *(č-)psi· ‘liver’ > Ki *lphi·²* ‘liver’, Co *čpuṣú* ‘liver (from an animal)’, JT *čəpsi* ‘liver’, MGI *čəpəsi·* ‘his liver’, Mo *čavuθi·* ‘liver’, Pa *čvsi·* ‘liver’, Hu *čivθi·*, *čivθi·ʔ* ‘liver’, Ha *čvθi·-ʔi* ‘liver’, Ya *čvθí·* ‘liver’

NOTES. (1) The vowel *i* in Karuk *váfiš* results from assimilation to the subsequently lost vowel of the following syllable. (2) Unexpected reflexes of *p^h in Shasta, Atsugewi and Yuman are apparently due to preconsonantal position. (3) The vowel *u* in Atsugewi *ʔúpsi* may result from assimilation to the subsequently lost vowel of the following syllable.

Sapir 1917: 9 || Haas 1963: 46–48 || Haas 1964: 79 || Silver 1964: 173 || Gursky 1974: 196 (#iw̃apsi#) || Greenberg 1987: 240 || Gursky 1989: 21 || Kaufman 1989: 132 (#fusi 'liver' [N/S]) || Leshchiner & Nikolaev 1992: 376 (*wusi (~-e))

2.1.3. Comparison with Kaufman's reconstruction

Kaufman reconstructs the following labial obstruents for Proto-Hokan: *p, *p', *p^h and *f. In addition, he reconstructs a cluster *pχ̣ (see Table 25)[11].

PH	Chi	Kar	Sha	Ach	Ats	Yan	Wsh	PPom	Sal	PYum	Ser	PCho	Tol
*p	p	p	p	p	p	p	p	*b	p	*p, [v]	p	*p	p
*p^h	ph	p	h	p^h	?	p^h	p^h	*p^h	p	*p	p	*p	p^h
*p'	p'	p	p'	p'	p'	p'	p'	*p'	p'	*p	p	*f'	p'
*pχ̣	x, px	f	px	px	ph	p^h	p^h	*p^h	px	*[vx]	px	*f	p^h
*f	p, w, Ø	f, v, h, ?p	w, p	w, p	?	p	p	*b	p, w	*p, [v]	f	*f	p

Table 25. Correspondences of Hokan labial obstruents according to Kaufman (1989).

The main difference between my reconstruction and Kaufman's is that I reconstruct only two labial phonemes: *p and *p^h, the latter corresponding to Kaufman's *pχ̣ rather than *p^h.

Many lexical items reconstructed with *p' by Kaufman are animal and plant names or terms of material culture which are suspect of being diffused: #p'usaL [s ~ š] 'mouse' (Kaufman 1989: 149), #p'uč'i(N) 'hummingbird' [NC] (Kaufman 1989: 150), #(q)hap'i[C/T] 'turtle' [N/S] (Kaufman 1989: 151), #p'éLa 'slug' (Kaufman 1989: 152), #p'o:L [l ~ n] 'chokecherry, wild cherry' [NC] (Kaufman 1989: 154), #p'ašá7 'buckeye' [N] (Kaufman 1989: 154), #p'aHa 'pinole' [S] (Kaufman 1989: 154), #χ̣op'u 'bow' [N/S] (Kaufman 1989: 141), #p'u: 'basket' [N/S] (Kaufman 1989: 158) and #(u)p'ay 'basket' [N] (Kaufman 1989: 158).

Some of the reconstructions with *p' are partially based on Washo reflexes: #=PiL [p ~ p'] 'here and there' [N] (Kaufman 1989: 119) > Washo *-gaṗił* 'here and there', #Pal [p ~ p'] 'cheek' (Kaufman 1989: 131) > Washo *ṗáʔl* 'cheek', #[i/a]-p'uL [l ~ n] 'tail' [N] (Kaufman 1989: 134) > Washo *áṗił* 'tail', #p'usaL [s ~ š] 'mouse' (Kaufman 1989: 149) > Washo *ṗušálaʔ* 'mouse', #ip'eL ~ #iLep' 'to dig' [N] (Kaufman 1989: 160) > Washo *íṗel* 'to dig a hole' and #[a/i]p'uL 'to fill; full' [N] (Kaufman 1989: 161) > Washo *í:ṗił* 'full'. I believe that Washo is not a Hokan language (see section 0), and if it is correct at least the *p' etymologies mentioned above involve diffusion.

Several of Kaufman's reconstructions with glottalized *p' involve discrepancy in reflexes, where some of the daughter languages point to glottalized *p', whereas others point to plain *p: #=PiL [p ~ p'] 'here and there' [N] (Kaufman 1989: 119), #Pal [p ~ p'] 'cheek' (Kaufman 1989: 131), #ip(H)u [p ~ p' ~ p^h] 'to sting; stab; awl' [NC] (Kaufman 1989: 140), #pu [p ~ p'] 'to plant; dig; hoe; (digging) stick' [N/S] (Kaufman 1989: 159), #o:pu [p ~ p'] 'to dig; hoe' [N/S] (Kaufman

[11] Actually, Kaufman does not give separate correspondences for aspirated and glottalized stops. Rather it is assumed that they differ from the reflexes of the plain stops in having respectively aspiration and glottalization in languages which preserve these features. Therefore, Table 25 and other similar tables below represent my attempt at "reconstructing" these correspondences. Bracketed reflexes in PYum here and below in Table 29 indicate allophone-level reflexes.

1989: 159) and #p'ila [p' ~ p] 'to play; toy' [N/S] (Kaufman 1989: 163). Since these items exhibit irregular correspondences, they cannot be used to support the reconstruction of Proto-Hokan *p'.

All of Kaufman's etymologies with *p' save two fall into one or more of the above categories. The two remaining reconstructions are: #p'- 1. 'absolutive(?) noun prefix' [N]; 'derivational noun prefix' [N] (Kaufman 1989: 117) and #l^{y}ap' 'hot; to burn, start a fire' [S] (Kaufman 1989: 141). These two etymologies are not enough to substantiate the reconstruction of glottalized *p' for Proto-Hokan.

Kaufman reconstructs *p^{h} when Chimariko, Achumawi, Yana, Washo, Pomoan or Tol have aspirated labial stop, while Karuk, Salinan, Seri or Chontal have /p/. Most of these comparisons are distributionally weak. Some of them may result from diffusion, e.g., #p^{h}uruC'i 'knee' [NC] (Kaufman 1989: 129) > Yana Y *p^{h}uruċi*, C *p^{h}uriči*, N *p^{h}uruċ-kalu* 'elbow', Achumawi *púllúc* 'knee', Atsugewi *púluc* 'knee' (Talmy n.d., b: 102), see Jacobsen (1976: 230–231) on borrowings between Achumawi-Atsugewi and Yana. Some involve comparisons with Washo, as #(i-)p^{h}iH 'nail, finger- or toe-' [N] (Kaufman 1989: 139) > Karuk *axpih* 'nail (of finger or toe)', Washo *tul-ípi?* 'fingernail'.

Kaufman's *f is reconstructed when /f/ of Karuk, Seri or Chontal corresponds to unaspirated /p/ or /w/ in other languages. The comparisons with *f also mostly have a weak distribution. Moreover, the correspondences as stated by Kaufman are too irregular: *f can give /p/, /w/, or Ø in Chimariko, /f/, /v/, /h/, or /p/ in Karuk, /w/ or /p/ in Shasta, Achumawi and Salinan. In #(a-)l^{y}afu [l^{y} ~ n^{y}; a$_{1}$ ~ o] 'navel' [N/S] (Kaufman 1989: 133) *f, rather than *p, is reconstructed to account for Shasta /w/ in *ʔé·raw* 'navel'. However, Shasta /w/ here probably reflects PH *u after the regular development of intervocalic *p to zero. The reconstruction of *f also encounters a typological difficulty: the change *f > /p/, postulated for most branches of Hokan, is quite rare typologically.

2.2.0. Correspondences involving Proto-Pomoan coronal stops

Proto-Pomoan is reconstructed with three dental stops — *t, *t^{h} and *ṫ — and four alveolar stops: *d, *ṭ, *ṭ^{h} and *ḍ (McLendon 1973: 21–22). The dental stops are rather rare; they are in quasi-complementary distribution with the alveolar stops. In word- and stem- initial position, only alveolar stops are allowed[12]: *ṭaʔḍo 'salt', *ṭuhxo 'five', *ṭ^{h}iʔbé· 'tule sprout', *ṭ^{h}oʔó(·) 'acorn mush', *ṭ^{h}ú·ċ 'mother's older sister', *ḍaʔlá· 'tick', *ḍáqi 'younger sibling'. Word-internally before a stressed vowel we find alveolar stops in: *waṭá- 'woodduck', *buṭáqal^{y} ~ *bu·ṭáqa 'bear', *biṭéx 'body louse', *hma·ṭíyu ~ *ma·ṭíyuho 'poison oak', *q^{h}aṭó(·) 'acorn bread', *k^{h}iṭú· 'basket, sp.', *maṭú· 'to tell stories, myths', *duhṭ^{h}ál 'pain', *ʔahṭ^{h}é(n) 'small feather/down', *bahṭ^{h}é(n) 'big, sg.', *-hṭ^{h}é '(other person's) mother', *maṭ^{h}éy 'doe', *ʔahṭ^{h}íy(n^{y}) 'big, pl.', *baṭ^{h}íy 'arrow', *ʔo·ṭ^{h}óno 'edible seaweed', *haṭá· 'rectum', *siʔḍál 'leaf', *maḍé· 'spleen', and possibly also in *mi·ṭákʔ ~ *hmíṭa- 'sand/gravel', *mi·ṭí- ~ *mí·ṭi- 'to lie' and *wa·ṭakʔ/qʔ 'frog', where stress cannot be unambiguously reconstructed. There are only two cases with dental stops in this position: *hoʔṫó 'brains, head, protuberance' and *muʔṫá- 'to be cooked' (with the related words *muhṫám- 'to be hot' and *muʔṫáwinal 'summer'). Word-internally before an unstressed vowel we have dental stops in *ʔimá·ta 'woman', *-to 'object case', *-t^{h}in 'negative' and possibly also in *ċiyíta ~ *ċihtá 'bird' and *ʔat^{h}aná ~ *ʔat^{h}á·na 'hand', where stress cannot be unambiguously reconstructed. There is only one unambiguous case

[12] Here and below I omit cases with *d because there is no contrasting dental voiced stop in Proto-Pomo. The idea that the Proto-Pomoan opposition of dental and alveolar stops is secondary was first put forward by Margaret Langdon (1979: 602–603).

with the alveolar stop in this position: *bǎ·ṭo ‘mud’[13]. In the word- and stem-final position, we have dental stops in *ʔihq^{h}etʔ ‘spit’ (n), *mahsíkʔ/tʔ ‘embers, charcoal’, *q^{h}aʔbatʔ/y ‘wild onion’, *q^{h}á-ċiyàt ~ *q^{h}a-ċit ‘mudhen’, and alveolar stops in *ʔahmáṭ ~ *ʔamáṭ ‘earth’, *ʔihp^{h}éṭ- ‘to break wind’, *ku·máṭʔ ~ *qumáṭ ‘squirrel’, *nup^{h}éṭ ‘skunk’, *su·límaṭʔ ‘string’ and *yahmóṭʔ ‘panther’. Thus, the contrast of dental and alveolar stops is robust only word-finally.

Coronal stops are rarer in Hokan comparisons than labials or velars. This distribution is not as strange as it seems, as we have a similar situation in Proto-Yuman, where only a few roots beginning in *t can be reconstructed (Langdon 1996: 97–98).

2.2.1. Proto-Pomoan *d and *ṭ

The sound correspondences involving Proto-Pomoan *d[14] and *ṭ are given in Table 26. These correspondences reflect the Proto-Hokan plain coronal stop *t.

Note the glottal stop, optionally added in the root-final position in Yana, Pomoan and Chontal, where glottal stop merges with *c to yield a glottalized *ċ. Just as in the case with root-final *-p discussed above, this glottal stop may be a relic of a suffix *-ʔ.

PH	Chi	Kar	Sha	Ach	Ats	Yan	PPom	Sal	PYum	Ser	PCho
*(-)t-	t	t	*t*	*t*	t	t	**d*	t	*t	*t*	*t
*-t	Ø	Ø ~ t	*t*	*t*		*t* ~ tʔ	*ṭ(ʔ)	*t*	*t	t	*c ~ *ċ

Table 26. Proto-Hokan *t.

(t-01) PH *tu- ‘to do with the hand/fingers’

CHI ‹tu-› ‘with the hand’ (Dixon 1910: 329)

ATS *tu-* (lexical prefix) ‘the hand(s), arm(s)’ (Talmy 1972: 425)

YAN N *to·-* ‘do with the fingers’ (Sapir 1922: 219)

PPOM *du- ‘with the fingers, with the fingers opposed to the thumb’ > Pk *du-* ‘with the fingers, with the fingers opposed to the thumb’, Pc *ʔa·- ~ ʔ-* ‘with fingers or arms’, Pe *du·-* ‘with or affecting the fingers, frequently with fingertips acting together to pull’ (McLendon 1975: 45).

NOTES. This is one of the Hokan instrumental prepounds, see Zhivlov (2018).

Sapir 1917: 27 || Dixon & Kroeber 1919: 107 || Sapir *apud* Dixon & Kroeber 1919: 108 || Gursky 1974: 192 || Greenberg 1987: 231 || Gursky 1989: 14–15 || Kaufman 1989: 123 (#tu= ‘with the hand’ [N]) || Gursky 1995: 145 || Zhivlov 2018: 145

(t-02) PH *a-mát ‘earth’

CHI *ʔama* ‹ʾam̆a› ‘earth’ (2.20.0023), *ama* ‹ám·a› ‘earth, land’ (Berman 2001: 1059)

KAR *áv-ax* ‘red mud’ (contains *á·x* ‘blood; (as a postpound) red’)

YAN CN *-mat[u]* ‘place’

PPOM *ʔahmáṭ ~ *ʔamáṭ ‘earth’ > Pk *ʔama·* ‘thing, earth, dirt, land’, Ps *ʔam·a*, Pn *má·*, Pc *má·*, Pne *ʔáma·*, Pse *máṭ* verb prefix ‘down to ground’, Pe *Már* ‘down to land’, *Má* ‘land as opposed to water’

PYUM *(ʔ-)mat ‘earth’ > Ki *ʔ-mat*[1] ‘earth, land, place’, Co *maṭ* ‘land, ground, floor, country, dirt, earth, (city) lot’, JT *maṭ* ‘dirt, earth, land, place, ground’, MGI *ʔə-mat* ‘land, earth, ground, country, place’, Mo *ʔa-mat* ‘land; country; place; dirt, mud, clay; down, below; floor’,

[13] And even in this case Northern Pomo has *baṭ^{h}ó*.

[14] Another correspondence involving PPom *d will be analyzed in the section on sonorants in one of the next papers in this series.

Ma *maṭ* ‘dirt, land, earth’, Qu *ʔa-máṭ* ‘land’, Pa *măt* ‘earth’, Hu *mat* ‘earth, land, place, dirt’, Ha *mat, ʔ-mat* ‘dirt, ground, earth, land’, Ya *mât* ‘earth, land, ground, dirt, clay’

SER *ʔant* ‘earth, dirt, land; world, earth; place; year’, *ʔamt* ‘ground; loose soil, sand’, 19th century Seri B ‹am't› ‘earth, land’, Pt ‹hamt› ‘la tierra’ (Marlett 2010: 21)

PCHO *-a-maċ ‘land, earth; year’ > HCh *ł-a-maċ*, LCh *a-maċ*, Teq ‹mas, mats›

NOTES. (1) According to Marlett (2010: 18), “[m]odern Seri distinguishes between /ʔant/ 'earth, land, year' (which also occurs in many expressions) and /ʔamt/ 'soil' (which is restricted in usage). The evidence from the word lists suggests that this distinction is relatively recent and that the form /ʔamt/ is the origin of both”. (2) See Zhivlov (2019) for the polysemy ‘earth/year’.

Kroeber 1915: 282 || Sapir *apud* Dixon & Kroeber 1919: 110 || Sapir 1925: 409–410 (*ama) || Greenberg & Swadesh 1953: 218 || Bright 1956: 45–46 || Jacobsen 1958: 199 || McLendon 1964: 133 || Gursky 1965: 174 || Gursky 1974: 186 (#ama# ‘earth’), 212 (#ʔamat# ‘year’) || Campbell 1976: 163 || J. G. Crawford 1976: 314, 320 || J. M. Crawford 1976: 182 || Waterhouse 1976: 337–338 || Langdon 1979: 637 || Webb 1980: 75 || Greenberg 1987: 216 || Gursky 1989: 4–5 || Kaufman 1989: 142, 167 (#aHma(ṭ) ‘earth’ [N/S], #amaṭ ‘year’ [S]) || Gursky 1990: 22 || Leshchiner & Nikolaev 1992: 382 (*ʔómāṭʌ)

(t-03) PH *(i-)ṫá/ít ‘thorn’ (= ṫ-02)

KAR *tí·t* ‘fin’

PPOM *hiʔṫíṭ(ʔ) ‘thorn’ > Pk *hiʔṫiṭ*, Ps *hiʔṫiṫ*, Pc *ṫíṫ*, Pn *ṫíṫimi* ‘blackberry’ (Oswalt 1972: 57), Pe *ṫír* (McLendon n.d.: 30)

PYUM *tat ‘thorn’ > Ki *ʔ-tat¹* ‘thorn’, Co *čač* ‘thorn’, JT *ʔi·-taṭ* ‘it is thorny, it has a lot of thorns’, Mo *ʔa-tat* ‘needle, thorn’, Ma *taṭ* ‘cholla’, Qu *ʔa-táṭ* ‘thorn’, Pa *tăt* ‘spine, thorn’, Hu *tat* ‘cactus, thorn, spine’, Ya *tát* ‘thorn’; PYUM *[x]tat ‘spine’ > Co *xčač* ‘spine, backbone’, JT *xtat* ‘back (body part)’, MGI *xətat* ‘his back, backbone’, Mo *ihtat* ‘backbone, spine; the back of anything’, Qu *axtáṭ* ‘backbone, back’, Ha *yi-tat* ‘backbone, spine’, Ya *hi-tát* ‘spine, back’

NOTES. Pk, Ps, Pc and Pn reflect the reconstruction *hiʔṫíṭʔ, while Pe reflects *hiʔṫíṭ. This points to a suffixal nature of the word-final glottal stop.

Kaufman 1989: 155 (#(i)ṭát [a ~ o] ‘thorn (spear, stinger, quill)’ [N/S]) || Leshchiner & Nikolaev 1992: 389 (*ʔʌṭ'[õ]ṭʌ)

(t-04) PH *i-pʰít ‘to fart’ (= pʰ-04)

KAR *p-if* ‘to fart, to break wind’ (*p-* ‘iterative’)

YAN N *pʰitʔ-* ‘to break wind’

PPOM *ʔihpʰéṭ- ‘to break wind’ > Pk *ʔipʰe·*, Ps *ʔehpʰéṭ-*, Pn *pʰé·-*, Pne *fer-én* [*-en* ‘infinitive suffix’], Pse *féd*, Pe *pʰér*

PYUM *psit ‘to fart’ > Ki *i-phit¹* ‘flatulate’, Co *pṣiṭ* ‘break wind, fart’, JT *psit* ‘he farts, he flatulates’, MGI *pəsit* ‘flatulates’, Mo *ivθet-k* ‘pass gas, flatulate; burp’

NOTES. (1) The root is onomatopoeic, but it follows non-trivial sound correspondences seen in non-onomatopoeic roots. (2) Yuman shows a regular development *pʰ > *px > *ps before high vowels.

Haas 1964: 77 || McLendon 1964: 130 || Gursky 1965: 171 || Gursky 1974: 181 || J. G. Crawford 1976: 309 || Kaufman 1989: 133 (#(i-)pʰeṭ ‘to fart; skunk’ [N])

This correspondence can be complemented by the following comparisons without reflexes in Pomoan.

(t-05) PH *ta- ‘to do with a tool’

KAR *ta-* ‘with tool or implement’ (Haas 1980: 70)

SAL A ‹eta´›, M ‹eta› ‘make’ (Mason 1918: 140)

PYUM *t- > MGI *t-*, *ta·-* ‘general causative’ (Langdon 1970: 86), Qu *t-* ‘to cause (general), to cause by means of an instrument’ (Halpern 1947a: 22–23)

NOTES. This is one of the Hokan instrumental prepounds, see Zhivlov (2018).

Kaufman 1989: 163 (#(a)ta 1. ‘to do; make’; 2. prepound: causative (Yum), with a tool (Kar), transitive ((?) (Jic)); 3. postposed causative element (Sal) [N/S]) || Gursky 1995: 145 || Zhivlov 2018: 148 || Shaul 2020b: 300

(t-06) PH *a-tákʰu ‘many’

SER *k-átx̣o* ‘many, much, abundant’ (conjug.: *t-átx̣o; t-átx̣o-x* [*t-átx̣o-xam*])

PCHO *ataxu > LCh *atahu* ‘many, a lot of’

Bright 1956: 45 || Gursky 1974: 197 || Waterhouse 1976: 339 || Greenberg 1987: 237 || Kaufman 1989: 147 (#aTaXu ‘many’ [S])

(t-07) PH *(a-)tali ‘brother-in-law’

SHA *ʔatá·riʔ* ‘brother-in-law’ (Silver 1961: 3)

SAL A *ʔe-[m]tá·liʔ* ‹’emtăli’› ‘mi cuñado’. *ṭ-o-[m]tá·liʔ* ‹tromtăli’› ‘tu…’, *ṭ-o-[m]tá·leʔ-o* ‹tromtăle’o› ‘his…’ (2.86.0216)

Gursky 1990: 23–24

(t-08) PH *(a-)tat ‘twist’

KAR *átat* ‘to twist’

PCHO *-tac- ‘to twist’ > HCh *di-das-ʔma* ‘he will twist it’

(t-09) PH *i-tat ‘much’

CHI *hita* ‹hítá› ‘much, a whole lot’ (2.23.0793)

YAN YN *tatʔ-* ‘much, many’

Sapir 1917: 6 || Sapir & Swadesh 1960: 16 || Gursky 1965: 180 || Gursky 1974: 197 || Greenberg 1987: 237 || Kaufman 1989: 147 (#tan ‘many, much’ [NC])

(t-10) PH *i-ti ‘to look’

KAR *it-* ‘to look’ (bound stem; occurs with directionals)

YAN *ti-* ‘to look, face’

Silver 1964: 174 || Gursky 1974: 196 || Kaufman 1989: 128 (#iTi ‘to look’ [NC])

(t-11) PH *tu ‘to pull out’

KAR *ak-tu[v] / ak-tu[m]-* ‘to pluck at’ (*ʔak-* ‘with the hands’ [Haas 1980: 70]), *[iš]tu[k]* ‘to pick, pluck (flowers, stems, leaves)’

ACH *tu[p]* ‘to pluck’

ATS *-tu[p]* in *ra-túp-y-iƙ* ‘to uproot a tree’, *ru-túp* ‘to pull up weeds’, *ra-túp* ‘to dig up weeds’ (Talmy n.d., a: 384)

PYUM *tu·, *tu[x] ‘to uproot, pull out’ > Ki *l-tux¹* ‘uproot, extirpate’, *p-tux¹* ‘uproot’, Co *p-ču·* ‘pull out feathers (from a fowl) or plants from the ground’

PCHO *-tu[x]-, *-tu[ɬ]- ‘to pull out’ > HCh *d-eduh-ʔma* ‘he will pull it off, snap it off, pick fruit’, *d-en-nuh-ʔma* ‘he will pick, cut fruit’, *d-en-nuɬ-ʔma* ‘he will pull it out (weeds, feathers)’

NOTES. Atsugewi *ƙ* is a morphophonological symbol with unclear value used by Talmy.

Gursky 1974: 201 || Gursky 1989: 28 || Kaufman 1989: 163 (#Tu(w) [?glott/asp] ‘to pull, drag out; pluck at’ [N/S])

(t-12) PH *tu ‘stomach’

PYUM *tu ‘stomach; middle, center’ > Co *ču* ‘middle, center’, *ʔi-čú* ‘stomach, mind’, JT *tu* ‘stomach, belly, waist’, MGI *ə-tu·* ‘his belly, stomach, waist’, Mo *i·-to* ‘stomach, belly; middle,

center', Ma *i·-to* 'stomach', Qu *a-tó* 'center', *i·-tó* 'belly', Pa *tu:-v* 'middle; center', Hu *tu·-l* 'in the middle, in the center; middle, center, axis', *tu·-v-l* 'in the middle, in the center', Ha *tu·-v-k* 'to be in or at the middle', Ya *tú·-v-l* 'middle, center'

PCHO *-tu 'navel' > HCh *l-a-du*, LCh *i-nʸe-tʸu*

NOTES. An alternative reconstruction *tʰu is also possible.

J. G. Crawford 1976: 308 || Waterhouse 1976: 337 || Kaufman 1989: 133 (#[I/a]-ṭu 'belly, stomach; navel; guts' [N/S]) || Gursky 1990: 26

(t-13) PH *i-tút 'to grind'

PYUM *tut 'to pound' > Ki *-tit¹-* 'pound seeds', MGI *wə-tuṭ* 'pounds acorns, grinds acorns; large mortar', Mo *a-to·t-* 'push (a car, with another car); pound (meat, corn, etc.)', Hu *tut?-k* 'to grind, to pound', Ha *tut-k* 'to pound dry meat or piñons'

PCHO *-ituc- > HCh *d-idus-ʔma* 'he will chew it', der. *-ituc-xma 'molar' > HCh *l-a-ydus-ma*, LCh *tʸuš-ma*

(t-14) PH *a-xʷát 'blood'

KAR *á·x* 'blood; (as a postpound) red'

SHA *ʔá·xt[a]* 'blood' (Silver 1964: 171); OKW ‹axta´› 'blood' (Dixon 1905: 216)

ACH *aḥt[i]* 'blood'

YAN CN *watʔ-tu-wi* 'blood', C *pa-watʔ(ku)-* 'red' (*pa-* 'in quality'), YN *ta-watʔ-sa-* 'red' (*ta-..-sa* 'to be in appearance of form')

SAL A *ʔ-á-[k]hat-a* ‹ˀákhata› 'sangre', *ʔ-éʔ-[k]hat* ‹ˀéˀkhat› 'mi sangre', M *ṗ-á-[k]hat-a* ‹pˀákẖaṭa› 'blood (non-poss.)', *ṗ-éʔ-[k]hat* ‹pˀéˀkhat› 'mi sangre' (2.85.0726), A *á·-[k]hat-a* ‹á·kʰatə› 'blood' (Jacobsen 1954: 16)

PYUM *xʷat 'blood' > Ki *t-khʷat¹* 'blood', Co *nʸ-xʷaṭ* 'blood', JT *xʷaṭ* 'blood', MGI *ʔə-xʷaṭ* 'is red, orange, brown; blood; ripe', Mo *nʸa-hʷat* 'blood', Ma *xʷeṭ-m* 'red', Qu *-i·-xʷéṭ* 'blood', Pa *č-xʷăt* 'blood', Hu *hʷat* 'blood, (the color of) red', Ha *hʷat* 'red; blood', Ya *(ʔ-)hʷát-* 'red; blood'

SER *ʔaait* 'blood' (pl. *ʔaait-łox*), 19th century Seri B ‹avt› 'blood', Pt ‹ăvat› 'sangre' (Marlett 2010: 37)

PCHO *-a-xʷaċ 'blood' > HCh *l-a-Wáċ*, LCh *a-Waċ*, Teq ‹fas›

NOTES. Salinan has ‹kh› in Harrington's transcription and ‹kʰ› in Jacobsen's fieldnotes. Turner (1987: 67) phonologizes the word as /ʔákataʔ/ because Salinan has no aspirated stops. However, this does not explain the persistent aspiration in Harrington's and Jacobsen's fieldnotes, and I prefer to postulate a biphonemic cluster /kh/ here, where /h/ reflects PH *xʷ, and /k/ is a fossilized prefix.

Kroeber 1915: 282 || Sapir 1917: 16 || Sapir 1925: 405 (*aχwati ?) || Greenberg & Swadesh 1953: 218 || Bright 1956: 46 || Jacobsen 1958: 198 || Silver 1964: 171 || Gursky 1965: 170 || Gursky 1974: 180 (#a/ixʸawaṭi#) || J. G. Crawford 1976: 309 || Waterhouse 1976: 337, 339 || Webb 1980: 75 || Greenberg 1987: 134 || Gursky 1988: 24–25 || Kaufman 1989: 156 (#(a-)xʷá(-ṭ) 'blood; red' [N/S]) || Leščiner 1989: 163 (*x˚aṭʌ) || Leshchiner & Nikolaev 1992: 376 (*x˳āṭˈʌ) || Shaul 2020b: 297

(t-15) PH *(a-)ƙít 'unripe, young'

KAR *xí·t* 'green, unripe'

SER *k-aχt* 'tender, delicate, young [plant, vegetable]; young [person]' (conjug.: *t-aχt; t-aχt*)

NOTES. Notions 'unripe' and 'young' are frequently colexified in world's languages, see https://clics.clld.org/edges/1207-1958.

Gursky 1990: 19

2.2.2. Proto-Pomoan *ṭʰ

The sound correspondence involving Proto-Pomoan *ṭʰ is given in Table 27. This correspondence reflects the Proto-Hokan aspirated coronal stop *tʰ. Shasta /tx/ represents the same phenomenon of velar release instead of aspiration that was discussed above in connection with the reflexes of Proto-Hokan *pʰ.

PH	Chi	Kar	Sha	Ach	Ats	Yan	PPom	Sal	PYum	Ser	PCho
*tʰ		*t*	*tx*	*tʰ*	*tʰ*		*ṭʰ	*t*	*t	*t*	

Table 27. Proto-Hokan *tʰ.

(tʰ-01) PH *(a-)tʰáy ‘mother’

SHA *ʔátxiʔ* ‘mother’ (Silver 1961: 2)

PPOM *-hṭʰé ‘(other person’s) mother’ > Pk *-hṭʰe-*, Ps *-hṭʰe*, Pn *-ṭʰé*, Pne *[fá·]hṭʰe* ‘sister-in-law’, Pse *-še*, Pe *-ṭʰé*

PYUM *(n-)tay ‘mother’ > Co *nʸ-ča·* ‘mother’, JT *n-talʸ* ‘my mother’, MGI *pa·-talʸ* ‘his mother’, Mo *in-tay* ‘mother’, Ma *n-tay* ‘mother’, Qu *an-táy* ‘mother’ (PYUM *n- ‘kinship terms prefix’, see Miller 2001: 86)

SER *á-ta* ‘his or her mother’ (pl. *á-t-tox*[15], abs. *ʔapé-tɛ*)

Dixon & Kroeber 1919: 105 || Gursky 1974: 198 || J. G. Crawford 1976: 315 || Silver 1976: 200 || Langdon 1979: 638 || Webb 1981: 79 || Greenberg 1987: 138 || Gursky 1989: 22 || Kaufman 1989: 145 (#aṭxE ‘mother’ [N]; #ta [a ~ o] ‘mother’)

(tʰ-02) PH *tʰáy ‘big, many’, der. *pa-tʰáy ‘big’

KAR *tá·y* / *-ta·y* ‘much, many, lots’

PPOM *bahṭʰé ~ *bahṭʰé[n] ‘big (sg.)’ > Pk *bahṭʰe*, Ps *bahṭʰe* ‘big, many’, Pn *baṭʰé* ‘many’, Pc *ba·ṭʰé*, Pne *-ṭʰi*, Pse *bṭén[iǩ]* ‘big’, *bṭé[qa-]* ‘many’, Pe *ba·tʰín*; PPOM *ʔahṭʰíy ~ *ʔahṭʰíy[nʸ] ‘big (pl.)’ > Pk *ʔahṭʰiy*, Ps *ʔahṭʰi*, Pn *ṭʰí·*, Pne *ṭʰíy[in]*, Pse *ṭín-ay* (*-ay* ‘plural’), Pe *ṭʰíy-a* (*-a* ‘plural suffix’)

PYUM *tay ‘big, many’ > Ki *ʔ-tay*[1] ‘be large; elderly’, JT *tay* ‘he or it is big’, Mo *ʔa-tay* ‘a lot, a big one’, Ha *te-k* ‘plenty, lots, many’, Ya *ʔ-té* ‘many’; PYUM *p-tay ‘big’ > Co *ptay* ‘be big, large, fat’, Mo *vatay-m, valʸtay-m* ‘be big’, Ma *vtay-m* ‘be big’, Qu *vatáy* ‘to be big’, Pa *vte·* ‘one is big, important’, Hu *vʔteʔ-k, vʔte·-k* ‘to be big’, Ha *vte·-k* ‘to be big’, Ya *vté* ‘big, large’

NOTES. The prefixal derivate *pa-tʰay (p-05) is reflected in Pomoan and Yuman. In both families the prefix is unproductive, but it can be segmented on internal grounds. The function of the prefix in Yuman is unclear, in Pomoan it marks the singular as opposed to plural.

Kroeber 1915: 282 || McLendon 1964: 129 || Gursky 1965: 170 || Gursky 1968: 26 || Gursky 1974: 179 || J. G. Crawford 1976: 315 || Langdon 1979: 636 || Kaufman 1989: 147 (#ṭʰay ‘much, many; big’ [N/S], #Pa:-ṭʰay singular [N/S]) || Leshchiner & Nikolaev 1992: 383 (*ṭʰõHj(ʌ́)

The correspondence can be complemented by the following comparison without a Pomoan parallel.

(tʰ-03) PH *tʰaİa ‘shoulder blade’

ACH *tʰá·İa* ‘shoulder blade’

ATS *tʰáİa* ‘shoulder-blade’ (Talmy n.d., b: 84)

[15] S. A. Marlett, pers. comm.

SAL A *ṭ-é-taḷ* ‹tréṯa'l› ‘mi hombro / top of shoulder; mi paleta (the big flat plate-like bones)’, *ṭ-mé-taḷ* ‹trʿméṯa'l› ‘tu hombro’ (2.85.0610)
Gursky 1968: 36 || Gursky 1974: 204 || Greenberg 1987: 254 || Kaufman 1989: 136 (#i-ta(l^y) [*t ~ *ṭ; l^y ~ n^y] ‘hand; arm; shoulder’)

2.2.3. Proto-Pomoan *ṭ̓

The sound correspondence involving Proto-Pomoan *ṭ̀ is given in Table 28. This correspondence reflects the Proto-Hokan glottalized coronal stop *ṫ.

PH	Chi	Kar	Sha	Ach	Ats	Yan	PPom	Sal	PYum	Ser	PCho
*ṫ		t		*ṫ*		ṫ	*ṭ̀		*t		*c̀

Table 28. Proto-Hokan *ṫ.

(ṫ-01) PH *ṫalá ‘tick’
ACH *[sami·]ṫá·la* ‘tick’, *[smi]ṫá·lá* ‘wood tick’
PPOM *ṭ̀a?lá· ‘tick’ > Pk *ṭ̀a?la·*, Ps *ṭ̀al·a*, Pn *ṭ̀ilá·*, Pc *ṭ̀a·lá·*, Pne *ṫalá·[-ka]*, Pe *ṭ̀a·lá·* ‘tick when small, before it has sucked blood’
PCHO *-c̀ala > HCh *ł-a-c̀ala* ‘the red chigger (insect)’
Leshchiner & Nikolaev 1992: 387 (*ṭ̓ólő)

(ṫ-02) PH *(i-)ṫá/ít ‘thorn’ (= t-03)
KAR *tí·t* ‘fin’
PPOM *hi?ṭ̀íṭ(?) ‘thorn’ > Pk *hi?ṭ̀iṭ*, Ps *hi?ṭ̀iṭ̀*, Pc *ṭ̀íṭ̀*, Pn *ṭ̀íṭ̀imi* ‘blackberry’ (Oswalt 1972: 57), Pe *ṭ̀ír* (McLendon n.d.: 30)
PYUM *tat ‘thorn’ > Ki *?-tat*[1] ‘thorn’, Co *čač* ‘thorn’, JT *?i·-taṭ* ‘it is thorny, it has a lot of thorns’, Mo *?a-tat* ‘needle, thorn’, Ma *taṭ* ‘cholla’, Qu *?a-táṭ* ‘thorn’, Pa *tăt* ‘spine, thorn’, Hu *tat* ‘cactus, thorn, spine’, Ya *tát* ‘thorn’; PYUM *[x]tat ‘spine’ > Co *xčač* ‘spine, backbone’, JT *xtat* ‘back (body part)’, MGI *xətat* ‘his back, backbone’, Mo *ihtat* ‘backbone, spine; the back of anything’, Qu *axtáṭ* ‘backbone, back’, Ha *yi-tat* ‘backbone, spine’, Ya *hi-tát* ‘spine, back’
NOTES. Pk, Ps, Pc and Pn reflect the reconstruction *hi?ṭ̀íṭ?, while Pe reflects *hi?ṭ̀íṭ. This points to a suffixal nature of the word-final glottal stop.
Kaufman 1989: 155 (#(i)ṭát [a ~ o] ‘thorn (spear, stinger, quill)’ [N/S]) || Leshchiner & Nikolaev 1992: 389 (*?ʌṭ̓[õ]ṭʌ)

This correspondence can be complemented by the following comparisons without reflexes in Pomoan.

(ṫ-03) PH *ṫal ‘to tear/be torn’
YAN *-ṫal-* (diminutive *-ṫan-*) ‘to come through, leak, get torn, punctured, broken open’, Y *po·-ṫal-* ‘to crack (eggs, skull, hard round stone-like object)’ (*po·-* ‘stone-like object lies, moves; to handle a stone-like object’), CN *-ṫal[c̀i]-*, Y *-ṫan[c̀i]-* ‘apart, asunder’
PCHO *-c̀ał- ‘to tear in pieces’ > HCh *di-c̀ał-?ma* ‘he will tear it in pieces’, LCh *c̀ał-ṁa* ‘to shred, tear, leave in tatters’

(ṫ-04) PH *ṫáp ‘to clasp’ (= p-22)
KAR *tá-tap-va* / *tá-tap-vu-* ‘to trap’ (*ta-* ‘with tool or implement’ [Haas 1980: 70], *-va* / *-vu-* ‘plural action’)
YAN *-ṫap?-* ‘to squeeze’

PYUM *[x]tap ‘clasp’ > Ki *xtap*[1] in *xtap h-u·y* ‘grasp in mouth or with pincer tongs’, *xtap-tay-u*ʔ ‘pincers, tongs’, Hu *sit*^{h}*av* ‘tongs’, *čit*^{h}*áv-k* ‘to clasp between lips’, Ha *stav* ‘tongs for picking prickley pear’, *stav-k* ‘to hang something up (with clothespins); to handle with tongs or other clasping tool’

2.2.4. Comparison with Kaufman’s reconstruction

Kaufman reconstructs the following coronal stops for Proto-Hokan: *t, *tʼ, *t^{h}, *ṭ, *ṭʼ and *ṭ^{h}. In addition, he reconstructs the cluster *ṭx̣. See Table 29 for Kaufman’s sound correspondences.

PH	Chi	Kar	Sha	Ach	Ats	Yan	Wsh	PPom	Sal	PYum	Ser	PCho	Tol
*t	t	t	t	t	t	t	t	*t, *d	t	*t, [ṭ]	t	*t	t
*t^{h}	th	t	t	t^{h}	?	t^{h}	t^{h}	*t^{h}	t	*t, [ṭ]	t	*t	t^{h}
*tʼ	tʼ	t	tʼ	tʼ	tʼ	tʼ	tʼ	*tʼ	tʼ	*t, [ṭ]	t	*cʼ	tʼ
*ṭ	ç	t	t	t	t	t	t	*ṭ	ṭ	*t, [ṭ]	t	*t	t
*ṭ^{h}	çh	t	t	t^{h}	?	t^{h}	t^{h}	*ṭ^{h}	ṭ	*t, [ṭ]	t	*t	t^{h}
*ṭʼ	çʼ	t	tʼ	tʼ	tʼ	tʼ	tʼ	*ṭʼ	ṭʼ	*t, [ṭ]	t	*cʼ	tʼ
*ṭx̣	?	?	tx	?	?	?	?	*ṭ^{h}	?	*t	t	?	?

Table 29. Correspondences of Hokan coronal stops according to Kaufman (1989).

The main difference with my reconstruction is that Kaufman postulates an opposition between dental and alveolar/retroflex stops, while I reconstruct only one type of coronal. The reflexes of Kaufman’s dentals vs. alveolars/retroflexes differ only in Chimariko, Salinan and Pomoan. Kaufman (1989: 105–106) notes that in some cases the evidence of diagnostic languages on the reconstruction of dental vs. alveolar/retroflex stops is conflicting. For such cases Kaufman postulates an alternation between Proto-Hokan dental and alveolar/retroflex stops. I have not found evidence that the Chimariko, Pomoan and Salinan oppositions correspond to each other. In my reconstruction, Chimariko /ṭ/ is a regular reflex of Proto-Hokan *x (Kaufman’s *š). As was shown above, Proto-Pomoan dentals and alveolars are in quasi-complementary distribution. The situation in Salinan requires more research, but so far there is no indication that the opposition attested in this language can be traced back to Proto-Hokan.

2.3.0. Correspondences involving Proto-Pomoan sibilants

Three sibilants are reconstructed for Proto-Pomoan: a fricative *s and two affricates *c and *ċ (McLendon 1973: 22–23, 25). With one exception, the affricate *c is not found in words with a Hokan etymology. The exception is PPom *ʔaq^{h}óc ‘two’ which does have parallels in most Hokan languages. However, the word for ‘two’ is not considered in the present paper, since it has rather irregular correspondences. This is typical for numerals — for example, the Uralic numerals for ‘one’, ‘two’ and ‘three’ have irregular correspondences, although the validity of the comparisons is not in doubt (Aikio 2022: 25).

2.3.1. Proto-Pomoan *s

Proto-Pomoan *s forms part of two sound correspondences. The first correspondence is given in Table 30. This correspondence reflects the Proto-Hokan plain sibilant affricate *c. Note that Achumawi, Atsugewi and Yana /c/ can also come from Proto-Hokan *k.

PH	Chi	Kar	Sha	Ach	Ats	Yan	PPom	Sal	PYum	Ser	PCho
*c	*t*	θ		*c*	c	c	**s*		*č	*s*	*c

Table 30. Proto-Hokan *c.

(c-01) PH *m-i-cá ‘heavy’

CHI *himita[n]* ‹himitan› ‘heavy’ (2.20.0045)

KAR *má·θ* ‘heavy’

ATS ‹-mí·jasʔ-› ‘to be heavy’, ‹mí·jasʔi› ‘heavy’ (Olmsted 1984: 72)

YAN N *mica-* ‘heavy’

PPOM *mihsa[k] > Pk *mihsac-* ‘be heavy; (adj.) heavy, thick (of blanket, book)’ (Oswalt & Buckley 2018)

PYUM *m-ča· > Ki *m-ča·*[2] ‘heavy, weighty’ (*m-* ‘adjectival prefix’, see Mixco 1985: 68)

NOTES. (1) The word may contain the Proto-Hokan stative prefix *m-. (2) The vowel *a·* in Karuk *má·θ* results from assimilation to the subsequently lost vowel of the following syllable.

Sapir 1917: 11 || Haas 1964: 79 || Gursky 1974: 193 || Greenberg 1987: 138 || Gursky 1989: 16 || Kaufman 1989: 162 (#miɕa [i ~ a] ‘heavy’ [NC])

The correspondence can be complemented by the following comparisons without a reflex in Pomoan.

(c-02) PH *cú· ‘to flow’

KAR *θú·[f]* ‘creek’

ACH *cu* ‘to move linearly; to flow; to thrust; to cross; to cross into’

ATS *cu-* ‘from flowing liquid acting on the FIGURE’ (prefix) (Talmy 1972: 422)

YAN *cu·-* N ‘water rushes, floods’, CN ‘carried by water’ (used with directionals), C *cu·-ca* ‘creek’, *cu·-* ‘to push’ (used with directionals), CN *cu·-* ‘to poke, to spear’

SER *[ʔá]so-x* ‘river’ (pl. *[ʔá]so-łka*)

NOTES. (1) If the meanings ‘to flow’ and ‘to thrust’ in Achumawi are indeed two concrete instantiations of a more abstract meaning ‘to move linearly’, then the same may apply to the Yana verbs ‘water rushes, floods’, ‘to push’ and ‘to poke, to spear’. Otherwise we deal here with two homonymous Proto-Hokan verb roots. (2) *ʔá-* in Seri *ʔáso-x* is a fossilized absolutive prefix.

Haas 1964: 78 || Gursky 1974: 188 (#ču-w̃#) || Kaufman 1989: 160 (#cuw [w ~ m] 'to flow; creek; river' [NC])

(c-03) PH *cu ‘to handle small items’

YAN *cu-* ‘mass of small things (e.g., leaves, hair, ashes, dirt)’ (used with directionals)

PYUM *č- > MGI *č-* ‘an action performed on or by means of an indefinitely large number (a bunch) of small objects (also objects soft in consistency, pliable, or liquids) or an action characterized by repetitive small motions often of an abrasive type’ (Langdon 1970: 81), Qu *c-* ‘to cause a bunch of objects’ (Halpern 1947a: 22)

PCHO *-cu- ‘to handle small items’ > HCh *di-cu-ʔma* ‘he will carry it in his hands (fruit, small items)’, *di-cu-ǩo-ʔma* ‘he will put it (something small like grains or fruit) inside’ (*-ǩo-* ‘inside’), *di-cu-f-ʔma* ‘he will pick it up (small items)’ (*-f-* ‘up’), *di-cu-h-ʔma* ‘he will take down (small items)’

(c-04) PH *i-ác ‘seed/fruit’

PYUM *ya/ič ‘seed’ > Ki *t-yit*[1] ‘seed’, Co *yas* ‘seed’, JT *yač* ‘seeds’, MGI *ə-yač* ‘its seed’, Mo *i-δi·č* ‘seed’, Ma *δiṣ* ‘seed’, Pa *ye·č* ‘seed’, Hu *yač, ʔ-yač, i-ʔ-yač* ‘berries, seeds’, Ha *ya·č* ‘seed’, Ya *yáč* ‘seed’

PCHO *iʔac ‘fruit’ > HCh *ł-iʔas* 'the fruit, yield', LCh *iʔás* (Waterhouse 1976: 340)
NOTES. Notions ‘seed’ and ‘fruit’ are frequently colexified in world’s languages, see https://clics.clld.org/edges/714-1507.
Kaufman 1989: 153 (#yiɕ 'seed; fruit' [SW])

The second correspondence involving Proto-Pomoan *s is given in Table 31. This correspondence reflects Proto-Hokan sibilant fricative *s. Karuk has /s/, but /š/ after /i/. Note that Seri has /š/ here; Seri /s/ goes back to Proto-Hokan *c and *x instead.

PH	Chi	Kar	Sha	Ach	Ats	Yan	PPom	Sal	PYum	Ser	PCho
*s	s ~ *š*	*s*, š	s	s	s	*s*	*s	*s* ~ *š*	*s	š	*š

Table 31. Proto-Hokan *s.

(s-01) PH *(i-)sá/í ‘penis’
KAR *sí·š* ‘penis’ (probably contains *-iš* ‘diminutive’)
YAN N *si-na* ‘penis’
PPOM *ʔihsá ‘penis’ > Pk *ʔihsa*, Ps *ʔihsa*, Pc *sá*, Pn *sá*, Pse *sa* (Oswalt 1972: 49)
Haas 1964: 80 || Gursky 1974: 200 || Kaufman 1989: 134 (#Si '*penis*' [NC]) || Leščiner 1989: 164 (*č̥ʾəč̥ʾə) || Leshchiner & Nikolaev 1992: 378 (*č̥ʾõč̥ʾõ)

(s-02) PH *(a/u-)sí ‘strong’
PPOM *ʔahsí[y] ‘hard, strong’ > Pk *ʔahsiy* ‘(adj) firm, tight (wrapped); (adj) hard (like a stone), difficult; (adv) extremely; (adv) (sing) aloud, out loud; (adj) loud’ (Oswalt & Buckley 2018), Pe *síy* ‘tough, hard, strong, fast’ (McLendon 1975: 28)
SER *k-[t]óoši* ‘resistent, strong, hard; difficult; thick (like oil or honey); severe (as law)’ (conjug.: *t-[t]óoši*; *t-[t]óoš-x̣am*)
PCHO *[ux]ši > HCh *uhši* ‘strong, thick, big’
Gursky 1989: 15 || Gursky 1990: 25

(s-03) PH *i-sú ‘seed’
PPOM *ʔisó· ~ *ʔisó[y] ‘seed’ > Pk *ʔiso·*, Ps *so·[ʔo]*, Pn *só·*, Pe *[qá]soy*
SER *i-š* ‘semen’ (pl. *í-š-x̣am*, abs. *ʔa-š*)
Kaufman 1989: 153 (#iso 'seed; fruit; sperm' [N/S])

(s-04) PH *(a-)suɬ̇ ‘rope’
ACH *asɬ̇[i]* ‘rope’
PPOM *su·l[ímaṭʔ] ‘string’ > Pk *sulemaṭ*, Ps *su·lémeṭ̇*, Pc *slímaṭ̇*, Pe *ṭ́asulim*
SAL A *[ʔ]ašóɬ̇* ‹ʾaʃóʾɬ› ‘pita’ (2.86.0031), A *[ʔ]ašóɬ̇* ‹ʾacóʾl › ‘any string, also mecate (horse hair rope)’, M *[p̓]ešóɬ̇* ‹pʾecóʾʰl› ‘id.’ (2.86.0539)
Gursky 1974: 207 || Greenberg 1987: 140 || Kaufman 1989: 155 (#(a)súL 'string' [N])

(s-05) PH *ƙá/ís ‘to scrape, to scratch’
KAR *ta-xíš-xiš* ‘to scrape’ (*ta-* ‘with tool or implement’), *[θiv]xiš* ‘to plane (a board)’
PPOM *-q̇a·s > Pk *-q̇a·s* (verb root) ‘scratch and make a streak’, e.g. in *da-q̇a·s* ‘scratch and make a streak, with the hand or paw’ (*da-* ‘with the hand, especially the palm, with the paw of animals’) (Oswalt & Buckley 2018), Pe *da·-q̇á·s* ‘scratch with nails; harrow’ (*da·-* ‘with or affecting the hand’) (McLendon 1975: 66)

PYUM *xas ‘to scrape’ > Co *č-xaṣ* ‘scrape, scrub, scour, whittle, shave, sharpen (a pencil)’, Mo *a-haθ-* ‘peel (something) with a peeler or knife’, *a·-ha·θ-* ‘trim down a stick, whittle’, Ha *haθ-k* ‘to scrape (using a knife)’, Ya *háθ-v-i* ‘scrape, shave’

SER *k-[ta]ẋš* ‘scratch; take away forcibly’ (conjug.: *i-t-[tá]ẋš, i-t-[tá]ẋ-ka; i-t-[tá]ẋ-kox*), *k-[šá]ẋaš* ‘scratch’ (*i-t-[šá]ẋaš; i-t-[šá]ẋaš-ox*), *k-[pa]ẋš* ‘scratchy, rough; broke, without money’ (conjug.: *t-[pa]ẋš; t-[pa]ẋ-ka*)

NOTES. Seri *ta-*, *ša-* and *pa-* look like fossilized instrumental prefixes/prepounds; *ta-* may be the same prepound that is reflected in Karuk *ta-*, Pomoan *da- and Cocopa *č-* (PYum *t-)[16].

J. G. Crawford 1976: 317 || Kaufman 1989: 139 (#(T)aXas [s ~ š; a_2 ~ i] 'to scrape; scratch' [SW/?+Kar] (?causative prepound pHok *ta=))

This correspondence can be complemented by the following comparisons without a reflex in Pomoan.

(s-06) PH *(i-)sa ‘to breathe’

CHI *hisa-t* ‹hisat› ‘he breathes’, *ʔisa-t* ‹ʾisat› ‘I breathe’ (2.20.1085) (*-t* is an aspect suffix, see Jany 2009: 104)

PCHO *-ša- ‘to breathe’ > HCh *d-[un]ša-ʔma;* LCh *sa-h-ṁa*

Kaufman 1989: 131 (#isa [s ~ š] 'to breathe; sigh' [N] (weak))

(s-07) PH *(i/u-)sá/í ‘to say’

CHI *si* ‘to say’ (Jany 2009: 126)

SHA *-is·à* / *-is·ì-* ‹-isɨ̀-› 'to say' (Silver 1966: 138)

ACH *iś* ‘to say’

ATS *is*^{i} ‘to say about someone; tell to someone’ (Talmy n.d., a: 134)

SAL A *k-saʔ* ‹kʿsáʾ› ‘he is talking’ (2.86.038), A *k-sa(·)* ‘to talk, to speak’, *p-se·* ‘to tell’ (transitive) (Turner 1987: 147); A *sa(·)* ‘to talk’ in ‹ksá·loʔ› ‘he’s talking’, ‹ksa·tɛl(oʔ)› ‘they’re talking’, ‹sáʔ› ‘talk!’ (Jacobsen 1954: 126–127)

SER *-óoša,* a suppletive plural stem of *k-áai-tom* ‘talk, speak’ (conjug. *t-áai-tom, t-áaa-tim; t-óoša* [*t-áaa-tam*], *t-óoša-łka*)

NOTES. (1) Achumawi root is given as *iś* in Nevin (2020), but glottalized or laryngealized *ś* is not listed among Achumawi phonemes in Nevin’s (1998) description of Achumawi phonology. Apparently, *ś* is a morphophonological symbol. (2) Superscript *-i* in Atsugewi is a morphophonological symbol with unclear value used by Talmy.

Sapir 1921: 71 || Gursky 1974: 203 || Kaufman 1989: 130 (#isí 'to say' [N]) || Gursky 1990: 1

(s-08) PH *(a/i-)p^{h}usí ‘liver’ (= p^{h}-09)

CHI *huši* ‹huʃi› ‘liver’ (2.23.0174)

KAR *[v]áfiš* ‘liver’

SHA *ʔé·psiʔ* ‘liver’ (Silver 1964: 173)

ATS *ʔúpsi* ‘liver’ (Talmy n.d., b: 104)

PYUM *(č-)psi· ‘liver’ > Ki *lphi·*[2] ‘liver’, Co *čpuṣú* ‘liver (from an animal)’, JT *čəpsi* ‘liver’, MGI *čəpəsi·* ‘his liver’, Mo *čavuθi·* ‘liver’, Pa *čvsi·* ‘liver’, Hu *čivθi·, čivθi·ʔ* ‘liver’, Ha *čvθi·-ʔi* ‘liver’, Ya *čvθí·* ‘liver’

NOTES. (1) The vowel *i* in Karuk *váfiš* results from assimilation to the subsequently lost vowel of the following syllable. (2) Unexpected reflexes of *p^{h} in Shasta, Atsugewi and Yuman

[16] According to S. A. Marlett (pers. comm.), Mary Moser noticed that a lot of Seri verbs that have *t-* at the beginning have something to do with the hand.

are apparently due to preconsonantal position. (3) The vowel *u* in Atsugewi *ʔúpsi* may result from assimilation to the subsequently lost vowel of the following syllable.

Sapir 1917: 9 || Haas 1963: 46–48 || Haas 1964: 79 || Silver 1964: 173 || Gursky 1974: 196 (#iw̃apsi#) || Greenberg 1987: 240 || Gursky 1989: 21 || Kaufman 1989: 132 (#fusi 'liver' [N/S]) || Leshchiner & Nikolaev 1992: 376 (*wusi (~-e))

2.3.2. Proto-Pomoan *ċ

The sound correspondence involving Proto-Pomoan *ċ is given in Table 32. This correspondence reflects the Proto-Hokan glottalized sibilant affricate *ċ. The Karuk reflexes depend on sound-symbolic alternation: according to a regular synchronic rule /θ/ is replaced in diminutives by /č/.

PH	Chi	Kar	Sha	Ach	Ats	Yan	PPom	Sal	PYum	Ser	PCho
*ċ	ċ	*θ, č*	c̆	ċ	*ċ*	ċ	*ċ		*č		*ċ*

Table 32. Proto-Hokan *ċ

(ċ-01) PH *k^{h}a/uċV́ 'cold'

CHI *q^{h}aċa* ‹qʻáťsa› 'ice' (Berman 2001: 1063)

YAN CN *xa·ċi[tʔ]-* 'to feel cold'

PPOM *q^{h}u(ʔ)ċá·- 'winter' > Pk *q^{h}oṡa·*, Pn *k^{h}eċá[ma·]*, Pne *k^{h}uʔc̆á[ti]*, Pe *xu·ċá·[y]*

PYUM *xču·[r] 'to be cold' > Co *xsu·r* 'be cold', JT *xəču·r* 'it is cold', MGI *xəču·ṛ* 'is cold', Mo *haču·r-k* 'be cold', Ma *xčur-k* 'be cold', Qu *xacú·r* 'to be cold', Hu *č^{h}ur ~ č^{h}u·r* 'winter', Ha *č^{h}u·r* 'year; winter', Ya *ʔč^{h}ú·r-i* 'winter'

NOTES: Yana *xa·ċ[itʔ]-* 'to feel cold' is derived from *xa·-* Y 'cold'. This morpheme is also found in Yan Y *xa·-ɬai-na* 'cold'. If the Yana form really belongs to this set, the Proto-Hokan form must also be considered a compound with the first element PH *k^{h}a- 'cold'.

Sapir 1917: 8 || Greenberg & Swadesh 1953: 218 || Gursky 1965: 172 || Gursky 1974: 183 || McLendon 1964: 130 || Greenberg 1987: 207 || Gursky 1988: 32 || Kaufman 1989: 143 (#x^{y}aḝ [a ~ o; x^{y} ~ x̣] 'cold [*a]; winter [*u]' [N/S]) || Leshchiner & Nikolaev 1992: 401 (*q^{h}ác̆ő)

(ċ-02) PH *a-ċúl 'saliva'

PPOM *[q]a(ʔ)ċó·l(^{y}) 'saliva' > Pe *qa·ċó·l* (McLendon n.d.: 26)

PCHO *-a-cul ~ *-a-ċul 'saliva' > HCh *ɬ-a-cul-uʔ*, LCh *a-c̆uɬ'*

Gursky 1990: 1

This correspondence can be complemented by the following comparisons without reflexes in Pomoan.

(ċ-03) PH *(i-)ċá/í 'to act with teeth'

CHI *-iċa-* 'act with teeth' (Jany 2009: 43–44)

KAR *θa-* 'with the teeth' (Haas 1980: 70)

SHA *-aʔu-c̆i-* 'to chew' as in *kwáʔuc̆i·k* 'he's chewing' (Silver 1964: 172) (apparently contains root *-aʔu-* 'mouth', see Silver 1966: 112)

ACH *iċ* 'to bite'

PYUM *ča 'to bite' > Ki *čaʔ*[1] 'to bite'; PYUM *č- 'with teeth or mouth' (verbal prefix) > Ki *č-* 'with teeth/mouth' (instrumental causative prefix), Co *s-* 'do in the mouth or by talking; general causative' (Crawford 1966: 117–118), JT *č-* prefix in stems denoting actions per-

formed with the mouth or by talking (Miller 2001: 55), Qu *c-* 'to cause with the teeth' (verbal prefix) (Halpern 1947a: 22)

Gursky 1968: 26 || Gursky 1974: 215 || Kaufman 1989: 139 (#ȼa [ȼ ~ č] 'to bite; with the mouth/teeth (incorp pre-pound)' [N/S], #uȼi 'to chew' [NC]) || Gursky 1990: 17 || Gursky 1995: 145 || Zhivlov 2018: 148–149

(ċ-04) PH *i-ċaw 'tooth'

CHI *huċu* ‹húts'ù› 'tooth' (2.23.0124)

SHA *ʔíċaw* 'tooth' (Bright & Olmsted 1959: 50); NRSha ‹ki´'tsau› 'teeth' (Dixon 1905: 216)

ACH *i·ċá* 'tooth; teeth'

ATS *ʔiċáw* 'tooth' (Talmy n.d., b: 117)

YAN *-ċau-* 'to get stuck in cleft, claws, teeth; crowded', YC *[k^{h}i]ċau-na* 'tooth, teeth'

NOTES. (1) PH *i-ċaw 'tooth' may be related to PH *(i-)ċá/í 'to act with teeth' (ċ-03). (2) The first vowel of the Chimariko form possibly results from the development *i-aw > *i-u > *u-u*.

Sapir 1917: 9 || Dixon & Kroeber 1919: 106 || Sapir 1925: 408 || Sapir & Swadesh 1960: 16 (*iċau) || Gursky 1965: 187 || Gursky 1974: 215 || Greenberg 1987: 141 || Kaufman 1989: 139 (#i-7ȼow [ȼ ~ č] 'tooth' [NC]) || Leščiner 1989: 163 (*ƫiĉ'a(wʌ)) || Leščiner 1990: 36 (*ƫíĉ'ă(wʌ)) || Leshchiner & Nikolaev 1992: 375 (*ƫíĉ'ă(w))

(ċ-05) PH *(a-)ċi 'louse'

KAR *ačiˑč* 'louse (*Anoplura*)' (probably contains *-ič* 'diminutive')

SHA *čˇíˑ[taƙ]* 'louse' (Silver 1964: 174)

ACH *aċ* 'louse'

YAN N *ċi-tʔ-ki-wi* 'nit' (*-tʔ-...-wi* 'plural')

Sapir 1917: 6 || Haas 1964: 79 || McLendon 1964: 133 || Silver 1964: 174 || Gursky 1974: 196 (#ač(ʔ)i#) || Gursky 1989: 21 || Kaufman 1989: 152 (#ač'i 'louse; flea' [N/S])

2.3.3. Comparison with Kaufman's reconstruction

Kaufman reconstructs the following sibilant affricates and fricatives for Proto-Hokan: *ȼ, *ȼ', *ȼ^h, *č, *č', *č^h, *s and *š. He also reconstructs the cluster *cx whose first component may have been identical to *ȼ or *č. See Table 33 for Kaufman's sound correspondences.

PH	Chi	Kar	Sha	Ach	Ats	Yan	Wsh	PPom	Sal	PYum	Ser	PCho	Tol
*ȼ	s	θ	ȼ	c	c	c	c	*c	ȼ	*c	c	c	c
*ȼ^h	?	θ	ȼ	c^h	?	c^h	c^h	?	ȼ	*c	c	c	c^h
*ȼ'	ȼ'	θ	ȼ'	c'	c'	c'	c'	*c'	ȼ'	*c	c	c'	c'
*č	č	č	c	c	c	c	c	*c	č	*c	c	c	c
*č^h	čh	č	c	c^h	?	c^h	c^h	?	č	*c	c	c	c^h
*č'	č'	č	c'	c'	c'	c'	c'	*c'	č'	*c	c	c'	c'
*cx	čx	?	?	?	c	c^h	?	?	sx	?	?	?	?
*s	s	s	s	s	?	s	s	*s	s	*s	s	ṣ	s
*š	š	s	s	š	s	s	š	*š	š	*ṣ	ṣ	ṣ	s

Table 33. Correspondences of Hokan sibilant affricates and fricatives according to Kaufman (1989).

The main difference between my reconstruction and Kaufman's is that Kaufman postulates an opposition between hissing (*ȼ, *ȼ^h, *ȼ') and hushing (*č, *č^h, *č') affricates, while I reconstruct only one type of affricates. The reflexes of hissing and hushing affricates supposedly differ in Chimariko, Karuk, Shasta and Salinan. Similar to the case with dentals/alveolars

above, I have not found evidence that these form two distinct series of correspondences. Kaufman (1989: 105–106) notes that in some cases the evidence of diagnostic languages on the reconstruction of hissing vs. hushing affricates is conflicting. For such cases Kaufman postulates an alternation between Proto-Hokan hissing and hushing affricates. Karuk /č/ is a regular diminutive correlate of /θ/ in sound-symbolic alternations, so potentially all cases of Karuk /č/ can be explained as due to diminutive symbolism. Shasta /c/ (/¢/ in Kaufman's notation) regularly reflects the Proto-Hokan velar stops *k and *k^{h} (the latter = *x^{y} in Kaufman's reconstruction). Since these phonemes also give affricates in Achumawi[17], Atsugewi and partly in Yana, some of the etyma reconstructed by Kaufman with *¢ or *¢^{h} can reflect Proto-Hokan velar stops. The default reflexes of Proto-Hokan affricates in Shasta seem to be /č/ and /c̓/ (/c/ and /c̓/ in Kaufman's notation). The situation in Chimariko and Salinan is unclear because of the scarcity of reflexes, but I have found no evidence that the Chimariko and Salinan oppositions correspond to each other. Note also that Kaufman postulates /c/ as the Seri reflex of Hokan affricates, although there is no such phoneme in Seri. The opposition between Kaufman's *s and *š is quite robust, but I reconstruct *x in place of Kaufman's *š.

The next paper in this series will deal with the reconstruction of velar and laryngeal obstruents.

Language abbreviations

Ach — Achumawi; Ats — Atsugewi; BI — Barona 'Iipay; Chi — Chimariko; Co — Cocopa; Ha — Havasupai; HCh — Highland Chontal; Hu — Hualapai; JT — Jamul Tiipay; Kar — Karuk; Ki — Kiliwa; Kon — Konomihu; LCh — Lowland Chontal; Ma — Maricopa; MGI — Mesa Grande 'Iipay; Mo — Mohave; NRSha — New River Shasta; Okw — Okwanuchu; Pa — Paipai; Pc — Central Pomo; PCho — Proto-Chontal; Pe — Eastern Pomo; Pk — Kashaya; Pn — Northern Pomo; Pne — Northeastern Pomo; PPom — Proto-Pomoan; Ps — Southern Pomo; Pse — Southeastern Pomo; PYum — Proto-Yuman; Qu — Quechan; Sal — Salinan; Sal A — Antoniano Salinan; Sal M — Migueleño Salinan; Ser — Seri; Sha — Shasta; Teq — Tequistlateco; Tol — Tol; Wsh — Washo; Ya — Yavapai; Yan — Yana; Yan C — Central Yana; Yan N — Northern Yana; Yan Y — Yahi.

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[17] Proto-Hokan *k^{h} gives Achumawi /s/.

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М. А. Живлов. Хока II: лабиальные и корональные шумные

Настоящая статья продолжает цикл работ, посвященных переоценке остающейся по сей день спорной гипотезы о родстве хоканских языков. В данной статье классический сравнительно-исторический метод применяется к фонетическим соответствиям лабиальных и корональных шумных. Полученные результаты сравниваются с хоканской реконструкцией Терренса Кауфмана (1989).

Ключевые слова: сравнительный метод; языки хока; индейские языки; историческая фонетика.