Advances in the study of Siouan languages and linguistics

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Edited by

Catherine Rudin & Bryan J. Gordon

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To Bob, whose knowledge was matched only by his generosity.

Contents

Preface

This volume presents a group of papers representing a range of current work on Siouan[1] languages, in memory of our colleague Robert L. Rankin, a towering figure in Siouan linguistics throughout his long career, who passed away in February of 2014.

Beyond honoring a beloved colleague, our aim in this volume is to bring a variety of issues in Siouan linguistics to the attention of the linguistic community. The Siouan language family is a large and important one, with branches geographically distributed over a broad swath of the North American plains and parts of the southeastern United States. This puts it in contact historically with several other families of languages: Algonquian, Iroquoian, Caddoan, Uto-Aztecan, and Muskogean. Siouan languages are, or were historically, spoken by the members of at least 25 ethnic/political groups. One Siouan language, Lakota, is among the handful of indigenous North American languages with younger speakers today. Siouan languages have occasionally risen to prominence in general linguistics, for instance in the study of reduplication (Shaw 1980); and Omaha and Crow (Apsaalooke) have lent their names to two of the basic categories of kinship systems in anthropology. Nonetheless, the Siouan family has been underrepresented in the descriptive and typological literature, and most of the languages in the family are severely understudied. The majority of work on Siouan languages is unpublished, existing only in the form of conference papers or manuscripts.[2] This volume is a step toward making information on Siouan languages more broadly available and encouraging deeper investigation of the myriad issues they raise.

From the perspective of linguistic typology, Siouan languages have many notable features. Many of these features stand to challenge typological generalizations. Here we briefly sketch a few of the most characteristic features of the Siouan family.

[1] "Siouan" is not to be confused with "Sioux", a controversial term referring to Lakota and Dakota people, rarely to Nakota/Nakoda people too, but never correctly to people of other traditionally Siouan-language-speaking communities.

[2] Many of these unpublished works are collected in the electronic Siouan Archive, maintained by John Boyle at the University of California at Riverside.

All Siouan languages possess a rich variety of applicative affixes, confirming Polinsky's (2013) observation that applicatives are common in North America and adding another language family to her list of applicative-rich families in the area. **Helmbrecht2006** divides the applicatives into three templatic slots: locative applicatives, benefactive applicatives, and applicative markers; all of the Siouan languages sampled by Helmbrecht possess at least two applicative morphemes.

All Siouan languages are strongly head-final, and the consensus among syntacticians working with Siouan languages is that all but the supraclausal projections (and even some of these) are underlyingly head-final in Siouan languages, contra Kayne's (1994) Antisymmetry theory.

All Siouan languages have head-internal relative clauses. A series of strong claims regarding the typological implications of head-internal relative clauses (cf. Cole 1987; Murasugi 2000), including purported distinctions between "Japanese-type" and "Lakota-type" constructions (cf. Watanabe 2004; Williamson 1987; Bonneau 1992), propelled Lakota into the debates of theoretical syntax. It has been pointed out that head-internal relative clauses of the kind found in Lakota and other Siouan languages lack the island restrictions found in other languages. On the other hand, **Murasugi2000** argues that languages with head-internal relative clauses must also have head-external relative clauses, which is not true in Siouan languages.

All Siouan languages have verbal affixes which index subject possession of or relationship with the object. They vary with respect to contexts of obligatoriness of these affixes.

Many Siouan languages have grammaticalized systems of speaker-gender marking, with gender-specific morphology for speech-act markers, address terms, and kinship lexemes.[3] Such usage varies depending on stuational factors, however, especially in the case of speech-act markers; see for instance Trechter (1995).

Many Siouan languages have a modal CCV morpheme shape. This does not necessarily imply a preference for CCV phonetic realizations, but may indicate such a preference in the distant past. Another unusual prosodic feature is the preference for second-syllable stress in most Siouan languages. Hoocąk may be the only attested language with default third-syllable stress in the world.

Most Siouan languages have ejective stops. The Dhegiha branch is notable for a four-way glottal-state distinction in its stop series (voiced/lenis, tense/pre-aspirated, ejective and aspirated). Outside of the Dhegiha branch are many Siouan languages which have the unusual feature of a phonemic voicing distinction in

[3] In the case of kinship terms, lexical choice is driven by the gender of the "ego" deictic center, which coincides with speaker gender when there is 1st-person inflection.

fricatives but not in stops.

Verbs play some typologically unusual, prominent roles in Siouan languages. Diachronically, many grammatical items which rarely grammaticalize from verbs in other languages tend to derive from verbs in Siouan languages. For instance, Rankin (1977) documents the derivation of classifiers and articles from verbs. In some Siouan languages, the source verbs and target grammatical items continue to exist in parallel with substantial semantic overlap. The Omaha positional article *t^{h}o^{n}* 'obviative animate specific standing', for instance, is homophonous with the root of *át^{h}o^{n}* 'stand on'.

This diachronic tendency is mirrored by synchronic flexibility. Siouan languages tend to verb freely — to use nearly any open-class stem as a verb. Thus Lakota *wimačhaša* 'I am a man' is derived from the nominal stem *wičhaša* 'man/person' with the 1st-person stative pronominal ma-.

Dhegiha articles (which have many features in common with positional classifiers in e.g. Mayan languages; see Gordon, 2009) are homophonous with postverbal and postclausal functional items like subordinating conjunctions and aspect and evidentiality markers. They have considerable semantic overlap with them too, a fact which comprises another area of blurriness between nominal and verbal syntax: In Ponca, *niáshi^{n}ga-ama* may mean 'the [proximate animate plural specific] people', but also may mean either 'they are people' or 'I am told s/he was a person'. Plurality is a part of the semantics of -ama in both the nominal and the first clausal interpretation. To make matters more interesting, these kinds of ambiguity are not always easily resolved by context alone, and may suggest a "simultaneity" (cf. Woolard 1998) at work as part of speakers' competence.

This flexibility, that is, the ability of one and the same root to function in both nominal and verbal contexts, has led to some discussion on the status and quality of the noun/verb distinction in Siouan languages (see e.g. Helmbrecht, 2002, and Ingham, 2001).

Nominal arguments in general are not required in Siouan languages, thematic relations being signaled by pronominal or agreement markers within the verb — including zero markers. This makes Siouan languages relevant to debates about the existence of "pronominal argument" languages (Jelinek 1984) and to the related issues of whether there are languages with truly nonconfigurational or flat structure. The preponderance of evidence in Siouan is for the existence of hierarchical structure, specifically including a VP (for instance, West, 1998; Johnson, this volume; Johnson et al, this volume; and Rosen, this volume).

Although Siouan languages have many remarkable features in common, they vary on many others. Some Siouan languages have noun incorporation, while

others do not. Some Siouan languages have stress-accent systems, and others have pitch-accent systems. Dhegiha languages are notable in having as many as eleven definite/specific articles indexing features such as animacy, proximacy/obviation (or case), posture/position, number, visibility, motion and dispersion; meanwhile other Siouan languages have no fully grammaticalized articles at all.

Some Siouan languages reflect longtime cultural presence on the Plains, while others are located as far east as the Atlantic Coast, and many more show cultural aspects of both regions. Dhegiha-speaking peoples (Quapaw, Osage, Kaw, Omaha and Ponca, and likely Michigamea as well (Kasak (this volume), Koontz 1995) likely lived at the metropolis at Cahokia, perhaps at a time before any of the descendant groups had separated, and have many Eastern Woodlands-style features of traditional governance and religion, in sharp contrast with the more Plains-typical cultural features of close Lakota and Dakota neighbors and relatives.

One seemingly minor but in fact quite significant issue in Siouan linguistics is the matter of language names and their spelling. Often this involves a self-designation in competition with a name imposed by outsiders. Even when an autonym gains currency among linguists there is sometimes no agreed spelling; so for instance the Otoe self-designation is written Jiwere or Chiwere. For the most part in this volume the choice of language designations has been left to the individual chapter authors. However, after a volume reviewer pointed out that the language of the Ho-Chunk or Winnebago people was spelled no less than ten different ways in various chapters, we encouraged authors to choose one of the two spellings used on the tribe's web site: Ho-Chunk or Hoocąk. Most have voluntarily complied. In a related move, we decided to retranscribe all Lakota data throughout the volume using the now-standard orthography of the *New Lakota Dictionary* (Ullrich et al, 2008).

The volume is divided into four broad areas (Historical, Applied, Formal/Analytical, and Comparative/Cross-Siouan) described in more detail in separate introductions to each part of the volume. Part I consists of five chapters on historical themes: Ryan Kasak evaluates the evidence for a relationship between Yuchi and Siouan; David Kaufman discusses the participation of some Siouan languages in a Southeastern sprachbund; Rory Larson summarizes current knowledge of Siouan sound changes; and Kathleen Danker and Anthony Grant investigate early attempts to write Hoocąk, Kanza, and Osage. Part II opens with Linda Cumberland's interview with Robert Rankin about his work with Kaw language programs. Jimm Goodtracks, Saul Schwartz, and Bryan Gordon present three different perspectives on Baxoje-Jiwere language retention. Justin McBride ap-

plies formal syntax to the solution of a pedagogical problem in teaching Kaw. This applied-linguistics section ends with Jill Greer's sketch grammar of Baxoje-Jiwere. Part III contains formal analyses of individual Siouan languages. David Rood proposes an analysis of /b/ and /g/ in Lakota using the tools of autosegmental phonology and feature geometry. John Boyle elucidates the structure of relative clauses in Hidatsa. Meredith Johnson, Bryan Rosen, and Mateja Schuck, in a series of three interrelated chapters, discuss syntactic constructions in Hoocąk including resultatives and VP ellipsis, which they argue show the language has VP and an adjective category. Part IV consists of three chapters which take a broader view of grammar, considering data from across the Siouan family. Catherine Rudin compares coordination constructions across Siouan; Bryan Gordon does the same with information structure and intonation, and Johannes Helmbrecht with nominal possession constructions.

All four of the areas represented by this volume are ones to which Bob Rankin contributed. His scholarly publications centered primarily around Siouan historical phonology, but included works ranging from dictionaries to toponym studies, from philological investigation of early Siouanists to description of grammaticalization pathways. He was deeply involved in language retention efforts with the Kaw Language Project. Other interests included archeology, linguistic typology, Iroquoian and Muskogean languages, and the history of linguistics.

Bob was a major figure in Siouan linguistics, a mentor to nearly all living Siouanists, and a mainstay of the annual Siouan and Caddoan Linguistics Conference meetings for decades. Trained in Romance and Indo-European linguistics, with a specialty in Romanian (Ph.D. University of Chicago 1972), he shifted gears soon after leaving graduate school, and became an expert in Siouan languages, especially the Dhegiha branch, with special focus on Kaw. From the mid 1970s through the end of his life, he devoted himself to Siouan studies, both practical and scholarly. His long association with the Kaw Tribe led to a grammar and dictionary of that language (see Cumberland, this volume), and he also produced a grammar of Quapaw, and briefly conducted field work on Omaha-Ponca and Osage. At the University of Kansas he directed dissertations on Lakota (Trechter, 1995) and Tutelo (Oliverio, 1996) as well as several M.A. theses on Siouan languages, and taught a wide variety of courses including field methods and structure of Lakota and Kansa as well as more theoretical courses in phonology, syntax, and historical linguistics. Perhaps Bob's greatest gift to the field was his encouragement of others. At conferences and on the Siouan List email forum, he was unfailingly patient and encouraging, answering all questions seriously, explaining linguistic terms to non-linguist participants and basic facts of Siouan

languages to general linguists with equal enthusiasm and lack of condescension.

Following his untimely passing, a special session was held at the 2014 Siouan and Caddoan Linguistics Conference to organize several projects in Bob's honor: The first of these was publication of the Comparative Siouan Dictionary, an immense project comparing cognates across all the Siouan languages, undertaken by Rankin and a group of colleagues in the 1980s. It had been circulated in various manuscript forms but never published. Thanks to David Rood (another founding member of the CSD project), with help from Iren Hartmann, the CSD is now available online (Rankin et al, 2015). The second project was a volume of Bob's conference papers and other previously unpublished or less accessible work, to be collected and edited by a group headed by John P. Boyle and David Rood; that volume, tentatively titled *Siouan Studies: Selected Papers by Robert L. Rankin*, is currently in progress. The third project was a volume of Siouan linguistic work in Bob's memory, which has taken the shape of the present volume.

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Part I

Historical Linguistics and Philology

Chapter 1

Regular sound shifts in the history of Siouan

Rory Larson

The team of contributors to the Comparative Siouan Dictionary (CSD) reconstructed a phonemic set for Proto-Siouan, together with the necessary reflexes to produce the actual speech sounds found in the various daughter languages. Until recently, this system was common knowledge within the Siouanist community, since the participants in the CSD project were active as the leaders of that community, and were available to explain the predicted sound shifts. With the passing, retirement, or disappearance of most of the CSD team, however, it seems that it might be useful to document the reconstructed system and its most important regular reflexes, as an aid to comparative studies. This paper will rely primarily on the CSD, edited until his passing by Dr. Robert Rankin, to summarize the regular sound shifts known to have occurred in Siouan. It will prioritize sound shifts in which separate phonemes or clusters have collapsed together to become indistinguishable in the daughter languages, since this is where interesting confusion is most likely to occur. KEYWORDS: [Siouan, proto-Siouan, sound shifts, regular reflexes, historical phonology]

1 Introduction

In 1984, a group of linguists studying Siouan languages began a project under NEH and NSF sponsorship to assemble a comparative dictionary of the Siouan language family. The principal investigator was David S. Rood. The team included Richard T. Carter, A. Wesley Jones and Robert L. Rankin as senior editors, along with Rood and John E. Koontz. Together with Willem de Reuse, Randolph Graczyk, Patricia A. Shaw and Paul Voorhis, the dictionary team began their project at the Comparative Siouan Workshop held at the University of Colorado in 1984. A number of other scholars, including Louanna Furbee, Jimm Goodtracks, Jill Hopkins Greer, Kenneth Miner, Carolyn Quintero, Kathleen Shea and Mark Swetland also contributed information.

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This undertaking was huge.[1] The present writer regrettably turned down an offer by Richard Carter in about 1997 of an advance copy of the dictionary manuscript, on the assurance that it would be published within a year. In fact, it was never completed to the editors' satisfaction or published in book form. Carter himself retired from active work in the Siouan field after around 2002, and Robert Rankin became the principal steward of the project. In 2006, Rankin distributed a .pdf file of the manuscript as it stood so far to interested members of the Siouanist community, on condition that any further requests be submitted to himself or David Rood. The file runs to nearly a thousand pages, and is full of working notes and comments about the various words and their relationships, mostly by Rankin.

Rankin, Carter, and their colleagues developed a sophisticated understanding of the phonological and phylogenetic relationships among the various groups of Siouan. Until recently, they formed a body of respected linguistic "elders" who freely shared this lore on request with more junior scholars. With the untimely passing of Robert Rankin in February of 2014, however, and the retirement, disappearance, or focus shift of most of the other leading members of the team, the framework they developed seems in danger of being forgotten by the Siouanist community. This paper is intended to address that concern. Drawing on working notes found throughout the CSD, as well as years of discussions on the Siouan List, it will attempt to summarize the model of Siouan phonology and its standard sound shifts built by Rankin and the CSD team, with occasional comments and additions from the writer. All references to the CSD are to the 2006 version. (In May 2015, after this paper was completed, the most recent version was made available online at csd.clld.org (**RankinEtAl2015**) where most of the original notes and comments can now be found.)

2 The Siouan family tree

The CSD recognizes four major branches of Siouan. In the far northwest is Missouri Valley, or Crow-Hidatsa, consisting of the Crow and Hidatsa languages. Next is Mandan, an isolate within Siouan. Third is Mississippi Valley Siouan, or "MVS", which itself has three branches. Fourth is Southeastern, or Ohio Valley Siouan, at the southeastern end of the Siouan span.

MVS branches into Dakotan, which includes the five "Sioux" dialects of Santee-

[1] For an enlightening and wryly humorous history of the project, see "The Comparative Siouan Dictionary Project" (Rood & Koontz 2002) written by two of its principal participants.

Sisseton (Dakota), Yankton-Yanktonai, Teton (Lakota), Assiniboine and Stoney;[2] Winnebago-Chiwere, composed of Hoocąk and the Iowa, Oto and Missouria languages; and Dhegiha, comprising Omaha-Ponca, Kaw, Osage and Quapaw. Southeastern Siouan contains Biloxi and Ofo as one branch, and Tutelo and Saponi as another.

Catawba is the language most closely related to Siouan. Though sound-historical relationships are not very clear, Catawba examples are often included in an entry's word list. The language probably next most closely related is Yuchi (cf. Kasak 2016 (in this volume)), but few examples of Yuchi are given.

3 The Reconstructed Proto-Siouan phoneme set

The CSD team recognizes eight vowels for Proto-Siouan, five oral and three nasal, which were distinguished also by length (Rankin, Carter & Jones 1998).

i	u	į	ų
e	o		
a		ą	

Basic stops are *p, *t, *k, and the glottal stop. Proto-Siouan had a series of alveolar, palatal and velar fricatives: *s, *š, and *x, as well as *h. It also had three resonants, *w, *r and *y. Minimally, its consonant structure was as follows:

Table 1: Consonants

	Labial	Alveolar	Palatal	Velar	Glottal
Stops	p	t		k	ʔ
Fricatives		s	š	x	h
Resonants	w	r	y		

[2] Parks & DeMallie (1992) present the results of a major dialect survey undertaken to clarify the relations among the various Dakotan dialects, a field in which considerable confusion had prevailed in the literature prior to their work. The CSD itself is rather deficient in Dakotan material other than Lakota and Dakota, although it contains a few words from four other categories: Stoney, Assiniboine, Yankton, and "Sioux Valley". The latter presumably refers to the Sioux Valley reservation in southwestern Manitoba, which Parks and DeMallie classify along with the Minnesota "Dakota" within the broad Santee-Sisseton dialect group. The present paper will follow Parks and DeMallie in sub-classification of Dakotan.

Many of the consonants of Siouan have occurred in clusters, however, so the actual historical picture is more complex than this. Stops can be adjoined to other stops in almost any order, all non-glottal stops and fricatives can be glottalized, aspiration (h) can occur either before or after stops, and combinations can occur involving fricatives, stops and resonants. In particular, there exist two historical phonemes that manifest as either stops or resonants in the daughter languages, called "funny w" and "funny r". We symbolize these sounds as *W and *R. *R was found in Proto-Siouan, and *W in MVS only. Rankin believed that *R was originally a combination of *r with a laryngeal, either *h or the glottal stop.

Notably, Siouan had no distinct nasal consonant series. When *w or *r occurred in the environment of a nasal vowel, they usually manifested as |m| or |n|, respectively.

Accent in Proto-Siouan was normally on the second syllable of a word.

4 Historical Siouan sound shifts

One of the first sound shifts affecting Siouan was a process called "Carter's Law'. Wherever a simple stop, *p, *t or *k, occurred before the vowel of an accented syllable, the stop itself was more prominently "marked", either by lengthening it or by preaspirating it. In the CSD, these are considered to be preaspirated. Thus, *p, *t and *k become *hp, *ht and *hk before an accented syllable. Since accent normally was on the second syllable of a word, these preaspirated stops and their derivatives are usually found inside the word rather than at the beginning. When they are found at the beginning of a word, it may be an indication of a lost initial syllable.

Carter's Law:	*pV́	>	*hpV́
	*tV́	>	*htV́
	*kV́	>	*hkV́

4.1 Missouri Valley (Crow-Hidatsa) reflexes

In Missouri Valley Siouan, loss of historical aspiration, loss of nasal vowels and the merger of *y with *r are the most sweeping transformations of the Proto-Siouan phonemic inventory. Several other changes also occur.

- As in Mandan, Proto-Siouan aspiration is lost.[3] This notably includes the preaspirate series produced by the operation of Carter's Law.

[3] **CSD2006**

Loss of aspiration:

*hp	>	*|p|	<	*p
*ht	>	*|t|	<	*t
*hk	>	*|k|	<	*k

- Phonemic nasalization is completely lost. The three Proto-Siouan nasal vowels merge with their oral counterparts, and neither vowels nor consonants are distinguished by nasality.[4]

  Loss of nasal vowels:

*ą	>	*|a|	<	*a
*į	>	*|i|	<	*i
*ų	>	*|u|	<	*u

- As in Mandan and Hoocąk, Proto-Siouan *y merges with *r.

  *y/*r merger: *y > *|r| < *r

- Between vowels at the end of a word, *h is lost .

  Loss of intervocalic *h: $*V_1hV_2 > *|V_1V_2|$

- Rightward vowel exchange, in which the first two vowels of a word are swapped.[5] Both Crow and Hidatsa show this feature, but not necessarily in the same words, which suggests that this change was spreading at the time Crow and Hidatsa separated.

  Rightward vowel exchange: $*CV_1CV_2 > |CV_2CV_1|$

4.1.1 Hidatsa reflexes

Few changes are specific to Hidatsa. There may be a few vowel shifts and cluster changes. Proto-Siouan *w generally manifests as |m|.

- Short *o is raised to |u|:[6] *o > |u|
- *xk becomes |hk|:[7] *xk > |hk|
- *w becomes |m|: *w > |m|

[4] **CSD2006**
[5] **CSD2006**
[6] **CSD2006**
[7] **CSD2006**

4.1.2 Crow reflexes

Crow is more innovative. The biggest change is complete loss of glottals, usually with lengthening of the following vowel. Proto-Siouan *x manifests as |xš|. Proto-Siouan *t becomes |s|.

- Glottalization is lost, but is reflected in the lengthening the following vowel, usually with rising pitch.[8]

  Loss of glottals: *(C)ʔV > |(C)VV́|

- *x becomes |xš|:[9] *x > |xš|

- *t becomes |s|: *t > |s|

4.2 Mandan reflexes

In Mandan, loss of historical aspiration[10] and the merger of *y with *r are the most notable sound shifts, as well as a peculiar reversal of sibilants.[11]

- As in Crow and Hidatsa, historical aspiration is lost, including the preaspirate series.

  Loss of aspiration: *hp > |p| < *p
  *ht > |t| < *t
  *hk > |k| < *k

- As in Crow, Hidatsa, and Hoocąk, Proto-Siouan *y merges with *r.

  *y/*r merger: *y > |r| < *r

- Proto-Siouan *s and *š swap phonetic value. *s becomes |š| and *š becomes |s|.

  *s/*š reversal: *s > |š|
  *š > |s|

- The cluster *sp metathesizes to become |ps|. More generally, there seems to be a usual, but not quite complete, constraint against having |p| as the second element of a cluster.[12]

[8] **CSD2006**
[9] **CSD2006**
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*sp metathesis: *sp > |ps|

- Before a consonant, the absolutizing or generalizing *wa- prefix loses its vowel through syncopation, and the *w becomes |p|.[13]

  *wa- syncopation: *waC > |pC|

4.3 MVS reflexes

In Mississippi Valley Siouan (MVS), the fricatives are divided between a voiceless series and a voiced series. This is also the only branch of Siouan in which the preaspirates are clearly distinguishable. Another major transformation is the loss of short, unaccented vowels in the initial syllable,[14] and the production of clusters that result from this syncopation. This frequently involves the absolutizing or generalizing *wa- prefix, as well as the first person subject pronoun *wa^{1}- prefix. Also, the *hr cluster becomes *ht,[15] merging with the original preaspirate *ht. For this group, we may restate the basic consonant set as follows:

Table 2: Basic consonant set

		Labial	Alveolar	Palatal	Velar	Glottal
Stops:						
	Simple:	p	t		k	ʔ
	Preaspirate:	hp	ht		hk	
	Postaspirate:	ph	th		kh	
	Glottalized:	pʔ	tʔ		kʔ	
Fricatives:						
	Voiceless:		s	š	x	h
	Voiced:		z	ž	ɣ	
	Glottalized:		sʔ	šʔ	xʔ	
Resonants:						
	Normal:	w	r	y		
	“Funny”:	W	R			

[13] **CSD2006**
[14] **CSD2006**
[15] **CSD2006**

- The Proto-Siouan fricatives are divided between a voiced and a voiceless set, possibly according to phonological conditions.

  Voiced/voiceless fricative split: *s > *|s| and *|z|
  *š > *|š| and *|ž|
  *x > *|x| and *|ɣ|

- Proto-Siouan *pr merges with syncopated *w-r to become MVS *br.

  *pr/*w-r syncopation: *w-r > *|br| < *pr

- Syncopated Proto-Siouan *w-w usually becomes MVS *W.[16]

  *w-w syncopation: *w-w > *W

- Syncopated Proto-Siouan *wa^1- used as the first person affixed pronoun 'I', however, becomes MVS *m when it precedes *w or the glottal stop.[17]

  I-*wa^1-w syncopation: *wa^1-w > *m < *wa^1-ʔ

- Syncopated Proto-Siouan *w-C, where C is a voiceless contoid, becomes MVS *pC.[18]

  *w-C syncopation: *w-h > *ph
  *w-t > *pt

- Proto-Siouan *hr merges with preaspirate *ht to become *|ht|.[19]

  *hr/ht merger: *hr > *|ht| < *ht

4.3.1 Dakotan reflexes

In Dakotan, vowel length is lost. Proto-Siouan *y manifests as aspirated |čh|. So too do cases in which *r is preceded by *i. Many inalienably owned nouns beginning with |čh| in Dakotan are explained as *r-initial stems preceded by the *i- of inalienable possession. When *r stands alone without an adjacent consonant, it manifests as |y|. When *k is preceded by a front vowel, it palatalizes to |č| in Dakotan. Otherwise, the main sound shifts involve clusters. In particular, Proto-Siouan or MVS preaspirates become postaspirates, merging with that series.[20] The cluster *rh, which is important in a few words, becomes plain |h|.[21] In

[16] **CSD2006**
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Dakotan, clusters of two stops are frequent, and the cluster *wR becomes *|br|, merging this with the MVS *br series. In all Dakotan languages, *br manifests as |mn| before a nasal vowel. Stoney and Assiniboine manifest *br and *kr the same regardless of environment, but these sounds alternate in the other three dialects according to whether the following vowel is oral or nasal.

- vowel length is lost: *VV > |V| < *V
- *y- and *ir- merge as |čh-|: *y- > |čh-| < *ir-
- *rV becomes |yV|: *rV > |yV|
- *k after front vowel becomes |č|: *ik > |ič|
  *ek > |eč|
- preaspirates merge with postaspirates:
  *hp > |ph| < *ph
  *ht > |th| < *th
  *hk > |kh| < *kh
- *rh becomes |h|: *rh > |h| < *h
- *wR merges with MVS *br: *wR > *|br| < *br
- Dakotan *br then manifests as |mn| before a nasal vowel: *brṾ > *|mnṾ|

4.3.1.1 Santee-Sisseton reflexes

- *br alternates by nasality: *brV > |md| or |bd|[22]
  *brṾ > |mn|
- *kr alternates by nasality: *krV > |hd|
  *krṾ > |hn|
- *R manifests as |d|: *R > |d|

[22] In the CSD, “Sioux Valley” seems to agree with “Dakota” in practically everything except that the one case recorded of a Sioux Valley word with a *br reflex before an oral vowel shows this as |bd|, rather than the usual |md| for Dakota.

4.3.1.2 Yankton-Yanktonai reflexes

- *br alternates by nasality: *brV > |bd| or |md|
  *brṼ > |mn|
- *kr alternates by nasality: *krV > |kd| or |gd|
  *krṼ > |kn| or |gn|
- *R manifests as |d|: *R > |d|[23]

4.3.1.3 Teton (Lakota) reflexes

- *br alternates by nasality: *brV > |bl|
  *brṼ > |mn|
- *kr alternates by nasality: *krV > |gl|
  *krṼ > |gn|
- *R manifests as |l|: *R > |l|
- *tp becomes |kp|:[24] *tp > |kp| < *kp

4.3.1.4 Assiniboine reflexes

- *br always manifests as |mn|: *br > |mn|[25]
- *kr always manifests as |kn|: *kr > |kn|
- *R manifests as |n|: *R > |n|

[23] The CSD records very few words of Yankton, none of which are useful here. Parks & DeMallie (1992) stress that the long-repeated claim that Yankton-Yanktonai is "Nakota", is false; their self-designation, when not misled by confused linguists, is "Dakota", which means that *R manifests as |d|, not |n|, in their dialect. The true Nakotas are the Assiniboines and the Stoneys. The authors clearly illustrate the *kr clusters for this group on pages 245-6, but do not include any *br clusters. Words listed on the Yankton Reservation pedagogical website, **HubbelingEtAl2015** show that *br before an oral vowel normaly manifests as |bd|, or perhaps sometimes as |md| or |mbd|.

[24] **CSD2006**

[25] The CSD contains only a few words of Assiniboine, or Nakota. Parks & DeMallie (1992) demonstrate that *R becomes |n|, and that *kr manifests as |kn| before both oral and nasal vowels. The preliminary Assiniboine text developed by Shields (2012) contains words with *br clusters showing that these manifest as |mn| regardless of the nasality of the following vowel.

4.3.1.5 Stoney reflexes

- Fricatives tend to shift forward: *s > |θ|
  *š > |s|
- Free simple stops are voiced: *p > |b|
  *t > |d|
  *k > |g|
- *br always manifests as |mn|: *br > |mn|
- *kr always manifests as |hn|: *kr > |hn|
- *R manifests as |n|: *R > |n|
- *tk becomes |kt|: *tk > |kt| < *kt

4.3.2 Winnebago-Chiwere reflexes

Hoocąk and IOM share a number of innovations. The cluster *pt merges with preaspirate *ht. Proto-Siouan simple stop *p before vowels becomes |w|. Generally, it appears that the postaspirate stop series merges with the simple stop series. The *rh cluster also merges with the simple stop *t. As in Dhegiha, the presumed cluster *wR always seems to reduce to simple *|R|.

Both languages show a sporadic tendency to nasalize vowels that are not nasal in other MVS languages.[26] Both of them also sometimes replace a glottal stop with a glottalized |t^{ʔ}| following *i. This could be interpreted as an epenthetic |y| being naturalized as *|r|, and then converted to |t| before the glottal stop. The problem is that the glottal stop itself would seem to be in the way of obtaining the epenthetic |y| in the first place. Rankin suggests that in verb paradigms, the glottal stop is lost in conjugated forms, and that the conjugated form was recast back into the main verb.

- *pt becomes |ht|: *pt > *|ht| < *ht
- *rh becomes *|d|: *rh > *|d| < *t
- *wR merges with MVS *R: *wR > *|R| < *R
- *p becomes |w| before a vowel: *pV > *|wV|
- *i^{ʔ}V verbs become |it^{ʔ}V|: *i^{ʔ}V > *|it^{ʔ}V|

[26] **CSD2006**

4.3.2.1 Hoocąk reflexes

Hoocąk shows quite a number of sound shifts of its own. One of its biggest is that it levels vowel length on monosyllables: the vowel of all monosyllabic words is long.[27] Further, it creates many new monosyllabic words by dropping the trailing final vowel, especially *-e. On top of this, it creates an extra syllable within an obstruent-sonorant cluster, by inserting the vowel that follows the cluster into the spot between the two consonants as well.[28] As in Mandan, Crow and Hidatsa, Proto-Siouan *y merges with *r. The *t series, except for glottalized t *t$^{?}$, is affricated into a |č| series. An *r$^{?}$ cluster may become either |t$^{?}$| or |k$^{?}$|.[29]

- The vowels in monosyllables are always long.

  Long monosyllables: *CV(C) > *|CVV(C)| < *CVV(C)

- Trailing final vowels are often dropped, making even more monosyllables.

  Trailing vowels dropped: *CVCe > *|CVVC| < *CVVCe

- Obstruent plus sonorant clusters are broken up by insertion of the following vowel between the obstruent and the sonorant.

  Back insertion of vowel: *$C_{obst}C_{son}V_1$ > *|C_{obst}V1$C_{son}V_1$|

- As in Crow, Hidatsa, and Mandan, Proto-Siouan *y merges with *r.

  *y/*r merger: *y > |r| < *r

- *t series affricatizes: *t > |ǰ|

  *ht > |č|

- *r$^{?}$ becomes |t$^{?}$| or |k$^{?}$|: *r$^{?}$ > |t$^{?}$| or |k$^{?}$|

- *R manifests as |d|:[30] *R > |d|

[27] **CSD2006**

[28] Helmbrecht (2011: 123–124). This Hoocąk pattern of back-filling an obstruent-sonorant cluster with the following vowel is known as 'Dorsey's Law'.

[29] **CSD2006**

[30] Helmbrecht (*Phonetics and Phonology*) and personal communication. This sound is written 't' in the CSD and in modern Wisconsin Hooąk orthography. But the 't' is voiced in prevocalic and intervocalic position, where it is the reflex of *R.

4.3.2.2 IOM reflexes

A distinctive features of IOM is its forward shifting of the fricatives. Siouan *s becomes |θ|, and *š becomes |s|.[31] In clusters of *k before a fricative, the |k| is replaced by a glottal stop.[32] As in Kaw and Osage, the *t-series, including *t$^{?}$, is affricatized before a front vowel *i or *e. Initial *o- regularly becomes |u-|.[33]

One of the most interesting features of IOM is its treatment of the Proto-Siouan *y phoneme. As in several other Siouan languages, Proto-Siouan *y merges with another phoneme. Uniquely to IOM, however, the *y words are split about evenly between which other phoneme they merge with. Some of them merge with Siouan *r, as in Hoocąk, Mandan, Crow and Hidatsa. Others remain |y|, but these are joined by MVS *ž, which itself becomes |y| in IOM. The fact that many IOM *y fail to merge with *r is mentioned in the CSD, but the significance of the counter-merger of these *y with MVS *ž seems not to have been noticed. For IOM only, we must consider the *y phoneme to be two distinct phonemes, *y$_1$ and *y$_2$.

- Fricatives shift forward:

  *s > |θ|
  *š > |s|

- *k before fricative becomes |$^{?}$|: *kS > |$^{?}$S|
- Initial *o- becomes |u-|: *o- > |u-|
- *R manifests as |d|: *R > |d|
- *y$_1$ merges with *r as |r|: *y$_1$ > *|r| < *r
- *y$_2$ merges with *ž as |y|: *y$_2$ > |y| < ž
- *t-series affricates before *i/*e: *ti > *|či|
  *te > *|če|
  *hte > *|hče|
  *t$^{?}$e > *|č$^{?}$e|
  etc.

[31] **CSD2006**
[32] **CSD2006**
[33] **CSD2006**

4.3.3 Dhegiha Reflexes

Dhegiha is characterized by substantial shifts and mergers in its vowel structure. The nasal Proto-Siouan vowel *ų merges with *ą, producing a variably pronounced low back vowel with minimal rounding. The oral vowel *u also shifts forward to become |ü|. In Dhegiha, Siouan *y merges completely with MVS *ž. Unlike the other MVS languages, the preaspirate stops do not merge with another stop series. In most Dhegiha languages, these manifest as 'tense', or double-long unaspirated stops, but in Osage they manifest as preaspirates. Proto-Siouan *rh becomes |th|.[34] MVS stop clusters collapse into a single stop, of the preaspirate series. The clusters *ks and *ps become |s|, and the clusters *kš and pš become |š|.[35] Siouan *xw becomes |ph|.[36] As in Winnebago-Chiwere, the presumed cluster *wR always seems to reduce to simple *|R|.

- *ų merges with *ą: *ų > |ą| < *ą
- *u becomes *|ü|: *u > |ü|
- *y merges with MVS *|ž|: *y > |ž| < *ž
- *rh merges with *th: *rh > |th| < *th
- *xw merges with *ph: *xw > |ph| < *ph
- *ps and *ks merge with *s: *ps > |s| < *s
  *ks > |s| < *s
- *pš and *kš merge with *š: *pš > |š| < *š
  *kš > |š| < *š
- *wR merges with MVS *R: *wR > *|R| < *R
- Stop clusters merge with preaffricate stops (general pattern):

*pt	>	*|ht|	<	*ht
*pk	>	*|hk|	<	*hk
*tp	>	*|ht|	<	*ht
*tk	>	*|ht|	<	*ht
*kp	>	*|hp|	<	*hp
*kt	>	*|ht|	<	*ht

[34] **CSD2006**
[35] **CSD2006**
[36] **CSD2006**

4.3.3.1 Omaha-Ponca reflexes

Omaha and Ponca carry the vowel reorganization begun in Dhegiha even further. Dhegiha *ü, from Siouan *u, now loses its rounding and merges completely with Siouan *i. Behind it, the Siouan *o vowel is raised to |u|. Siouan *R manifests as |n|, thereby merging with the |n| from Siouan *r before a nasal vowel. The plain Siouan glottal stop disappears, while the glottalized velar clusters *k^{ʔ} and *x^{ʔ} both reduce to |^{ʔ}| as a neo-glottal stop. The preaspirate stop series manifest as tense, while simple stops are voiced. The postaspirate *ph usually, but not always, reduces to |h|. The Siouan *r phoneme manifests as what I call 'ledh', a quick, smooth, flip of the tongue from an apical |l| to edh and off the back of the front teeth. Linguists generally indicate it with the edh symbol, ð, though l and r would be equally reasonable choices. Additionally, an entire series of new stops is being generated from a custom of affricating the t-series stops as a "baby talk" method of suggesting smallness or cuteness.

- Dhegiha *ü merges with *i: *ü > |i| < *i
- *o becomes |u|: *o > |u|
- *R manifests as |n|: *R > |n| < *n < *r
- *^{ʔ} disappears: *V^{ʔ}V > |VV|
- *k^{ʔ} and x^{ʔ} become |^{ʔ}|: *k^{ʔ} > |^{ʔ}| < *x^{ʔ}
- *ph usually becomes |h|: *ph > |h|
- Free simple stops are voiced: *p > |b|
  *t > |d|
  *k > |g|
- Preaspirate stops are tense: *hp > |pp|
  *ht > |tt|
  *hk > |kk|
- Diminutive t-series transform: |d| dim.> |ǰ|
  |t| dim. > |č|
  |tt| dim. > |čč|
  |th| dim. > |čh|
  |t^{ʔ}| dim.> |č^{ʔ}|

4.3.3.2 Kaw-Osage reflexes

Kaw and Osage share a characteristic of dropping the velar stop from the *kr cluster and replacing the cluster with |l|. It seems that both of them also merge the glottalized fricatives *s^{ʔ} and *š^{ʔ} into a glottalized dental/alveolar affricate |c^{ʔ}| (|ts^{ʔ}|).[37] As in IOM, the *t-series, including *t^{ʔ}, is affricatized before a front vowel *i or *e.

- *kr drops the velar stop: *kr > |l|
- *s^{ʔ} and *š^{ʔ} merge as |c^{ʔ}|: *s^{ʔ} > |c^{ʔ}| < *š^{ʔ}
- *t-series affricates before *i/*e: *ti > *|či|
  *te > *|če|
  *hte > *|hče|
  *t^{ʔ}e > *|č^{ʔ}e|
  etc.

4.3.3.2.1 Kaw reflexes

Kaw agrees with Omaha and Ponca in voicing the free simple stops and in pronouncing the aspirated stops as tense. In Kaw, Siouan free *r manifests as |y|.

- Free *r manifests as |y|: *r > |y|
- *R manifests as |d|: *R > |d|

4.3.3.2.2 Osage reflexes

In Osage, the preaspirate series is pronounced with preaspiration, and the free simple stops are voiceless. Siouan free *r manifests as edh or ledh (ð). *ph manifests as |pš|.[38]

- Free *r manifests as |ð|: *r > |ð|
- *R manifests as |t|: *R > |t|
- *ph manifests as |pš|: *ph > |pš|

[37] **CSD2006**
[38] **CSD2006**

4.3.3.3 Quapaw reflexes

In Quapaw, free Siouan *r manifests as |d|. It seems that simple stops sometimes become tense.[39] The Siouan cluster *p$^{?}$ is reduced to plain glottal stop.[40]

- Free *r manifests as |d|: *r > |d|
- Simple stops may become tense: *t > |tt|
- *p$^{?}$ becomes |$^{?}$|: *p$^{?}$ > |$^{?}$|

4.4 Southeastern Siouan reflexes

Very few systematic sound shifts characterize Southeastern Siouan as a whole. One mentioned in the CSD is the loss of glottalized fricatives. Also, it seems that *š usually affricatizes to |č|.

- Fricatives lose glottalization and merge with the corresponding plain form. Thus, *S$^{?}$ > *|S|.[41]

  Fricatives deglottalize:

*s$^{?}$	>	*|s|	<	*s
*š$^{?}$	>	*|š|	<	*š
*x$^{?}$	>	*|x|	<	*x

- *š then usually becomes |č|:[42] *š > *|č|

4.4.1 Tutelo reflexes

Tutelo seems conservative. The only significant change noted involves the Proto-Siouan *š and *s phonemes.

- *š normally becomes |č|: *š > |č|
- Sometimes, *š becomes |s|:[43] *š > |s| < *s
- *s is indifferently pronounced:[44] *s > |s| or |š|

[39] **CSD2006**
[40] **CSD2006**
[41] **CSD2006**
[42] **CSD2006**
[43] **CSD2006**
[44] **CSD2006**

4.4.2 Ofo-Biloxi reflexes

In Ofo and Biloxi, initial Proto-Siouan *w or *h before a vowel is lost.[45]

- *wV becomes plain |V|: *wV > |V|
- *hV becomes plain |V|: *hV > |V|

4.4.2.1 Biloxi reflexes

Biloxi is fairly conservative. Final *-i and *-e merge as |-i|,[46] and the glottal stop often appears as |h|.[47]

- Final *-e merges with *-i: *-e > |-i| < *-i
- The glottal stop becomes |h|: *ʔ > |h|

4.4.2.2 Ofo reflexes

Ofo is much more innovative. Proto-Siouan *y becomes aspirated |čh|,[48] as in Dakotan. The CSD suggests that Proto-Siouan *š before an accented syllable may have become aspirated |čh| as well.[49] Notably, the *s fricative changes to |f|, while Proto-Siouan *x shifts forward to become a neo-|š|.[50] Several of the Proto-Siouan clusters do interesting things as well. In the case of a glottalized stop consonant, the glottal stop seems to shift forward so that it releases prior to the stop. This phenomenon is suggested in Ofo transcriptions as a neutral vowel appearing epenthetically in front of the stop that in other languages is known to be glottalized. The stop consonant is then aspirated as well.

- *y becomes |čh|: *y > |čh|
- Accented *|š| becomes |čh|: *šV́ > *|čV́| > |čhV́|
- *s becomes |f|: *s > |f|
- *x becomes |š|: *x > |š|

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- *hs becomes |fh|:[51] *hs > |fh|
- *Cr becomes |l|:[52] *Cr > |l|
- *C^{ʔ} becomes |əCh|:[53] *C^{ʔ} > |əCh|

Abbreviations

CSD = Comparative Siouan **Dictionary2006** IOM = Iowa-Otoe-Missouria; MVS = Mississippi Valley Siouan.

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