A philological study of Crow (Apsáalooke) and Hidatsa (Hiráaca)

Edwin Ko[1], Randolph Graczyk[2], John Boyle[3],
Anna Calkins[1], Conan Thibodeau[1]

[1]Yale University, [2]Appleton, WI, [3]California State University, Fresno

Background

There has been a long history of philological research on ancient and classical languages, but more recently, philology has also been conducted on Indigenous languages of the Americas and Australia.

There are several reasons why one might want to conduct philology:

- To elucidate the history of the language and the sociolinguistic and sociohistorical context of its speakers
- To reclaim and revitalize languages with no known fluent speakers

Note that philology involves examining not only textual documents, but also audio recordings. However, in this talk, we focus on written records

Specifically, we analyze historical records produced by colonists, missionaries, explorers, often referred to as *legacy* or *colonial materials*. We prefer the latter term as it was during the colonial period that these materials were made.

Background

Anyone who has worked with James O. Dorsey's materials or on the dormant and reawakening language varieties, such as Tutelo-Saponi, Mandan, Biloxi, and Ofo, would be engaging in philology.

But the history of Siouan philology has often been subject to criticisms.

For example, Mary Haas (1969) remarks, "In spite of Swanton's repeated emphasis on [aspiration], many Siouanists, including Wolff and Matthews, have simplified the transcription of Ofo."

Robert Rankin, who was a major proponent of philology, has spent most of academic career examining historical documents on the Dhegihan, especially Quapaw and Kansa, and Ohio Valley languages, especially those created by Dorsey (e.g. Rankin 1980, Rankin 1981, Rankin 1990, Rankin 1994, Rankin and Oliverio 2003, Rankin and Shea n.d., Rankin n.d.).

Graczky (1998, 2003, 2005)

Graczyk (1998, 2003) examined Jesuit materials. Graczyk (2005) examined Hayden's materials, comparing them with the Jesuit materials and Lowie's materials. He noted the following observations:

1. The distribution of allophones *b/w/m* and *d/r/n* were becoming less unpredictable over time and conformed more to the distribution of contemporary Crow.

2. Although the Jesuit and Lowie materials had [ts], Hayden's materials had both [ts] and [tʃ].

"Is it possible that the Hayden materials contain forms from two different dialects?" (Graczyk 2005)
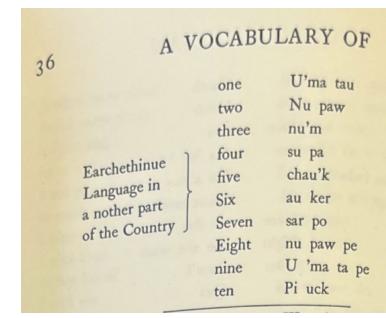
Data and methods

Data

In addition to the Hayden, Jesuit, and Lowie materials, we also examined other historical records of Crow. We also examine records of Hidatsa, which was formerly referred to as Minitaree.

We focus on vocabulary lists, especially words that we suspect occur in most of the documents (e.g. words that occur in lists of basic vocabulary).

Some of the documents are found at the National Anthropological Archives, where the original fieldnotes are housed. Other documents were accessed in other archives or are publicly accessible on the Internet.

Crow sources: Isham 1743 and Say 1823

A VOCABULARY OF

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Earchethinue Language in a nother part of the Country

one	U'ma tau
two	Nu paw
three	nu'm
four	su pa
five	chau'k
Six	au ker
Seven	sar po
Eight	nu paw pe
nine	U 'ma ta pe
ten	Pi uck

Úp-så-rò-kå, or Crow Language.

White people, måsh-tė-sė-rė—*yellow eyes.*
Pawkees or Black-feet, ė-chìp-ė-tå
Poor, båts-ìsh-cåt
Powerful or strong, båts-åtsh
Good, ė-tschìck
Bad, kåb-bėåk
Bison, bė-shå
Bison bull, chė-rå-på
Beaver, bė-råp-på
Tobacco, ò-på
Where, shò
Far, håm-å-tå
Mountain, åm-å-†hå-bå
Elk, ė-chė-rė-cå-tė—*little horse*
Finished or completed, kår-å-kò-tùk

Knife, mìt-sė
What, så-på
Near, åsh-kå
Friend, shė-kå
To eat, bå-boush-mėk
Gunpowder, bė-rùps-på
Little, ė-rò-kå-tå
Name which they give to the Sioux nation, mår-ån-shò-bìsh-kò—*or the cut throats*
Young woman, mė-kå-tå
Water, mė-nė
Fire, bė-då
Wood, mòn-å
River, ån-shå
Horse, ė-chė-rå
No, bår-å-tå

Crow sources: Brown (1861) and Vrebosch (n.d.)

Crow numerals

	Isham c.1743	Hayden c.1862	Lowie c.1907	Medicine Horse c.1987
'one'	U'ma tau	ha-mat'	hawáte	hawáte
'two'	Nu paw	nōp	dúːpə, núːpə	dúupe
'three'	nu'm	nam	dáːwi	dáawiia
'four'	su pa	shōp	cóːp(e)	shoopé
'five'	chau'k	tsih'-ōp	tsəxó	chiaxxó
'six'	au ker	a-ka'-mak	akáːwa	akaawé
'seven'	sar po	ḣa'-pu-a	(i)sá'pua	sáhpua
'eight'	nu paw pe	no'-pa-pe	núːpa'pi	dúupahpe
'nine'	U 'ma ta pe	a-ma'-ta-pe	á'piə	hawátahpe
'ten'	Pi uck	pi-ra-ka'	pirəké	pilaké

Table: Transcriptions of numerals in Crow.

Hayden's fieldnotes to his 1862 publication

Edward Curtis' comparative vocabulary

ANATOMICAL TERMS

English	Apsaroke	Hidatsa
ankle-joint	í-ɓa-dha-ħí-shĕ (foot where lump)	i-ɓi-dhu-pi-du-á-kŭ
arm	á-dhĕ	á-dha
blood	í-dhĕ	í-di
bone	hu-dhĕ̆	hi-dhú
chest	du-shú-ŭ	a-pá-ta
chin	íħ-kyĕ	íħ-ka
ear	ah-pĕ̆	ah-pá
elbow	í-shpa-ħĕ̆	ɪ́sh-pa-ħĕ̆
eye	i-shté	i-shtá
face	í-sĕ̆	ɪ́-ṭá
finger	í-shku-dhĕ̆	shá-ki-a-du-ɓá-mĭ-he
finger-nail	í-shpu-ħpĕ̆	shá-ḳi-ħpú
foot	í-ɓĕ̆	i-ɓí
hair	i-shíĕ̆	a-dhá
hand	í-shchĕ̆	shá-ḳi
head	a-shú-ŭ	ah-ṭú
heart	da-sĕ̆	na-ṭá
knee	í-sú-shĕ	i-ħúa-ħa
leg	i-hu-dhĕ̆	i-di-ḳí
lip	í-da-ħpĕ	í-de-ṭa (mouth edge)
lungs	dá-ħo	ná-ħu

Methodology

Overall, we examined the 24 Crow and 9 Hidatsa doculects (i.e. language as recorded in historical documents); these are given in the references.

We transcribed the earliest records of Crow and then gradually increased the number of vocabulary until we obtained ~180 lexical items.Then, we transcribed Hidatsa for the same ~180 lexical items.

Many of the Crow materials were transcribed in Google docs, which were at least double- and triple-checked before being transferred to the Google sheet for interpretation and analysis.

Google Doc

T

44	To beat. whip	Bä=reet´=bic [balítbiik]
45	To embrace. hug.	Ne=a=wä´=tsic [diiawáchisshik]
46	Talk to him	Che=wä´ [chiwaáh]
47	There it is	Na Cour=rä [koolá(k)]
48	Tell her to come here	E´=de´=o
49	Tell her (or him) to go.	Con=de=ra=me=o Tse=mä=o (or) Hä=tse=mä´=o [chiwaáu]
50	They are not mine	Be Ba-u̠=sack [biiwaáussaak]
51	Take them away	Rutä, rutä. Dä! [Dúttah dúttah dáah]
52	The house is shut up.	Su=tsu´=ta *(Means, that the door is strong.)*
53	This is all I have	Coo=tsit̠s=cot-te Bi´=u̠-u̠

Conan Thibodeau
2:20 PM Jan 15

Unsure abt this

Edwin Ko
10:19 AM Jan 19

Looks right, i think

Randolph Graczyk
4:16 AM Jan 31

I love you. There's a syllable missing in awáchisshik, but I think that's what this is supposed to be.

Randolph Graczyk
4:16 AM Jan 31

tell him

Randolph Graczyk
4:35 AM Jan 31

Google Sheet

	A	B	C	D	E	F	G	H	I	J	K	L
1		1743, p.36	1823, p.79	1832-1834, p.405	1836, p377	1845	1848, p.83-89	1853, p.255-256	1850s-1980s (MS	1862, p.396-420	1861 (MS1356)	1868 (MS2066)
2		Unclear	Unclear	Unclear	River Crow?	River Crow?	River Crow?	Mountain Crow?	Mountain Crow?	Mountain Crow?	River Crow?	Unclear
3	English	Isham	Say	Maximilian	Gallatin	Latham	Hale	Schoolcraft	Hayden	Hayden	Brown	Belden
4	one	U'ma tau				amutcat	ah mu't cat			ha-mat'	Mus-cat	Mut´=cot
5	two	Nu paw				noomcat	noom' cat			nõp	Nup-cat	Nūm´=cot
6	three	nu'm				namenacat	nam'ena cat			nam	Nä-me	E̱–nom´=e=cot
7	four	su pa				shopecat	shope cat			shõp	Che-o-cä-te	Shope´=cot
8	five	chau'k				chihhocat	chi hhó caat			tsih'-õp	Chó-ho-cat	Tsochoc=o=cot´
9	six	au ker				ahcamacat	ah cam a cat			a-ka'-mak	Ah-ka-ma-cat	Ä=cä´=wo=cot
10	seven	sar po				sappoah	sap' pó ah			h́a'-pu-a	Sap-o-cat	Säp´=pou=cot
11	eight	nu paw pe				noompape	noom' pa pe			no'-pa-pe		Num´=pä=pä
12	nine	U 'ma ta pe				ahmuttappe	ah mut tap pe			a-ma'-ta-pe	Ka-ma-tä-pe-cat	A=mut´=a=pe
13	ten	Pi uck				perakuk	pe ra ku'k			pi-ra-ka'	Pe-da-cat	
14	alive						it shá sa					
15	all, many						ah hook					Ä=hoocs´
16	arm			áhdä			bár re			ba-re		Mä´=ra
17	arrow			annúhtä		ahnailz	ah nú i te			a-nu'-e-te		A=neun´=ta
18	autumn						bis sá			ba-se'		
19	axe						mách e pa			ma-ći'-pe		Mä´-tse=pa
20	bad		kab-beak		kabbeeaik	kubbeek	kub béek	kabbeeaik		ka-wi'	Ca-wiek	Cä-wete´
21	bark						é she					
22	bear					duhpitsa	duk p'it sa			dah́-pit-se'		Oc=pe=tsa´
23	beard						é sha é sha			mi'-e-tsi-e		Be´s=ska

Challenges

Naturally, there are many challenges in transcribing and interpreting the historical documents recorded by explorers, colonists, missionaries, military personnels, and among others:

- Lack of provenance information
- Variation in orthography
- Mistranslations and/or mistranscriptions
- Morpheme consistency
- …

For more information on the challenges of philology across the Americas and Australia, see Boas (1889), Broadbent (1957), Goddard (1973), Amery (2000:Ch.2), Rudes (2002), Bowern (2003), Crowley and Austin (2005), Graczyk (2005), Broadwell and Lillehaugen (2013), Austin (2017), Begay et al. (2021), Dobrin and Schwartz (2021), and among many others.

Challenges (cont.)

The pathway from fieldnotes to published wordlists go through various stages of revision and edits.

Broadbent (1957:277) emphasizes using the earlier, primary data according to two underlying assumptions:

1. The observations and fieldnotes taken at the time of the event, rather than in letters a few days later will be most reliable.
2. Copying produces errors.

Unfortunately, we are limited by what we have access to and more often than not, people do not archive their fieldnotes. In fact, many of the fieldnotes were not collected by the authors themselves but by other people, especially outsiders, who were much more familiar with the language (e.g. Robert Meldrum, Kenneth McKenzie).

Results

Spoiler alert: A preview of our observations

1. There may have been dialects of Crow and Hidatsa, as gleaned from sound changes involving Proto-Crow-Hidatsa *k and *ts.
2. The predictable allophonic distribution of the variants *b/w/m* and *d/l/n* in Crow, and *m/w/b* and *n/r/d* in Hidatsa emerged in the latter half of the 19th century, the same time when reservations were first being established.
3. Hidatsa shows remnants of vowel nasalization on a scattering of words in the earlier documents, suggesting loss of nasal vowels had not fully run its course until the mid-19th century.

Observation #1: Dialects of Crow and Hidatsa

The Crow word for 'bison bull' is presented on the right.

If one had only accessed records of Crow from 1862, one would be unaware that <ch> = [tʃ] was present as early as 1823.

The Hidatsa cognate maintains word-initial *k*, *k*e-e-ra-pe (Say 1823), *k*ihrapi (Maximilian 1832-1834), **k**eeeerepee (Scoolcraft 1853), *k*i'-ro-pi (Hayden 1862), *k*edapi (Matthews 1877).

Crow: *k > tʃ and *k (> tʃ?) > ts
Hidatsa: *k > k (no change)

BISON BULL	*k > tʃ	*k > (> tʃ?) > ts
Say 1823	**ch**e-ra-pa	
Gallatin 1836	**ch**eeraypay	
Schoolcraft 1853	**ch**eeraypay	
Belden 1868		**S**e´=do=pu
Laslow 1899		**Ts**irapá-
Boschi 1898		**Z**irupe
Curtis 1909		**ts**i-dǔ-pě́
Lowie 1907		**ts**í·rupe
Graczyk	**ch**íilape	

Observation #1: Dialects of Crow and Hidatsa

FIVE	*k > tʃ	*k (> tʃ?) > ts
Isham 1743	**ch**au'k	
Latham 1845	**ch**ihhocat	
Hale 1848	**ch**i hhó caat	
Brown 1861	**Ch**ó-ho-cat	
Hayden 1862		**ts**ih'-ōp
Belden 1868		**Ts**ochoc=o=cot´
Geisdorf 1869		**ts**i-kho
Boschi 1898		**z**igu, **z**igukáte

FIVE	*k > tʃ	*k > (> tʃ?) ts
Curtis 1909		**ts**í-ŭ-xu
Lowie 1907		**ts**əxó
Kaschube 1953	**č**iaxxo	
Medicine Horse 1987	**ch**iaxxó	
Graczyk	**ch**iaxxukáate	

The Crow word for 'five' is presented on the left and above.

Observation #1: Dialects of Crow and Hidatsa

The Hidatsa cognates are displayed in the table on the right.

In addition to forms that exhibit *k > k (no change), certain forms show a *k > tʃ change found also in Crow.

Note that Maximilian <ch> and perhaps Hayden <ċh> is [x].

**Crow: *k > tʃ and *k (> tʃ?) > ts
Hidatsa: *k > tʃ, *k > k (no change)**

FIVE	*k > tʃ	*k > k (no change)
Say 1823	**ch**e-†hoh	
Maximilian 1832-1834		**k**echú
Latham 1845	**ch**eehoh	
Hayden 1862		**k**iċh-u
W. Matthews 1877		**k**iliu
Harris and Voeglin 1938-1939		ii**k**ixʰú
Boyle and Gwin 2006		**k**ihxú

Observation #1: Dialects of Crow and Hidatsa

The Crow word for 'bear' is presented on in the table on the right.

The Hidatsa cognate maintains *ts*, *lah-pet-ze* (Say 1823), *lachpitzi* (Maximilian 1832-1834), *dach-pít-si* (Hayden, undated), *lahpeetze* (Schoolcraft 1853), *dalipitsi* (Matthews 1877), *raxpicʰí* (Harris & Voegelin 1938-1939), *naxpiccí* (Boyle & Gwin 2006).

Crow: *ts > tʃ and *ts > ts (no change)
Hidatsa: *ts > ts (no change)

BEAR	*ts > tʃ	*ts > ts (no change)
Latham 1845		duhpi**ts**a
Hale 1848		duk p'i**t s**a
Hayden 1862		daḣ-pi**t-s**e'
Belden 1868		Oc=pe=**ts**a´
Geisdorf 1869		**ts**i-kho
Boschi 1898		dagpizè
Laslow 1899		Dah'pitsé
Lowie 1907		daxpi**ts**ɛ́, naxpi**ts**ɛ́
Kaschube 1953	raxpi**č**á:	
Graczyk	daxpi**tch**ée	

Observation #1: Dialects of Crow and Hidatsa

KNIFE	*ts > tʃ	*ts > ts (no change)
Say 1823		mit-se
Gallatin 1836		mitsee
Hale 1848		mitsa
Schoolcraft 1853		mitsee
Brown 1861	Mit-che-a	
Hayden 1862		mit-si'-e
Belden 1868	Mitch´=a	
Geisdorf 1869		mĭts-yě
Anon pre-1879	Mitch.ea	

KNIFE	*ts > tʃ	*ts > ts (no change)
Boschi 1898		mízia
Lowie 1907		bítsia
Kaschube 1953	-wíčči-	
Graczyk	bítchiia	

The Crow word for 'knife' is displayed on the left and above.

Observation #1: Dialects of Crow and Hidatsa

The Hidatsa cognate is shown in the table on the right.

Hayden <ć> is presumably [tʃ] since he also uses <ts> for [ts].

Crow: *ts > tʃ and *ts > ts (no change)
Hidatsa: *ts > tʃ and *ts > ts (no change)

KNIFE	*ts > tʃ	*ts > ts (no change)
Say 1823		ma**t-z**e
Maximilian 1832-4		máh**ts**i
Latham 1845		ma**tz**ee
Hayden 1862	ba-**ć**i'	
W. Matthews 1877		mae**ts**i
Boyle & Gwin 2006		méʔe**cc**i

Interim summary

- What we are essentially see is phonological variation in both Crow and Hidatsa; certain sound changes have occurred for some words but not for others.
- What exactly were the social variables may no longer be recoverable.
- Some authors varied in [k], [ts], and [tʃ] – does this represent interspeaker or intraspeaker variation?
- We have no way of knowing unless we are able to obtain information about whether the authors worked with more than one speaker.

Observation #2: Dialect leveling

Contemporary Crow b/w/m and d/l/n has the following distribution:

- *b* and *d* occur word-initially and adjacent to non-nasal obstruents

- *w* and *l* (sometimes written as *r*) occur intervocalically

- *m* and *n* occur elsewhere

Overall, our observations agree with Graczyk's (2005) remarks:

"However, these early sources do give us snapshots of sound change in progress. In Meldrum [i.e. Hayden] we have evidence of the allophones *b/m/w* and *d/n/r* occurring in all positions, with the nasal commonly occurring between vowels. In the Jesuit materials we still find *m* and *n* intervocalically, but these allophones are much less common. By Lowie's time we have essentially the distribution that we find today, with *b* and *d* occurring word initially, *w* and *r(l)* between vowels, and *m* and *n* elsewhere."

Observation #2: Dialect leveling

Contemporary Hidatsa m/w/b and n/r/d has the following distribution:

- *m* and *n* occur word-initially

- *w* and *r* occur word-internally

- *b* and *d* occur in coda position or word-finally (also a coda position)

However, we also note *b* and *d* in earlier Hidatsa words (e.g. *bída* 'fire', *búa* 'fish', *bídi* 'water', *bidá* 'wood') suggesting one of at least two things:

1. Influence from Crow speakers.

2. Sound changes were underway in both Crow and Hidatsa.

The fact that Crow 'water' and 'wood' are consistently transcribed as *miné* and *mané*, respectively, suggests that (2) is more likely than (1).

Observation #2: Dialect leveling

We suggest that the consolidation of the phonological inventories of Crow and Hidatsa (i.e. the predictable distribution of the allophonic variants) came about due to the relegation of the Crow and Hidatsa people to reservations in the latter half of the 19th century.

As Graczyk (2005) notes, "According to Goes Ahead (p.c. 2005) [the Crow tribal historian], the Mountain Crows settled at Pryor and St. Xavier (the Big Horn Valley), the Kicked in the Bellies established themselves in Lodge Grass and along the upper reaches of the Little Horn River, and the River Crows could be found around Crow Agency and the lower Little Horn valley."

Observation #3: Remnants of nasal vowels

Graczyk (2005) comments before speculating: "It should be noted that all three of these words [i.e. *mané* 'wood', *miné* 'water', and *umate* 'metal, iron'] contain either nasal obstruents or nasalized vowels in many of the Siouan languages. Perhaps these words are the last traces of nasalized vowels in Crow, or at least a period in the history of Crow when nasals were distinct phonemes."

Observation #3: Remnants of nasal vowels

The word for 'boat; canoe' in Hidatsa was recorded by Say as "a-man-ta" and Maximilian as "*máhn-ti* (*mahn* nasal; *n* French; *ti* short)" (cf. *máahti,* Boyle & Gwin 2004).

It is perhaps noteworthy that the Comparative Siouan Dictionary (CSD; Rankin et al. 2012) contains the reconstructed Proto-Siouan form *Wá•te, with two Siouan languages—Omaha-Ponca and Quapaw—displaying nasality in cognates mądé and mąt(t)é, respectively.

Hidatsa is also commonly believed to be more conservative than Crow, maintaining many linguistic features from Proto-Crow-Hidatsa, while Crow underwent various independent changes.

Observation #3: Remnants of nasal vowels

Q. Should we reconstruct nasal vowels in Proto-Crow-Hidatsa?

Maybe yes?

For 'head' in Hidatsa, Say records "an-too", Maximilian records "*ah-tú* (*ah* nasal; *tu* very short explosive)", and Latham records "antu " (cf. PSi *rąt).

Interestingly, for 'head' in Crow, Maximilian also records "ȧnschua (an French; sch and u separated; a short)".

But maybe not?

For 'father' in Hidatsa, Say records "tan-ta" (cf. PSi *táati) while Maximilian of Wied records "ȧhtuch (*ah* nasal)" (cf. PSi *-áati).

Discussion and future directions

Discussion

In doing philology, we obtain aspects of the languages and the social context that we might not otherwise.

Social and evolutionary dynamics of the languages, from the kinds of variation that existed in the language to possible explanations for how the language came to be spoken in its present state.

While it may be too soon to say, there may be implications of this project on the reconstruction of the Proto-Siouan and Proto-Siouan-Catawban.

For example, if the ancestor language of Crow and Hidatsa did indeed exhibit nasal vowels, then this would have direct consequences on reconstruction.

Future directions

- Add more vocabulary, especially near-minimal pairs
- Better understand the idiosyncratic writing systems
- Locate and transcribe more Crow and Hidatsa doculects
- Analyze the data and provide generalizations
- …

Open to hearing any suggestions!

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Crow Jesuit materials can be found in the *Guide to the Microfilm Edition of the Oregon Province Archives of the Society of Jesus Indian Language Collection*, https://plateauportal.libraries.wsu.edu/system/files/atoms/file/JOPA_Inventory.pdf (last accessed May 24, 2024).

Other Crow (and Hidatsa) sources can be found in the *Documentation on the Apsáalooke (Crow) Language and Culture: National Anthropological Archives Subject Guide*, https://www.si.edu/media/NMNH/NMNH-NAASubjectGuide_Crow_2022.pdf (last accessed May 24, 2024).

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Ahó!

Thank you for listening!