

Glottalized consonants in Mississippi Valley Siouan

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Abstract: Glottalized stops and fricatives form a class of consonants in Mississippi Valley Siouan that is commonly present but moderately rare. An attempt is made here to analyze these special sets, and to trace their phonological origins. Few word sets have more than three or four that extend across MVS language groups, and many of the glottalized consonants we find in the daughter languages may have arisen locally through syncope in the later history of the languages. Hence, the historical reconstructions proposed here are tentative. It appears that there existed four or five glottalized stops, given here as **p'*, **t'*, **k'*, **č'*, and perhaps **ts'*, as well as three fricatives, given as **s'*, **š'*, and **x'*. It also appears that syncopated **x-k* and **k-x* merged with **x'* in MVS, yielding a neo-glottal in all daughter groups except Hoocąk.

Keywords: Proto-Siouan, glottalized consonants, velar consonants, palatal consonants, comparative method

1. Introduction

Glottalized consonants in Mississippi Valley Siouan are well known to linguists approaching these languages. Their origins and relationships, in my recollection at least, seem not to have attracted the degree of attention and historical linguistic ordering received by the more common consonants. In fact, the project of researching them for this paper has brought home to me the cross-linguistic complexity of glottalized consonants, and the difficulty of discovering regular historical-phonological laws to explain them. Glottalized stops and fricatives are indeed somewhat rare, but the surprising problem is that trustworthy correspondences between language branches are significantly rarer. This leaves the sound-shift laws that may be derived resting on perilously few concrete examples. Nevertheless, some patterns do seem to emerge, which offer us at least a reasonable hypothetical framework. Data presented here is drawn from the following sources: [Cumberland & Rankin 2012](#) (Kansa), [Dorsey & Swanton 1912](#) (Biloxi), [Goodtracks 2014](#) (Ioway-Otoe-Missouria), [Helmbrecht & Lehmann 2010](#) (Hoocąk), [Kaufman 2015](#) (Biloxi), [Quintero 2009](#) (Osage), [Rankin et al. 2006](#) (Proto-Siouan and Proto-Mississippi Valley), [Riggs 1992](#) (Dakota), [Ullrich 2011](#) (Lakota), and [Williamson 1992](#) (Dakota).

2. Labial stop: *p'

All the MVS languages have cases of glottalized /p'/, as seen in Table 1. These sounds are rare, however. I found a root tracible to MVS *p'o*, 'fog, steam', in all languages but Hoocak. All languages, including Hoocak, have **(wa-)naⁿp'iⁿ* for 'wear around the neck' or 'necklace'. This would seem to be a good match, except that it could easily be an international word for a prestige item among MVS languages, and thus more of a common loan word than an independent genetic derivative from proto-MVS. Biloxi has a similar word for 'necklace', *napani*. Hoocak has a word for 'soft and spongy' that should trace to MVS **p'aⁿte*, and which may or may not find a match in Omaha, depending on the questionable reliability of my memory of Dorsey. These three cases tentatively support the view that MVS **p'* has been preserved as such in all MVS languages.

Table 1: PS **p'* in MVS

	'fog, steam'	'elm'	'(wear a) necklace'	'soft, spongy'
Da.	<i>p'o</i>	<i>p'e</i>	<i>naⁿp'iⁿ</i>	
La.	<i>p'o</i>	<i>p'e</i>		
Os.	<i>o-p'o-raⁿ</i>		<i>noⁿp'iⁿ</i>	
Ka.	<i>p'o</i>	<i>e-hu</i>	<i>wa-naⁿp'iⁿ</i>	
Om.	<i>p'u-roⁿ</i>	<i>ee-žoⁿ</i>	<i>wa-noⁿp'iⁿ</i>	<i>noⁿ-p'oⁿde</i> (? needs to be checked)
IOM	<i>ra-p'o</i>	<i>e-hu</i>	<i>wa-naⁿp'iⁿ</i>	
Ho.			<i>naaⁿp'iⁿ</i>	<i>p'aaⁿ-p'aⁿč</i>
MVS	<i>*p'o</i>		<i>*(wa-)naⁿp'iⁿ</i>	<i>*p'aⁿte</i>

The word for 'elm', however, gives us pause. Here, Dakotan has a handsome p-glottal word *p'e*, while Dhegiha and IOM have simply *e*, or perhaps 'e. Hoocak seems to have switched to a different word. This looks like the difference between Dakotan and the other three in the case of funny-r *bl-* clusters, where we find *bl-* in Dakotan, but funny-r **R-* in the others. In this case, either the initial *p-* is an optional *wa-* or *wi-* prefix syncopated against a glottal stop, used in Dakotan but not in the other MVS languages, or else the *p-* in Dakotan 'elm' may be coming from a different phonetic source than the *p-* in 'fog'.

3. Alveolar stop: *t'

As seen in Table 2, all the MVS languages have cases of glottalized /t'/ too, but there seems to be only one such word they share. This is the ubiquitous **t'e*, meaning 'die' or 'dead', which is found much farther afield than MVS. They also seem to share a generalized derivative word, **t'e-ka*, or 'dead-ish', but what this word actually signifies varies wildly.

Table 2: PS *t' in MVS

	'die, dead'	'feckless, lazy, crazy, rotten'
Da.	t'e	t'e-ča
La.	t'e	t'e-ča
Os.	ts'e	ts'e-ka
Ka.	ts'e	ts'e-ga
Om.	t'e	t'e-ga
IOM	č'e	
Ho.	t'ee	t'ee
MVS	*t'e	*t'e-ka

4. Velar stop: *k'

The glottalized /k'/ actually has several good words for comparison across MVS, shown below in Table 3. It should be noted though that most of these words are probably derivatives of the 'self' prefix *ki, tacked onto a following root morpheme that may have begun with a simple glottal stop. Since such words would be poly-morphemic, there is fair room to question whether they actually go back to Proto-MVS, rather than being later constructions. Their regularity and simplicity of conception makes it seem most likely that they do, however. Note that /*k'/ is retained across MVS, except for Omaha and Ponca, where the leading /*k/ is regularly dropped, leaving only the plain glottal stop. (In Dakotan, /*k/ regularly turns to /č/ after a front vowel such as /i/.)

Table 3: PS *k' in MVS

	'carry on back'	'dig'	'give'	'br-in-law-w'	'swift'
Da.	k'i ⁿ	k'e	k'u	šič'e	
La.	k'i ⁿ	k'e	k'u	šič'e	
Os.	k'i ⁿ	k'e	k'u	šik'e	k'a ⁿ saaki
Ka.	k'i ⁿ	k'e	k'u	šik'e	k'a ⁿ sagi
Om.	'i ⁿ	'e	'i	ši'e	'o ⁿ sagi
IOM	k'i ⁿ	k'e	k'u ⁿ	šik'e	k'a ⁿ pa(-ge)
Ho.	k'ii ⁿ	k'ee	ho-k'u ⁿ	šik'e	saak(-re)
MVS	*k'i ⁿ	*k'e	*k'u ⁽ⁿ⁾	*šik'e	

So far, the glottalized stops seem to be fairly regular, with *p', *t', and *k' each retained pretty much as such throughout the daughter languages. We next turn to the fricatives.

5. Alveolar fricative: *s'

The first three items of these series below in Table 4 presumably trace back to MVS /*s'/. The 'shave, trim' *=s'o and the 'snake, snake-hiss' *s'a reconstructions are questionable. The only trustworthy *s' set we have is that for *s'iⁿ, 'crane the head or neck forward', as in peeping in, or

falling head-first, or standing on one's head, and this one seems pretty solid. The notable change here is that in Osage and Kaw, /*s'/ becomes the affricate /*ts'/ (In IOM, /*s/ regularly shifts forward to be a voiceless 'th', /p/. Regular /*s/ stays /s/ in Osage and Kaw.)

Table 4: PV *s' in MVS

	'crane neck forward'	'shave, trim'	'snake, snake-hiss'	'sour, bitter'
Da.	<i>ka-s'iⁿ</i>		<i>s'a</i>	
La.	<i>s'iⁿ</i>	<i>=s'o</i>	<i>s'a</i>	<i>s'a-mna</i>
Os.	<i>o-ka-ts'iⁿ</i>	<i>ka-ts'o</i>	<i>we-ts'a</i>	<i>ts'aa-re</i>
Ka.	<i>o-ga-ts'iⁿ</i>	<i>ga-ts'u</i>	<i>we-ts'a</i>	<i>ts'a-ye</i>
Om.	<i>u-ga-s'iⁿ, ba-s'iⁿ</i>		<i>we-s'a</i>	<i>s'a-re</i>
IOM	<i>o-p'iⁿ</i>	<i>=p'o</i>		<i>t'a, wa-t'a-braⁿ</i>
Ho.	<i>ho-i-s'iⁿ</i>			
MVS	<i>*s'iⁿ</i>	<i>*=s'o</i>	<i>*(we-)s'a</i>	<i>*ts'a</i>

The fourth series is the same except for IOM, where the reflex is apparently /t'/ rather than expected /p'/. Perhaps the IOM word is not actually related. Otherwise, we may have another series based on something like /*ts'/.

6. Palatal fricative: *š'

Again, there is only one word found, *š'e, 'drip' or 'drop', that is trustworthy across MVS, seen in Table 5 below. The suggested 'curved, bent' word *š'iⁿ is too sparsely attested to inspire confidence. The other three columns are puzzling. They appear to derive from the same Proto-MVS sound sequence *š'ake, but their respective meanings are hard to reconcile. Dakotan has just one root of this form, meaning 'strong'. The other languages have two roots of the form, one meaning 'weak' or 'fail', and the other meaning 'old man'.

Table 5: PS *š' in MVS

	'drip, drop'	'fail, unable'	'strong'	'old man'	'curved, bent'
Da.			<i>wa-š'aka</i>		
La.	<i>š'e</i>		<i>š'ake</i>		<i>š'iⁿ</i>
Os.		<i>=ts'ake</i>		<i>ts'ake</i>	<i>ts'iⁿ-ša</i>
Ka.	<i>ts'e</i>	<i>=ts'age</i>		<i>ts'age</i>	
Om.	<i>'e</i>	<i>=a(-ge)</i>		<i>iⁿ-š'age</i>	
IOM	<i>s'e / š'e</i>	<i>=s'age / =š'age</i>		<i>š'age</i>	
Ho.	<i>š'ee</i>	<i>=š'ak</i>		<i>š'aak</i>	
MVS	<i>*š'e</i>	<i>*=š'a(-ke)</i>	<i>*š'a(-ke)</i>		

Osage and Kaw convert /*š'/ to /ts'/ as they do with /*s'/, meaning that they have regularly merged MVS /*s'/ and /*š'/. Omaha seems inconsistent here. According to the 'drip/drop' root and the 'fail' root, Omaha and Ponca dropped the initial /š/ to convert MVS /*š'/ into a plain glottal stop. Thus, MVS /*š'/ and /*k'/ are merged as /'/. This is probably the standard development, but

the ‘old man’ term clashes with this law. In fact, *iⁿš’age*, ‘old man’, is the only word in Omaha I am aware of that contains /š’/. I think it is most likely that the Omaha and Ponca *iⁿš’age* term is an early borrowing from IOM, perhaps from before the time that simple /š/ in Otoe moved forward to become /s/.

7. Velar fricative: *x’

The first three sets in Table 6 are restricted to Dhegiha and IOM, and the last set is dubious. Although all MVS language groups except Dhegiha have /x’/-cluster words, there seem to be no good /*x’/ words in Hoocąk that also span MVS. What we have, however, indicates that where IOM or Dakotan have /x’/, Dhegiha originally has /*k’/. As far as I have been able to determine (Quapaw not yet checked), there are no /x’/ clusters in Dhegiha. Apparently, MVS /*x’/ regularly became /*k’/ in Dhegiha, which then regularly became /’/ in Omaha and Ponca. There is thus no need to assume that /*x’/ changed to glottal stop separately in Omaha.

Table 6: PS *x’ in MVS

	‘notched’	‘scraping’	‘itch, tickle’	‘hanging, ragged, leak’
La.				x’e (‘hanging ragged’)
Os.			k’u-e	
Ka.	k’abe	k’aye	k’ü-ya	
Om.	’abe	’aye	’i	’e (‘hanging, dangling’)
IOM	x’awe	x’aye	x’i	x’e (‘leak’)
Ho.				hi-x’e-žu (‘ragged, worn out’)
MVS	*x’ape	*x’aye	*x’u	*x’e

However, we do seem to have at least three good sets spanning MVS where IOM and Dakotan have /x’/ and Dhegiha has /*k’/, but Hoocąk has either /xg/ or /šg/ rather than /x’/. These three are apparently polymorphemic, and two of them show the *x’ cluster appearing at the boundary between two morphemes. Consider the words for ‘hear’, ‘cottonwood’, and ‘star’ in Table 7, which are common to all four MVS language groups:

Table 7: Unexpected alternations between *x’ and /xg~šg/

	‘hear’	‘cottonwood’	‘star’
Da.		waya-č ^h a ⁿ	wi-č ^h a-xpi(-x’a)
La.	na ⁿ x’u ⁿ	waya-č ^h a ⁿ	wi-č ^h a-xpi
Os.	na ⁿ k’o ⁿ	paak’a	mi-hka-k’e
Ka.	na ⁿ k’o ⁿ	blak’a	mi-kka-k’e
Om.	no ⁿ ’o ⁿ	ma’a	mi-kka-’e
IOM	na ⁿ x’u ⁿ	bax’e	bi-ka-x’e
Ho.	naa ⁿ xgu ⁿ	waašge	wii-ragu ⁿ -šge
MVS	*no ⁿ γ-’u ⁿ	*Way(-kE)	*Wi-kka-()-x’e

The ‘star’ set is long and complicated, and the morphemic sequence is not exactly the same in all branches of MVS. In all cases, the word starts with the word for ‘sun, heavenly body’, **Wi*. In all but Hoocak, the second element is something reconstructible as **kka* (**hka* in CSD orthography). To this, Dakotan adds a **xpi*, but the other languages do not. The final element, which may or may not be absent in Dakotan, is normally **x’e*, which turns to /**k’e*/ in Dhegiha and /**šge*/ in Hoocak.

In the ‘cottonwood’ set, the Kaw reflex is odd, because we would expect a simple /b/ ***bak’a*, rather than the /bl-/ cluster we find. Otherwise, the set is based on what must be an underlying **Way*, where /**W*/ is Siouan ‘funny-*W*’. In Dakotan, the breakdown is clear, with the species name *waya* restricting the more generic ‘tree/wood’ head noun *č^haⁿ*. But in the other three language groups, there is something else appended, which merges phonologically with the final /y/ of *Way*. This seems most likely to be the common Siouan generalizing suffix *-kE*, which can ablaut between *-ke* and *-ka*. If so, then Hoocak and IOM used *-ke* here, while Dhegiha used *-ka*. The fusion turned Hoocak **x-ke* to *šge*, IOM **x-ke* to *x’e*, and Dhegiha **x-ka* to *k’a*. (Before a simple stop consonant, the voiced velar fricative /**ɣ-k*/ presumably would be devoiced to /**x-k*/.)

8. Glottalized **k*’ from **x-k*

If this analysis is correct, then glottalized consonants /**x’*/ and /**k’*/ have arisen secondarily in IOM and Dhegiha from early morpheme boundaries of the form /**x-k*/, where no prior glottal stop ever existed. Several other words in Dhegiha likely arose the same way in Table 8:

Table 8: Dhegihan *k*’ from **x-k*

	‘flat’	‘little, young’	‘paper’	‘frog’	‘decayed, rotten’
Os.	<i>brak’a</i>	<i>wa-hok’a</i>	<i>hta-naⁿk’a</i>	<i>htse-o-k’a</i>	<i>htsuk’a</i>
Ka.	<i>blak’a</i>		<i>tta-naⁿk’a</i>	<i>ttse-bu-k’a</i>	<i>ttsuk’a</i>
Om.				<i>tte-bi’-a</i>	<i>tti’a</i>
MVS	* <i>brax-ka</i>	* <i>wa-hox-ka</i>	* <i>tta-naⁿx-ka</i>	* <i>tte-pux-ka</i>	* <i>ttux-ka</i>

The generalizing Siouan **kE* suffix is particularly common for adjectives (stative verbs) and for the names of animals. Four of these five fit those criteria. The remaining one, ‘paper’, is a compound, presumably recent, of which the second element is of unknown meaning, and quite possibly a stative verb. If this analysis is correct, then we find ourselves with five new Siouan lexical roots in MVS, the precise meanings of which are hinted at by context, yet are still not entirely clear.

This set in Table 9 follows the same outcome pattern as the others above, but it likely arose in the opposite way. Instead of being based upon a postfixed generalizing suffix /**-kE*/, it probably comes from a prefixed ‘self’ particle /**ki-*/. Relaxing or resting is something one does to oneself, as suggested by the Osage form, which prefixes the **ki-* again to the derived word. But if the suggested Hoocak equivalent is correct, then the root verb should not have started with a glottal stop, as is often the case with the regular /**k’*/ sets above, else it too should have yielded /*k’*/. Instead, it probably started with **x*, i.e. **xaⁿze*, ‘rest’, which would give **ki-xaⁿze*, or **k-xaⁿze* upon syncope of the first, unstressed, syllable. A /**kx*/ segment would have to be

Table 9: MVS *k'* from **k-x*

	‘rest, relax, take a break’
Os.	<i>hki-k'aⁿze</i>
Ka.	<i>k'aⁿze-gire</i>
Om.	<i>'oⁿze-gire</i>
Ho.	<i>xgaaⁿzi</i>
MVS	<i>*k-xaⁿze</i>

handled somehow, and apparently it was treated the same as */*xk/*, probably with metathesis in pronunciation. The result was same again as */*x'/*.

The alternation in Hoocąk between */xg/* and */šg/* is a puzzle here. I would tentatively suggest that the difference may depend on what the following vowel is. Before front vowels like */-e/* we seem to get */š/* (*/šge/*), and otherwise */x/*, (*/xguⁿ/* and */xgaⁿ/*).

Thus, putative */*x'/*, */*xk/*, and */*kx/* seem to show the same reflexes across MVS, and presumably were levelled to one in the original language.

9. Palatal (?) stop: **č'*

In four series seen in Table 10, a */*t'/* or its reflex appears for IOM and Hoocąk only, and shows nothing at all in that location in any of the other languages. In a paper presented to this conference in 2015, I proposed that reconstructed Siouan **y* was actually polyphonemic, and that one of its members was actually a palatal stop series */*č'/*. As a stop, this phoneme should potentially take the range of modifications in MVS that other stops undergo, including simple, tense/pre-aspirated, post-aspirated, and glottalized. I would suggest that the pattern illustrated above shows the outcome for glottalized */*č'/*, where this phoneme merges with */*t'/* in IOM and Hoocąk, but disappears entirely in all other MVS languages.

Table 10: Possible PS **č'* in MVS

	‘fly’	‘speak’	‘throw away’	‘burn’
Da.			<i>uⁿyaⁿ</i>	
La.	<i>kiⁿ-yaⁿ</i>	<i>i-yA</i>	<i>uⁿyaⁿ</i>	
Os.		<i>i-e</i>	<i>ooⁿre</i>	
Ka.		<i>i-e</i>	<i>oⁿye</i>	
Om.	<i>gi-oⁿ</i>	<i>i-e</i>	<i>oⁿre</i>	<i>u-oⁿ</i>
IOM	<i>gi-t'aⁿ</i>	<i>i-č'e / i-t'a</i>		
Ho.	<i>t'aaⁿ</i>	<i>hi-t'e</i>	<i>t'uuⁿnyee</i>	<i>ho-t'uⁿ</i>
MVS	<i>*(ki-)č'aⁿ</i>	<i>*i-č'e</i>	<i>*č'uⁿre</i>	<i>*o-č'uⁿ</i>

10. Conclusion

Glottalized consonants in proto-MVS seem to include *p', *t', *č', *k', *s', *š', *x', and perhaps *ts'. Most *k' sounds probably developed from syncopated *ki-' combinations, using the 'self' prefix *ki-. Syncopated /*k-x/ and /*x-k/, as from /*ki-x/ and /*-x-kE/, merged with /*x'/ to produce new glottals in all MVS languages but Hoocąk. Dakotan and IOM seem to be relatively conservative in retention of the original forms, while Dhegiha and Hoocąk have been more inclined to change them.

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