The Linguistic Genius of Parker McKenzie's Kiowa Alphabet

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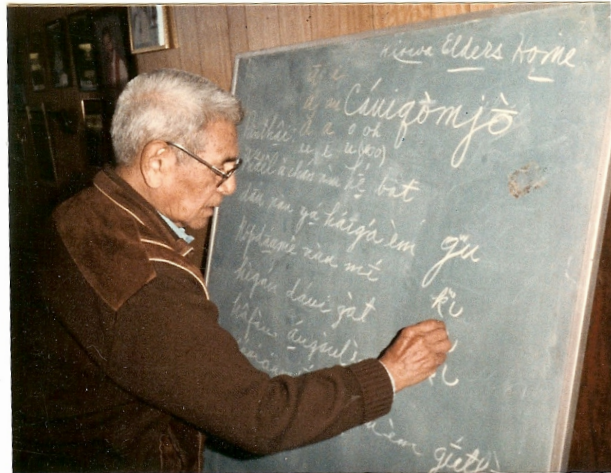
Abstract.   We present a linguistic analysis of the Kiowa writing system invented by the untrained Kiowa linguist, (Dr) Parker McKenzie, revealing he designed his alphabet around such core linguistic concepts as place of articulation, glottalic manner of articulation, allophony and phonotactics. Despite his substantial contribution to Harrington's understanding of Kiowa phonetics, he rejected the extreme phoneticism of Harrington's orthographies and instead independently developed a system that is phonemic, except for very minor rule-governed deviations that reflect his personal normative concerns.

Keywords.   Kiowa, orthography, phonology, J.P. Harrington, Parker Paul McKenzie

1.   Introduction

The extent of our current understanding of the Kiowa language is indebted to no single person more than Parker McKenzie (1897–1999), a native speaker of the language, whose research, both independent and collaborative, constitutes an invaluable legacy.

Born in his maternal grandmother's tipi in 1897, his formal education began late and finished early: serious injury delayed until the age of nine his entry into Rainy Mountain boarding school and his first exposure to English; and the untimely death of his father forced him into work after three years of high school (two at Phoenix Indian School, one at the Phoenix public high school) and some summer business courses (also in Phoenix, at Lamson Business College). In 1918, he began a lifelong career in the Indian money section at the Kiowa agency office of the BAE (Bureau of American Ethnology) in Anadarko, Oklahoma. As he saw the need, he also served as draftsman, photographer, historian, and interpreter, in which capacities he drafted plans for Indian housing, traced family genealogies, and deciphered the mutilated names of Kiowas recorded in early official rolls. In

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McKenzie with wife, Nettie Odlety, his original Kiowa correspondent, in 1917, and, in 1985, demonstrating his orthography at the Kiowa Elders' Center (*Cáuiqòmjò̀*), Carnegie OK. (Photograph credits: unknown)

his spare time, McKenzie engaged in extensive academic collaborations and independent documentary activities throughout his life and, in 1991, was awarded an honorary doctorate by the University of Colorado.

In addition to the practical assistance his work provided to local people and the accumulated knowledge he willingly transmitted to tribal members and outside researchers, part of McKenzie's legacy is a system for writing Kiowa which he practiced and promulgated for over half a century. Though aspects of the orthography have received academic attention (history in McKenzie 1990,[1] role in preservation in Neely and Palmer 2009, comparative charts in Watkins 1984), this is the first published linguistic analysis of the system.[2] When subtleties of the orthography's linguistic structure are brought to light, McKenzie's true ingenuity and the extent of his intuitive grasp of phonetics and phonology become apparent.

At first glance, McKenzie's Kiowa alphabet appears little more than a rel-

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[1]McKenzie (1990) was published posthumously, with an introduction by Meadows, as Meadows and McKenzie (2001).

[2]This paper incorporates material from co-author Watkins' unpublished addresses (1992, 1993). In 1977, Ives Goddard of the Smithsonian Institution asked if she could talk with McKenzie, who had inquired about the disposition of his papers, fearing that his Kiowa research would be scattered upon his passing. Thrilled to meet one of Harrington's consultants, Watkins worked closely with McKenzie for over two decades on his "pet topic", the Kiowa language.

atively straightforward adaptation of the Roman alphabet, conforming to some specific design principles (section 2.1). However, closer consideration of the consonants reveals that two core concepts of phonetics, place and glottalic manner of articulation, are major factors in McKenzie's system (sections 2.2–2.3) and that phonotactic knowledge is also implicit in its design (section 2.4). Section 3 discusses some of the meticulous work that McKenzie undertook, armed with his alphabet. Section 4 argues that, despite similarities between McKenzie's and John P. Harrington's orthographies,[3] McKenzie's insights were very much his own. Specifically, we show that similarities primarily affect only the means of representation, and that, in reality, McKenzie was a much greater influence on Harrington than *vice versa* (sections 4.1–4.3), and, furthermore, that McKenzie's orthography reflects concerns, such as phonemic representation (section 4.4) and normativity (section 4.5), that Harrington did not share.

A methodological note is in order before proceeding. Our evidence for the progression of McKenzie's ideas about writing Kiowa is fragmentary and incomplete. He developed his system during different intervals as his work schedule permitted and for most of that time was not concerned with recording his progress. The documentation from which we infer the development of his ideas and his understanding of the linguistic properties of Kiowa is threefold: McKenzie's own comments about the orthography in correspondence that spans some sixty years, primarily with Harrington and Watkins; texts typed or written in his own hand beginning in the 1940s; and, most importantly, the design of the system itself.[4]

The overall picture that emerges is of a carefully and cleverly crafted system that attests to the substantial intellectual powers of its linguistically untrained inventor.

2. The McKenzie orthography and its ingenuity

The tables illustrate the phonemes of Kiowa and their representation in McKenzie's orthography. The challenge that Kiowa presents to any such system based on the Roman alphabet should be obvious: Kiowa possesses 22 (or, non-phonemically, 24) consonants, including a four-way contrast for stops (voiceless unaspirated, voiceless aspirated, ejective, and voiced), and 6 basic vowels, which, contrasting

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[3]John P. Harrington, a linguist and ethnologist with the Bureau of American Ethnology, was a prolific collector of linguistic data, documenting over a hundred threatened North American languages, especially in the West. His work on Kiowa spanned roughly thirty years: two months of fieldwork in Anadarko in 1918, when he and McKenzie met, were supplemented by later correspondence with McKenzie and sporadic fieldwork with Kiowas in Washington, D.C.

[4]In quotations from type- and hand-written manuscripts, italics are used to designate individual letters and to replicate author's emphasis. These replace mixed use of capitals, quotation marks, and underlining.

The Parker McKenzie Kiowa Orthography

Consonants

	Labial	Dental	Alveolar	Palatal	Velar	Laryngeal
Voiceless stop	f /p/	j /t/			c /k/	(ʔ)[a]
Aspirated stop	p /pʰ/	t /tʰ/			k /kʰ/	
Ejective stop	v /pˀ/	th /tˀ/			q /kˀ/	
Voiced stop	b	d			g /g/	
Voiceless affricate			ch /ts/			
Ejective affricate			x /tsˀ/			
Voiceless fricative			s	(sy)[a]		h
Voiced fricative			z			
Nasals	m	n				
Liquid		l				
Glide	w[b]			y /j/		

[a] *Parenthetic symbols are non-phonemic*
[b] *On the rare occurrence of /w/, see Watkins 1984*

Vowels

	Short		Long		Diphthong	
	Front	Back	Front	Back	Front	Back
High	i	u	ī	ū	–	ui
Mid	e	o	ē	ō	–	oi
Low	a	au /ɔ/	ā	āu	ai	aui

Vowel diacritics

	Monographs (*e.g.*, a)			Di/Trigraphs (*e.g.*, au/aui)		
	High tone	Low tone	Falling	High tone	Low tone	Falling
Oral	á	à	â	áu(i)	àu(i)	âu(i)
Nasal	á̲	à̲	â̲	á̲u(i)	à̲u(i)	â̲u(i)

two-way for length and for nasality and three-way for tone, yield an inventory of 72 non-diphthongal distinctions. To capture all this in an alphabet equipped with 21 consonantal and a mere 5 vocalic symbols is no mean feat.

2.1. Design principles

In designing his system, McKenzie went through several experimental phases (discussed below): digraphs, trigraphs, shorthand, and foreign/invented symbols. However, in the end, wishing his system to be implementable on a typewriter, he chose to avoid non-Roman symbols. Moreover, he rejected alphabetic use of punctuation marks, word-internal capitals[5] and attempted, so far as possible, to achieve a one-to-one correspondence between symbols and sounds. Ultimately, he deviated from these goals slightly, settling on the use of three digraphs (*th* /t$^{?}$/, *ch* /ts/, *au* /ɔ/) and adding by hand indications of length and tone (although these were ignored in letters to his Kiowa correspondent, Charles (Charlie) Redbird; the underscore for nasality presented no problems on a typewriter). Leaving these minor deviations aside, McKenzie otherwise achieved his aim of using only lowercase Roman characters in a one-to-one correspondence with Kiowa sounds.

His main innovation in this regard was to use symbols representing English sounds absent from Kiowa (like *j*, *v* and *th*) for sounds phonemic in Kiowa but not English (in the current example, /t/, /p$^{?}$/ and /t$^{?}$/, respectively). Comparing the result to other systems, McKenzie wrote:

> It is obvious the McKenzie consonantal system for the writing of Kiowa is the most practical, because it does not use special markings or off-setting elements for representing the specific sounds; besides, it utilizes English symbols *c*, *q*, *f*, *v*, *x*, *j* that the others almost entirely ignore, even though the symbols are capable of fulfilling a practical need.   (McKenzie n.d.a)

This innovation, though practical, may initially seem unimpressive. However, the true ingenuity of McKenzie's system quickly becomes apparent when we ask why sounds absent from English are represented as they are: why is *j*, in English normally a voiced alveopalatal affricate, coopted for /t/, an unaspirated voiceless dental stop, or *v*, a voiced labiodental fricative, for /p$^{?}$/, a voiceless bilabial ejective?

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[5]In a typed letter to Harrington, he did once use *A* for *au* (12.25.46).

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2.2. Place of articulation

Clearly, where Kiowa and English contained the same, or similar sounds, McKenzie's choice of symbol was conservative: *m* for /m/, *n* for /n/, *z* for /z/. However, in the remaining cases, he did not pair sounds and symbols in a random fashion. Rather, his choice was sensitive to place of articulation.

To see this, consider the symbols *f* and *v*. In English, these have the values /f/ and /v/; in Kiowa, /p/ and /p$^?$/. All four sounds are labials. That is, McKenzie's reassignment of these symbols to new sounds preserves place of articulation. The same holds for *c* and *q*, which are velar in both languages: /k/ in English, /k, k$^?$/ in Kiowa. And similarly for *j*, *th*, *ch*, *x*, which are coronal in both languages: /dʒ, θ, tʃ, ks/ in English,[6] /t, t$^?$, ts, ts$^?$/ in Kiowa. Indeed, it is interesting to note that McKenzie for a time used *r* for /ts/, before replacing it with *ch* ('*r* just didn't quite "filled [*sic.*] the bill" for me'; McKenzie n.d.c).[7] This substitution maintains the correlation between English and Kiowa coronals.

Further evidence of the importance of place of articulation in the design of the orthography comes from McKenzie's alphabetical order (McKenzie 1990; cf, section 4 on Harrington's order):[8]

$$\textbf{\textit{b}}, \textbf{\textit{d}}, \textbf{\textit{g}}, \textbf{\textit{h}}, \textbf{\textit{k}}, \textit{c}, \textit{q}, \textbf{\textit{l}}, \textbf{\textit{m}}, \textbf{\textit{n}}, \textbf{\textit{p}}, \textit{f}, \textit{v}, \textbf{\textit{s}}, \textit{ch}, \textit{x}, \textbf{\textit{t}}, \textit{j}, \textit{th}, \textbf{\textit{w}}, \textbf{\textit{y}}, \textbf{\textit{z}}$$

Kiowa consonants that resemble their English counterparts appear in standard alphabetical order (bold). However, characters designating the unaspirated or ejective sounds (italic) are ordered differently: they follow the aspirated sound with which they share place of articulation. Hence, *k-c-q*, *p-f-v*, and *t-j-th*; in the absence of an aspirated affricate in English, *ch-x* might follow either *t* or *s*, but, with the former taken, McKenzie conceptualized these sounds as variants of the plain sibilant, *s-ch-x* (see the quotation below). In other words, McKenzie's novel alphabetical order, just like his reassignment of alphabetic symbols, is based on place of articulation.

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[6] Ignoring the initial non-coronal of English *x*.

[7] The letter *r* is, in consequence, the only symbol not used in the orthography. McKenzie (1990) explained that *r* 'was soon discarded for *ch* for being too unalike whereas *ch* comparatively relates to *s*'.

[8] We have omitted vowels, given the focus of the discussion. These are distributed as follows: *e*, *a*, *au*, *b*, *d*, *g*, *h*, *i*, *k*, *c*, *q*, *l*, *m*, *n*, *o*, *p*, *f*, *v*, *s*, *ch*, *x*, *t*, *j*, *th*, *w*, *y*, *z*. It will be noted that the repositioning of *e* means that both alphabets, if recited, begin with the same sound (/e/ being close to the name of the letter *a* in English). The digraph *au* follows *a* as per normal alphabetical order. The letter *u* is absent because it is never word-initial; it is, however, phonemic (Watkins 1984).

McKenzie illustrating some minimal and near-minimal pairs
(letter to Watkins 12.27.77)

tém (a bone) - *jém* (having pulled; strained); *tǫ́* (water) - *jǫ́* (house, tepee); *táui*
(beyond) - *dáui* (medicine; magical power); *káuigú* (hides) - *Cáuigú* (Kiowas);
kyǫ̂i (shield) - *cyǫ́i* (tall; lengthy); *káuisâdàu* (small rag/cloth) - *Cáuisa̱̲dàu*
(Kiowa children); *pą́i* (dust; dirt) - *fái* (sun; timepiece); *pǫ́* (louse) - *fǫ́* (beaver);
pą̋u (bison bull) - *fą̋u* (acquired)

2.3. Glottalic manner of articulation

The alphabetical order suggests further a grasp of glottalic manner of articulation.
In each triplet, the letters occur in the order aspirated-unaspirated-ejective (or *s*-
unaspirated-ejective), that is, within each triplet, the sounds are ordered according
to their glottalic properties. The importance of glottalic manner of articulation
in McKenzie's thinking is further highlighted by his earlier attempts at a writing
system:

> I determined early ... that consonants *k*, *p*, *s*, *t* each had two related
> variants in Kiowa for which English had no counterparts. To fulfill
> [*sic*.] the void, digraphs were devised for each of the first variants and
> trigraphs for each of the second variants, with English symbols that
> somewhat matched the Kiowa consonants soundwise; e.g., *gk* and
> *kch*, respectively for the first variant and the second variant of *k*; *dt*
> and *thd*, respectively, of *t*, etc.   (McKenzie 1990: 10)

The first and second variants that McKenzie refers to are the unaspirated and ejec-
tive series. Thus, for voiceless stops, monographs were uniformly aspirated, di-
graphs were uniformly unaspirated, and trigraphs were uniformly ejective. That
is, 'mono', 'di', and 'tri' signified what first, second, and third later came to rep-
resent in alphabetical triplets.

It is furthermore interesting to note that, in McKenzie's alphabetical order, the
unaspirated symbol is always alphabetically prior to the ejective, and that all such
doublets conform to Roman alphabetical order: *c-q*, *f-v*, *j-th*, *ch-x*. It is unclear
whether McKenzie intended this, but it is a rather remarkable coincidence if he
did not (especially, given that, prior to the above-mentioned substitution of *ch* for
r, the same ordering fact held: *ch-x* was *r-x*).

2.4. Glottalic manner and phonotactics

Glottalic manner is evident in other features of McKenzie's system. The symbols *p*, *t*, *k* represent aspirated stops in Kiowa. Given what has been said so far, one would expect *pép* 'bush' and *tét* 'opened' to be pronounced [pʰépʰ] and [tʰétʰ], with final aspiration. Instead, the final consonants are unaspirated and undergo glottal reinforcement, [pʰéʔp] and [tʰéʔt] (and, in fact, glottal contrasts are neutralized syllable-finally). No character in the McKenzie orthography has the value of an unaspirated, preglottalized stop; but the plain stops *c*, *f*, *j* are phonetically closest.

The reason for the seeming incongruity of McKenzie's representation of coda consonants, as well as his use of *p*, *t*, *k* for aspirated stops, lies, we suggest, in his awareness of English allophony. Although English stops are generally aspirated in syllable-initial position (except under well known circumstances), for many speakers they are glottally reinforced syllable-finally (Ladefoged 2006: 72). So, if the values of *p*, *t*, *k* are as in English, then they will have exactly the right properties: aspiration syllable-initially and glottal reinforcement syllable-finally, precisely the properties that McKenzie sought.

This explanation amounts to the claim that McKenzie took advantage of English allophony for the representation of allophonic variation in Kiowa. In order for it to be convincing, one must believe that McKenzie was aware of both the phonetic details and their phonemic status. Several comments in McKenzie's descriptions of Kiowa and his writing system illustrate just such awareness (see also 4.4).

An initial, simple example concerns the distribution of the high back vowel, for which he noted the following phonotactic constraint:[9]

> The vowel *u* is restricted in use in Kiowa and occurs *only* after consonants *g*, *k*, *c*, *q* and *never* after [the] rest of the Kiowa consonants nor does it initiate syllables.   (letter to Charles Kaubin 5.12.94)

A more involved example concerns potential ambiguities as to syllable boundaries that digraphs can in principle induce, as in English *dishevel* (*di-shevel*) and *dishonor* (*dis-honor*). Commenting on the digraph *ch*, McKenzie writes:

> Since *c* is not a terminal of syllables, it can be seen there can be no confusion [in syllabification], as there is with *th* (explosive Kiowa *t*, as in *thɔ́* 'cold'), because *t* is a terminal and there are words in which

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[9]Harrington was unaware of this, misrepresenting some short nasal *o*'s as *u*; for instance, *hų'ǫn* 'road' and *k'ɣų'ę* 'shield' (1928: 83, 115) for *hǫ́àun* and *kyǫ̂i*. In McKenzie and Harrington (1948), 'road' ('path') was corrected; 'shield' does not occur.

> *t* and *h* occur adjacently but belong in separate syllables—like in
> *authabe* (*áut-hǎ́-bé* ['cry']). Compare: *authamau* (*ǎ́u-thậ-màu* 'suck-
> ing, as with the mouth'). In latter word, *th* is considered a single
> consonant. In former word, *t* and *h* are separate letters—and both are
> counterparts in sound as the English symbols.   (McKenzie n.d.c)

Thus, he was aware that knowledge of phonotactics resolved some potential am-
biguities of syllabification that arise within his orthography. Furthermore, he
thought to illustrate the point with as near minimal a pair as the language per-
mits.

Even if *ch* is unambiguous with regard to syllabification, syllable-final velars
are found under some circumstances. In a handwritten transcript of a traditional
Kiowa tale recounted by his brother-in-law Bert Geikaunmah, McKenzie records
the word 'alligator' as *zḗmạ́ukqụ̀nḗ* (McKenzie n.d.c, at which point, he followed
Harrington in redundantly specifying nasality on vowels tautosyllabic with nasal
stops). In the later typescript, *t* replaces *k*: *zḗmạ́utqụ̀nḗ*. The reason for the excep-
tion in the handwritten script, and the change in the typescript, is that:

> Consonant *k* is occasionally the "maverick" terminating consonant
> with some speakers. It is not regarded as basic in the language, be-
> cause some speakers negligently substitute it for the basic *p* or *t* ter-
> minals, when the ensuing syllable within the word or a following one
> opens with consonant *g*, *c*, *k*, *q*. The use is referred to herein as "sec-
> ondary usage."   (McKenzie n.d.a: 3)

In this quotation, McKenzie shows explicit knowledge of phonotactic constraints
on syllable-final stops.

It is therefore evident that McKenzie's Kiowa alphabet is designed around, and
influenced by, such core linguistic concepts as place and manner of articulation
and phonotactics.

3.   McKenzie's use of his alphabet

Writing, for McKenzie, was an end in itself. However, having devised his sys-
tem, he put it to several uses. It was his medium for correspondence with his
friend Charlie Redbird and with linguists Harrington and Watkins, for recording
tribal history and culture from his elders and contemporaries, and for documen-
tary work. His contributions to, for example, Merrill, Hanson, Green and Reuss
(1997: 61–65) are in his orthography (but printed, unfortunately, without tone and
length marks.) Most important though was the means the alphabet provided for
engaging with the Kiowa language itself. He wrote to Watkins:

> I think if you and me ever come up with definite conclusions on various faucets [*sic.*] of Kiowa, I'd feel that we've accomplished something let's say, for posterity. ... For me, though, its study is fascinating, and keeps me from thinking about ageing. In fact, I have the attitude that I'm gonna (going to) live forever; at least, to my target age of 102y, 1m, and 16d – Jan. 1, 2000! (letter to Watkins 11.18.78)

In documenting the Kiowa language, McKenzie was meticulous and indefatigable. In his "Black Books", three black loose-leaf binders, he recorded Kiowa vocabulary over several decades, some of the results of which he distributed in a series of pamphlets on various semantic fields (birds and reptiles, mammals, diseases, names of tribes). In his striking disyllables project, he attempted to list and translate all disyllabic words of Kiowa. Fundamental to both enterprises was his realization that Kiowa has 549 different monosyllables and that each monosyllable can have up to ten different 'pronouncing patterns' (variants for tone, length, and nasality); any two concatenated monosyllables can, therefore, be pronounced in up to one hundred ways. Remarkably, McKenzie explicitly drew up 10×10 grids precisely to run through all hundred disyllabic 'pronouncing patterns'. Commenting on the end result, he wrote:

> The syllabary is very helpful in enabling a person to draw forth acceptable words that would otherwise remain "stuck in the cuff." As an example, the writer was successful through use of the syllabary in eliciting words that otherwise would have remained dormant in the mind – words that he had experience with through the years but had lost sight of from disuse. The hundreds of words appearing in the text – many unusually rare or are seldom heard now – attest to the fact that he found the syllabary very helpful. (McKenzie n.d.b: 48)

He observed that 'seldom over seven' of any hundred are meaningful. The rest he regarded as 'available for newly devised words, if any ever come about'.

4. Influence

The preceding discussion and quotations illustrate that McKenzie possessed, and his system encapsulates, real linguistic insight and acumen. Notwithstanding, it is natural to wonder how much of that insight was McKenzie's own and how much was due to other sources, in particular, his collaboration with Harrington and knowledge of his work. The quotations already given indicate, however, that McKenzie undertook his own research projects and reached his own conclusions. His alphabetical order (section 2.2) differs from Harrington's (1928), which ordered unaspirated before ejective before aspirated and placed the affricates after

An example of McKenzie's disyllable grids
(following McKenzie *Elements of the Kiowa Language*, p. 48)

	1	2	3	4	5	6	7	8	9	10
A	*qàudàu*	*qàudáu*	*qàudằu*	*qàudấu*	*qàudâu*	*qàudḁu*	*qàudḁ́u*	*qàudḁ̀u*	*qàudḁ́u*	*qàudḁ̂u*
B	*qáudàu*	*qáudáu*	*qáudằu*	*qáudấu*	*qáudâu*	*qáudḁu*	*qáudḁ́u*	*qáudḁ̀u*	*qáudḁ́u*	*qáudḁ̂u*
C	*qằudàu*	*qằudáu*	*qằudằu*	*qằudấu*	*qằudâu*	*qằudḁu*	*qằudḁ́u*	*qằudḁ̀u*	*qằudḁ́u*	*qằudḁ̂u*
D	*qấudàu*	*qấudáu*	**qấudằu**	**qấudấu**	*qấudâu*	*qấudḁu*	*qấudḁ́u*	*qấudḁ̀u*	*qấudḁ́u*	*qấudḁ̂u*
E	*qâudàu*	*qâudáu*	**qâudằu**	*qâudấu*	*qâudâu*	*qâudḁu*	*qâudḁ́u*	**qâudḁ̀u**	*qâudḁ́u*	*qâudḁ̂u*
F	*qḁudàu*	*qḁudáu*	*qḁudằu*	*qḁudấu*	*qḁudâu*	*qḁudḁu*	*qḁudḁ́u*	*qḁudḁ̀u*	*qḁudḁ́u*	*qḁudḁ̂u*
G	*qḁ́udàu*	*qḁ́udáu*	*qḁ́udằu*	*qḁ́udấu*	*qḁ́udâu*	*qḁ́udḁu*	*qḁ́udḁ́u*	*qḁ́udḁ̀u*	*qḁ́udḁ́u*	*qḁ́udḁ̂u*
H	*qḁ̀udàu*	*qḁ̀udáu*	*qḁ̀udằu*	*qḁ̀udấu*	*qḁ̀udâu*	*qḁ̀udḁu*	*qḁ̀udḁ́u*	*qḁ̀udḁ̀u*	*qḁ̀udḁ́u*	*qḁ̀udḁ̂u*
I	*qḁ́udàu*	*qḁ́udáu*	**qḁ́udằu**	*qḁ́udấu*	*qḁ́udâu*	*qḁ́udḁu*	*qḁ́udḁ́u*	*qḁ́udḁ̀u*	*qḁ́udḁ́u*	*qḁ́udḁ̂u*
J	**qḁ̂udàu**	*qḁ̂udáu*	*qḁ̂udằu*	*qḁ̂udấu*	*qḁ̂udâu*	*qḁ̂udḁu*	*qḁ̂udḁ́u*	*qḁ̂udḁ̀u*	*qḁ̂udḁ́u*	*qḁ̂udḁ̂u*

D/3 – qaudau (qấu-dằu) v/adj., chilled; feeling chilly.

D/4 – qaudau (qấu-dấu) v/adj., precipitous or steep like a precipice.

E/3 – qaudau (qâu-dằu) v/adj., cut, slit, or gashed, as with a knife

E/8 – qaudau (qâu-dḁ̀u) v., made a dent or marked effect upon, as with a knife
   in wounding or piercing

I/3 – qaudau (qḁ́u-dằu) v/adj., smeared or soiled with grease

J/1 – qaudau (qḁ̂u-dàu) n. (s) tomato; (t)[a] tomatoes. The (s) and (t) forms are
   the same. This is a rare instance where the (d) form is independent; i.e.,
   qaun (*qâun*). Normally, [the] (d) term for nouns is either like the (s) or the
   (t) term. The (d) term is generally used in the collective in this instance.[b]

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[a] 't' abbreviates 'triplural', i.e., non-dyadic plural, following Harrington (1928).

[b] On the collective use of the unsuffixed 'dual' form, see Watkins (1984) or Harbour (2007).

the *t*-series (as opposed to McKenzie's order aspirated-unaspirated-ejective, inspired, we have suggested, by English, and affricates after *s*). This independence, we further argue below, is representative of the general state of affairs: McKenzie's insights were very much his own. Indeed, Harrington himself recognized him as 'the greatest authority on the Kiowa language' (Merrill, Hanson, Green, and Reuss 1997: 167, entry 0394).

We construct this argument in various stages. In section 4.1, we discuss McKenzie's education and the other writing systems, both Kiowa and non-Kiowa, to which he had access. It is clear from his comments on several of these that he had his own criteria that Kiowa writing should meet. In section 4.2, we argue that Harrington (1928) is the only plausible influence on McKenzie. However (sections 4.3–4.4), in terms of insight into the Kiowa language, McKenzie seems to have been a far greater influence on Harrington than *vice versa*. Sections 4.4–4.5, like section 3, further underscore McKenzie's intellectual independence by illustrating how his orthography gave expression to phonemic and normative interests that were not shared by, though were at times accidental influences on, Harrington.

4.1. Knowledge and judgment of other systems

McKenzie's interest in written Kiowa dates back to his school days, when he and his sweetheart, later wife, used Kiowa, written as best they could, as a teacher-proof code for passing notes in class.

In addition to providing an incentive for writing Kiowa, McKenzie's post-elementary schooling exposed him to alternative writing systems that may have provided him with the perspective to envision writing Kiowa, namely Spanish and Gregg shorthand. The former seems to have made an impression on him, as he chose to compare his own orthography to it:

> Kiowa as I write it can be likened to Spanish, in that latter does not require the "rigors of spelling" to learn it, because it is accepted as being phonetic. (I studied Spanish in high school just a year, but I know little about it now – can't carry on conversation with it).
>
> (letter to Watkins 12.20.77)

It is possible that Spanish was the inspiration for his vocalic system.[10] Shorthand too afforded scope for experimentation. Correcting Harrington's misimpression that his Kiowa orthography was based on shorthand, he wrote:

---

[10]McKenzie's BIA position brought him into daily contact with speakers of many Native languages spoken in the area. In later years, when inclined to compare languages and demonstrate the merits of his orthography, he would use it to write phrases in such languages as Comanche, Delaware, and Wichita. However, he did not speak these, nor did they then have established orthographies that could have influenced his.

Oh yes, and I do not write Kiowa in shorthand. You misunderstood me. I stated, or at least I tried to state, that in search for two new characters (α and ℏ) I even used the shorthand characters, but found none suitable. So you see my Kiowa writing is much slower than my English writing. (letter to Harrington 2.24.46)

Ultimately, however, the use of shorthand (and the parenthetic characters quoted) was abandoned in favor of typewriter compatibility.

McKenzie's curiosity about writing Kiowa naturally extended to others' attempts to write the language, and he became proficient in several of these. He used the orthography developed during the SIL field school held in Norman, Oklahoma in the 1950s and 1960s for some correspondence with his friend Charlie Redbird. However, it is clear that he found it lacked the economy he valued in his own system:

I think I mentioned to you before that my Kiowa alphabet is considerably different than what I call the "OU system." Mine is simpler to write in a number of ways, does away with unnecessary letter symbols, uses the apostrophe only on certain words (few in number) of foreign derivation, and it is visually less atrocious. As an example I have before me a Kiowa church song, which I shall entitle "The Son of God Died on the Cross" (I know you recognize it). It is written in my system as well as in the so-called OU system. A count of the individual letters of one complete stanza disclosed 178 in my system against 248 of the other—the latter being [the] one we use in our correspondence. On this account, the former is less unwieldy. (letter to Charlie Redbird 1.30.62)

He was also proficient in the orthographies used in two BAE publications, Mooney's (1898) *Calendar History of the Kiowa Indians* and Harrington's (1928) *Vocabulary of the Kiowa Language*. He was certainly unimpressed with the former. In addition to problems with Kiowa vowels, Mooney failed to distinguish the stop contrasts:[11]

As you can see, he was inconsistent with his *k'* and *k*. He used *k* in place of *k'* in the second line. It's quite evident, not only herein, but

---

[11]In the first two sentences of the quotation, McKenzie uses Watkins' orthography for /k$^{?}$/ and /k/. In the final sentence, he reverts to his own. The Kiowa word in the last sentence would, correctly, be *jǫ́*, in McKenzie's system.

Harrington made McKenzie a gift of Mooney's volume. In his (1948) letter of thanks, McKenzie mentions that he already had a somewhat battered copy of the rare volume, a fact indicative of his resourcefulness and curiosity.

through his Kiowa history, that he never caught on precisely to the distinctive sounds of *t*, *j*, and *d*; *e.g.*, he frequently used *d* in place of *j*; as in *do* (tipi or tepee).   (letter to Watkins 10.2.78)

As laid out below (especially section 4.4), he also found fault with Harrington's orthography.

McKenzie thus had substantial exposure to other writing systems, but clearly also had preconceived ideals that all other orthographies fell short of. Nonetheless, the question remains as to how much influence he may have absorbed from these.

4.2. McKenzie and Harrington's working relationship

We have already suggested that Spanish may have been the source for the values McKenzie ascribed to *a*, *e*, *i*, *o*, and *u* (though *au* must surely have come from English, being far closer to English *haunt* than Spanish *aunque*). Of all those who attempted to write Kiowa, Harrington is the most likely influence on McKenzie's system, given their collaboration and McKenzie's access to Harrington's published materials. Other attempts, like SIL, came too late, or, like Mooney's, were insufficiently systematic and accurate to have influenced McKenzie's thought. The plausibility of this influence is increased by McKenzie's use of standard linguistic apparatus to mark tone, as well as the macron for length (Harrington 1928) and the idea of putting something under the vowel to indicate nasality (though McKenzie eventually used the typewriter's underscore, rather than Harrington's Polish hook).

The most important factor for appreciating McKenzie's intellectual independence from Harrington comes from the nature of their working relationship. (The next two subsections discuss linguistic evidence of their independence.)

They came into initial contact at the BIA. Harrington spent May and June 1918 in Anadarko collecting data on the Kiowa language for his investigation into the historical relationship of Kiowa and the Tanoan languages of the Southwest. His work on the Tanoan languages had begun a decade earlier (Walsh 1976: 10), producing, among other things, publications on Piro (1909), Tewa (1910a), Tiwa/Taos (1910b, 1916), and on the relationship between the Tanoan languages and Kiowa (1910c, relying on Mooney 1898 for Kiowa data).

In Anadarko, he worked out of the BIA, where McKenzie had just assumed his first position. Although McKenzie assisted Harrington, he did so only outside of working hours:[12]

---

[12]Their collaboration resulted in Harrington 1928, 1946, and McKenzie and Harrington 1948. The attributed authorship of the last work is quite misleading. Indeed, it misled McKenzie himself, who "construed that the McKenzie Kiowa-writing system in printed form [was] about to become a

My spare-time work with Harrington was mostly in reviewing and revising the information he garnered from his regular informant, Smoky, for his English learning was limited although his Kiowa vocabulary was extensive. No time was devoted for the teaching of Harrington's Kiowa-writing system, and as he questioned Smoky or me about Kiowa words and simple expressions as to their pronunciation and translations, we answered as best we knew how and he wrote the answers in a writing system of his own; and he always was able to read back what he wrote with apparent ease.   (McKenzie 1990: 5–6)

Following these two months of intense work, McKenzie heard nothing about Harrington until his stepfather Delos K. Lonewolf returned from Washington, D.C. with a copy of the 1928 *Vocabulary of the Kiowa Language* some time after its publication, and their next meeting was still another ten years away:

First time I met him after 1918 was in the spring of 1939, but our meeting was only for a few hours. We just reminisce[d]; that's all.
(letter to Watkins 6.6.78)

This reestablishment of contact provided the foundation for almost a decade of correspondence. It is natural to wonder who learned what from whom in that period. Clearly, the relationship was far from pedagogical:

The doctor *was* a "queer duck"[13] from my standpoint, in that he didn't seem to follow the behavioral pattern of normal Oklahomans, but there wasn't any doubt in my mind that he was brilliant in the fields he was devoted to. He was, to me, overly-excitable, and matters he took to had to done now, now, now! He worked furiously; and when he ate, he ate likewise.... I never was able to answer all the letters

reality" (McKenzie 1990: 15). However, his "initial thrill" on receiving the monograph and seeing himself named as coauthor "changed to disappointment when I saw the printed Kiowa material was not in my system" (p. 16). The third quotation of section 4.4 shows that McKenzie had not warmed to the work 40 years later: witness the use of "*his*" (emphasis in original), not "our", to describe it. (Harrington himself 'expresse[d] some dissatisfaction with it' in a 1948 letter to McKenzie and, in another, to Leonora Curtin, 'complain[ed] bitterly about the treatment he received from the "clannish swine" of the University of New Mexico Press'; Merrill, Hanson, Green, and Reuss 1997: 168f., entries 0408, 0415.) In fact, Harrington authored McKenzie and Harrington 1948 and opted for coauthorship at the last moment, costing himself $100, 'apparently to defend his "territory" from George L. Trager who was beginning research on the Kiowa language' (pp. 167f., entry 0394; see also pp. 167–169, entries 0390, 0393, 0395, 0411).

[13]McKenzie was reacting to Carobeth Laird's depiction of Harrington in *Encounter with an Angry God: Recollections of My Life With John Peabody Harrington* (1975/1993; Banning, CA: Malki Museum Press), a copy of which he had received from Watkins.

> he wrote through the 1940's; they just came too fast and voluminous; besides, I had to tend my regular job, often over 8 hours.
>
> <div align="right">(letter to Watkins 6.6.78)</div>

Moreover, it appears that McKenzie had used the time between his initial meeting with Harrington and the start of their correspondence to devise his writing system. Having been inspired by that first meeting—

> The brief [1918] association rekindled my former interest and the aspiration to write Kiowa as Harrington wrote it. Although my school days were not over yet and that I would have little time to squeeze into Kiowa studies, I had my mind set I would some day and some how write the language.
>
> <div align="right">(McKenzie 1990)</div>

—McKenzie later recalled that:

> I already had my Kiowa-writing system pretty well organized that far back in the forties, judging by the way I have the words written... The tone of the letter seems to be I was teaching JPH more than he was teaching me. It now surprises me that I discussed the fine points with him then that still are now as they were then. I must have done a lot of home work between my bread-and-butter chores with the BIA.
>
> <div align="right">(letter to Watkins 6.19.91)</div>

Thus, it seems that, if McKenzie was influenced by Harrington, that influence must have come via the latter's 1928 *Vocabulary*, rather than through the correspondence of the 1940's. However, we doubt that this was a substantial influence on McKenzie, for several reasons.

First, throughout his correspondence both with Harrington and with Watkins, and in all his writing about the Kiowa language, McKenzie never used phonetic or phonological terminology, nor did he use Greek letter names, such as 'alpha'.[14] Recall, for instance, such vague terminology as 'filled the bill', 'first variant', 'second variant' (section 2.2), or 'explosive' (section 2.4) for Harrington's *glottalized clusive* (or Watkins' *ejective*). Notice also such ambivalent phrases as '"low swing" (maybe "low circumflex")' (section 4.3) and 'carry through, merge, or fuse (you pick it)' (section 4.4). Rather, his grasp of the content of these terms appears to have been entirely intuitive. Given how deeply embedded, say, glottalic manner of articulation is in his system, it seems unlikely that he would have acquired the concept without at the same time picking up the technical terminology from the *Vocabulary* (or later correspondence/publications).

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[14]In a letter to Watkins, he refers to Harrington's 'α' as 'his "funny" symbol that looks like *ok* or *OK* that represented vowel *au*'.

Second, McKenzie 'determined early' (section 2.3) the need for representation of unaspirated and ejective stops (for which 'digraphs were devised ... and trigraphs'). Given that McKenzie had been writing Kiowa before he met Harrington and that he continued to do so for at least a decade more before seeing the *Vocabulary*, it is clear that these 'early' realizations were independent of the *Vocabulary*. Indeed, McKenzie all but states this himself:

> I was already in my eighteenth year at the Anadarko Agency when Harrington's vocabulary got into my hands and I soon became familiar with it more or less and saw that, he, too, was apparently challenged in devising symbols for the same, eight Kiowa consonants I was confronted with [affricates, non-aspirated stops]...
>
> While comparing Harrington's Kiowa alphabet ... with my somewhat cumbersome one [using di/trigraphs], it suddenly occurred to me that maybe the consonants that do not occur in Kiowa ... could feasibly replace my multiple symbols, rather than letting them "go to waste."   (McKenzie 1990: 10–11)

The quotation makes clear that McKenzie's identification of the phonetic challenge, as well as his solution to it, were independent of Harrington's.

Third, McKenzie's feeling that Harrington's system was deficient—that he did not just adopt his orthography and was looking to improve his own—suggests that he had a preestablished set of criteria for a Kiowa orthography and judged Harrington's attempt against these.

The balance of evidence suggests, we believe, that McKenzie's orthography was a largely independent creation.

4.3.   McKenzie's influence on Harrington

We noted in the previous section that McKenzie borrowed or adapted from Harrington the means of representing tone, length and nasality, which suggests that Harrington was the source, and McKenzie, the recipient, of linguistic influence. However, we also quoted McKenzie's sentiment that 'I was teaching JPH more than he was teaching me'. To assess McKenzie's degree of independence from Harrington, it is more relevant to consider knowledge of what there is to be represented than merely the means for representing it, and, here, the impression one forms is that McKenzie was indeed correct: he was much more of an influence on Harrington's linguistic understanding, and, so, on his successive orthographic attempts (1928, 1946, 1948) than Harrington's were on him.

Nowhere is McKenzie's feeling that he was teaching Harrington more accurate than in the tonal system. One of the most substantial differences between

Harrington's three published Kiowa orthographies

McKenzie	Harrington		
	1928	1946	1948[a]
a / ā	ʜ / ʜ̄	æ / æ·	æ / ææ
e / ē	ei	ey / e·y	ey / eeyy
i / ī	iʜ̄	i / i·	i / ii
o / ō	ou	ow / o·w	ow / ooww
u / ū	uα	u / u·	u / uu
au / āu	α / ᾱ	ω / ω·	ω / ωω
ai	ʜ̄e	æy	æy / ææyy
oi	oue	oy	owy / oowyy
ui	ue	uy	uy / uuyy
aui	αe	ωy	ωy / ωωyy
$\bar{}$ $\acute{}$ $\hat{}$ $\grave{}$ } over vowel	$\acute{}$ (ʹ)[b] [c] (ʻ)[b] } over vowel	$\acute{}$ $\hat{}$ $\grave{}$ } after vowel	N $\acute{}$ $\hat{}$ $\grave{}$ } after syllable
p	p'	ph	ph
f	p	p	p
v	p̂	p'	p'
l	dl	dl	dl
j	t	t	t
th	t̂	t̯/t'	t'[d]
t	t'	th	th
ch	ts	ts	ts
x	t̂s	ts'	ts'
k	k'(y)	kh(y?)	kh(y)
c	k(y)	k(y)	k(y)
q	k̂(y)	ǩ(y)	k(y)'

[a] See note 12

[b] Marked only on agreement prefixes

[c] Unidentified (not marked)

[d] *th* occurs for *t'* once (p. 19). This might be a misprint, or an accidental copying of McKenzie.

Harrington's earlier (1928) and later (1946, 1948) work is the development of tone marking. Despite his early awareness of Kiowa pitch accent (1928: 6), the *Vocabulary* marks it only in the verbal agreement prefixes. Yet, even in that domain, he failed to identify the falling tone, writing, for instance, *éínè̜į'è̜į* (p. 250) for McKenzie's *énê* ('they two [VERB] themselves for me'). (The comparison is more perspicuous if we remove the final *'è̜į*—the glottal closure and vocalic rearticulation often concomitant with falling tone in Kiowa (Sivertsen 1956)— and write both in McKenzie's orthography: *énè* versus *énê*.) By the later works, high, low and falling tone are represented (though with occasional understandable confounding of high and falling) and their articulatory correlates (glottal closure, rearticulation) are disregarded.

However, this development was primarily due to McKenzie, who convinced Harrington, first, that there was such a thing as falling tone ('circumflex pitch/ accent'), and, second, that there was no fourth tone:

> He really "missed the boat" for ignoring the circumflex pitch – then, because it, too, has a definite bearing on the language. Some years ago I determined the occurrence frequency of the three pitch accents of Kiowa to be about on a 15-60-55 ratio – circumflex, grave and acute, respectively. So, the circumflex *is* important!
>
> I believe I "sold" JPH on the circumflex back in the 40's when we corresponded back and forth for several years, and, as I vaguely recall now, he insisted there *must* be a "swing pitch" (our convenience terminology then for circumflex accent) in the low as well as in high. I never could see it his way, because what appeared to him as "low swing" (maybe "low circumflex") always "panned out" for me as just ordinary low-long; as in *dàumcû* (sd [singular/dual] hoe), with the last syllable circumflexed, but in *fêdèdàumcǚ* (s/d spade; or narrow-bladed so called sharpshooter), the last syllable is low-long. Sometimes, a speaker's too careful pronunciation would overstress "low-long", making it sound much like circumflex, but in low tone. JPH pressed his point further by stating there *had to be* "low swing" from what is scientifically known about speech mechanics of the human voice, but I maintain now as I would have then that "science" of other times *knew*, too, that the world was flat and one would fall off the edge if he ventured out too far. "Chris" refuted them!
>
> (letter to Watkins c. 1978)

Indeed, McKenzie developed his own notation for high, a̋, and falling, á̇, tone (e.g., letter to Harrington 12.25.46). However, he ultimately came to use the standard notation of acute, grave and circumflex accents.

Thus, although McKenzie took from Harrington some of the diacritic means to represent tone, Harrington took from McKenzie the far more valuable information about what there is to be represented.

Like tone, Harrington's progress in noting surface length should probably be in part attributed to McKenzie. Harrington (1928) represented the mid vowels which are diphthongized even when short, as diphthongs *ei* and *ou*. However, he did not distinguish length; for instance, he writes, neglecting tone, *kou-dou-* for 'very' (1928: 234) where, in fact, the first vowel is long, the second short (compare with *ko·w`dow´* from Harrington 1946: 240). McKenzie's macron alerted Harrington (as in 1946) to distinguish length in these vowels: *cȍdó*. (Similarly, for *e*, compare Harrington 1928: 136, *-dei peidou* 'because' with Harrington 1946: 240, *dey`pe·y`dow`* following McKenzie's *dèfȅdò*.)

Even in 1946, and despite a tendency to represent all surface phonological characteristics, Harrington did not indicate length on vowels with falling tones, as in *'ǽ·ʰhey^dl* and *ki·´dey^* (Harrington 1946: 237; compare with Watkins 1984: 179, *ą́·hêl* but, p. 190, *kí·dê·*). While it is true that McKenzie also did not mark length on falling vowels, this was part of a principled decision not to indicate phonologically predictable information (see next subsection; similarly his mid vowels bear no mark of diphthongization). A plausible hypothesis is that Harrington was led by McKenzie in this regard, leading to a rare phonemic representation in an otherwise broadly phonetic system. Such phonemic representation is not unique however: another practice in which Harrington (1946) appears to have followed McKenzie in not differentiating between the vowels in, e.g., *ba* and *ga*: following (palatalized) velars, /a/ is fronted to [æ] or [ɛ]. Despite his generally phonetic representation, Harrington, like McKenzie, does not distinguish them (writing, e.g., *bн* and *gyн*), though they are qualitatively clearly distinct.

4.4. Phonemicism versus phoneticism

The point just raised marks another major difference between McKenzie and Harrington, which underscores the former's intellectual independence: his goal was phonemic representation, as against Harrington's broadly phonetic aims.

The most striking example of this is McKenzie's treatment of the palatal glide *y*. Velars palatalize before the phoneme /a/. Hence, although one pronounces [kʲæ kʲʰæ kʲʔæ gʲæ], the palatalization is automatic (and concomitant with the vowel fronting noted two paragraphs higher). Accordingly, McKenzie systematically omits *y* here, writing *ca*, *ka*, *qa*, *ga*, for *cya*, *kya*, *qya*, *gya*. He termed this 'the Big Four rule'. (The few loanwords, such as the gun 'catlin', that violate this phonotactic constraint are marked with an apostrophe: *c'átlìn*.)

We present four further examples. The recurrent point of these differences

is that McKenzie consistently represents the phoneme, Harrington, the surface phonetics (cf, Sapir's 1933: 47 assertion that "what the naive speaker hears is not phonetic elements but phonemes").[15]

Vowel length
In McKenzie's system, length is not marked on vowels with falling tone, because it is predictable: if the syllable ends in V̂C (V, a vowel; C, a consonant or *i*-glide), then the vowel is short and the falling tone is distributed over both V and C; if the syllable ends simply in a vowel, V̂, then the vowel is long. Hence, *àhô* 'thanks' rather than *ahô̱*. Further examples are *gûl*∼*gûlì̃* 'write.PF.IMP∼IMPF.IMP', compared to Watkins' *gûl*∼*gû·lì·*, and *têm*∼*têmì̃* 'break.PF.IMP∼IMPF.IMP, compared to Watkins' *tʰêm*∼*tʰê·mì·*: in both cases, the root-final *l*/*m* syllabifies with the imperfective imperative suffix when the latter is present, resulting in the long root vowel *u*/*e* ; however, such syllabification and length alternations are automatic/non-phonemic and, so, unrepresented. McKenzie explained this explicitly to Watkins, who had failed to suppress habits of writing phonetic length in an early letter:

> Before returning to answering your Oct 31 questions, let me remind you that it is not necessary to mark the "long" diacritic (dash or over-score) along with the circumflex symbol on the same syllable, be-cause, in normal usage, circumflex elements are equivalent in quan-tity of "long" highs, and do not identify as "short", "long", or "low". They are either nasalized or unnasalized – that's all.
>
> (letter to Watkins 12.20.77)

Nasality
Nasality, in McKenzie's system, is indicated only once per syllable, whereas Harrington marked it on every nasal segment. For instance, Harrington writes *gǫʉm* (1928: 64) and *gǫwm* (1946: 240) for 'back(ward)'. However, vowels tautosyl-labic with a nasal stop are automatically nasal and McKenzie writes *gôm*, not *gǫ̂m*. Similarly, for vocalic di- and trigraphs, it is enough to indicate nasality on

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[15]McKenzie did not aim for, nor did he recognize, phonological alternations of Kiowa phonemes, i.e. traditional morphophonemic alternations. Two such examples are (i) dental-velar switching and (ii) tone spreading, both prominent processes of the language. (i) The dental of /há:d-ô̱:/ 'shout-NEG' becomes velar before the high, front vowel of the imperfective imperative /há:gî:/. For McKenzie, these are *hǎdâu* and *hǎgî*, reflecting phonemically contrasting /d/ and /g/, e.g., /dóp/ 'put on.PF' and /góp/ 'hit.PF'. (ii) The incorporating adverbs *sém* 'secretly' and *óbáui* 'really' respectively spread high and low tone onto subsequent elements. Hence, *dè̱qǎu* 'lie asleep' becomes uniformly high in *sémdé̱qǎu* but uniformly low in *óbáuidè̱qàu*. McKenzie wrote the tones as shown, rather than reflecting the underlying forms *sémdè̱qáu*, *óbáuidè̱qáu*. See Watkins (1984) for more phonological details.

one element (McKenzie chose the first) and the rest are understood to be nasal too (see Vowel Diacritic chart, above). Harrington (1928) even indicated nasality on glides that precede nasal vowels, as in *k'y̨ų'ę* 'shield' (p. 115), which for McKenzie requires indication of nasality only once, *kyǫ̂i*.[16] McKenzie explained to Harrington:

> You notice that I do not indicate the nasal on the second element of a diphthong, not because it is not nasalized, but where the first is nasalized, the effect seems to carry through, merge, or fuse (you pick it) automatically into the second element, or letter *i* – the "helping" sound of Kiowa diphthongs. In *k̂y̨ʜ-hy̨ǫų-į* [with tone and length, *q̱ą̄hyǫ̂i* "men"] the nasal effect appears to begin with the *y* preceding the nasalized vowels (and you would show it with the Polish hook), but is it really imperative that it be so indicated, inasmuch as the eye is always ahead of the voice, and *y* is *always* (according to my system) a consonant? (letter to Harrington 4.16.45)

The lateral obstruent

Kiowa /l/ is lightly affricated in syllable-final position [ᵈl]—hence the many Kiowa names anglicized with (*d*)*dle*: *Geimausaddle, Guoladdle, Odlety, Paddlety, Tsoodle, ...* This affrication is automatic and its orthographic indication, unnecessary. Consequently, in McKenzie's system, laterals are written simply as *l*, in contrast to Harrington's (1928, 1946) *dl*. His feelings about its inclusion were strong:

> Harrington discussed *hajel* (Vocab., p. 76), but wrote it *hādel* (per mine) [*hā̄'deidl*] with his proverbial *dl* for *l*.[17] I believe I convinced him during the 1940's that terminal *l* is not *dl*. He persisted in compressing his whole tongue (it seemed that way, as I recall) into the palate instead of effecting the function with just light compression with only the front part of the tongue. (letter to Watkins 12.22.77)

Harrington was not to be persuaded:

> JPH stuck in a *d* in every syllable that ended in *l* and still did so in *his* "Popular Account of the Kiowa Language." ... Mooney experienced the same problem. (letter to Watkins 6.29.86)

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[16]On Harrington's *u versus* McKenzie's *o* see note 9.

[17]To clarify, Harrington made the objective error of hearing voiced /d/ for voiceless /t/, as well as writing 'his proverbial *dl* for *l*'. The correct form, with tone, is *hâjêl*. Harrington heard the first falling tone as glottal closure (hence his apostrophe); see Sivertsen (1956: 124), quoted below.

McKenzie's use of plain *l* is consistent with his abstraction away from phonemically irrelevant phonetic detail.

The glottal stop
A particularly interesting case of McKenzie's resistance to non-phonemic representation concerns the glottal stop, because it is phonetically so prominent an aspect of the language, both as /ʔ/ and as laryngealization. In McKenzie's system, it is absent because predictable. It occurs under four circumstances. The first two were noted by Sivertsen:

> by considering length and pitch contrastive we can take care of laryngealization on the sub-phonemic level... Nor do we have to set up /ʔ/ as a separate phoneme... Glottal stops do occur, but as a predictable, non-phonemic segment between heterosyllabic vowels.
>
> (Sivertsen 1956: 124)

Glottal stops also occur as neutralizations of voiceless stops in syllable codas. Hence, concatenation of /gút/ 'write' with the detransitive /ká/ may be pronounced [gúʔkʲǽ]. Similarly, concatenation of /óː/ 'pour' with the perfective /p/ may be pronounced [óʔ]. Finally, when two short syllables are concatenated, the first takes a glottal stop in its coda if the second begins with a voiceless unaspirated stop. Hence, /hɔ́ndé/ 'something' with the instrumental /to/ is [hɔ́ndéʔto]. Similarly /tékʰiːda/ 'every day' with the temporal locative /pa/ is [tékʰiːdaʔpa].[18]

4.5. Normative concerns

A recurrent feature of all of the preceding examples is that McKenzie had strong feelings about what was right and wrong in written Kiowa. In fact, his normative feelings extended to the language more generally and received expression in his orthography. Such normativity again establishes his independence from Harrington, in whose descriptive work normativity, naturally, had no place.

We discussed automatic palatalization (the 'Big Four rule') in the previous section. In two other cases of automatic palatalization, McKenzie did not eliminate orthographic *y*, however: palatalization of *l* and *n* before *i*, as in 'boy' *tàlyî* (not *tàlî*) and 'look.IMPF.IMP' *bǫ̃nyî* (not *bǫ̃nî*), and spreading of diphthongal -*i* over laryngeals, as in the hearsay form of 'asked', *cháihyèl* (not *cháihèl*), and

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[18]McKenzie did write such 'intrusive' glottal stops, not as separate graphemes, but as *t*, as in *háundétjò* and *jékĭdàtfà* (he also acknowledged the variant pronunciation *jékĭdàpfà*). When the voiceless stop is labial and the preceding vowel is nasal, the intrusive glottal stop is written as *p* and preceded by a homorganic nasal stop, as in the pair *ǫ̃fájǻu*, *ómpfájǻu* 'conceited'; cf also *ómpfáchǫ̃i* 'appetizing', *fĭmpfásátjàu* 'rustling for food'.

'there', *áuihyầu* (not *áuihầu*). He had observed that these palatalizations were disappearing from the speech of younger speakers and he wanted his system to be able to capture the 'correct' pronunciation: 'Youngsters keep on saying *tàlî* for *tàlyî*,' he complained at one point (letter to Watkins 12.21.85).

The same attitude is evidenced in the earlier discussion of the '"maverick"' syllable-final velar:

> It is not regarded as basic in the language, because some speakers negligently substitute it for the basic *p* or *t* terminals.(McKenzie n.d.a: 3)

The phrase 'negligently substitute' is clearly normative. Interestingly (section 2.4), when transcribing a story by hand, he was content to follow his consultant in permitting syllable-final *k*, though he "corrected" it to *t* in the "official" (typewritten) version (McKenzie n.d.c).

However, it should not be thought that McKenzie was entirely proscriptive in the face of all variation or novelty. We have already cited (section 3) his readiness to countenance 'newly devised words' and his appreciation of Kiowa's 'structural capacity for unlimited expansion'. In fact, he accepted not only neologisms, but their reduction, under frequent use, into less semantically transparent forms:

> ... Kiowas before the twentieth century were imaginative innovators of new words and devised hundreds of them – of things that newly came to their knowledge. No person can now say with certainty just when or how the new terms came into the language, but it is most certain every new term that became established in it had to be initiated by some individual, set in motion from mouth to mouth, for Kiowa never was a written language, till it came into general use by tribesmen, but often in modified or abbreviated form.   (letter to Watkins 7.23.83)

He then goes on to list over a hundred examples.

Furthermore, he had a great ear for dialectal variation, both phonetically and lexically. A former tribal chairman recalled (in conversation with Harbour) that McKenzie would ask younger Kiowas how their parents said 'bread' and, depending on the answer—*ếbáu*, *ếgáu*, *ếbáut*, *ếgáut*—would tell them where they, the younger Kiowas, were from. In another case, discussing the number-suffixed versions of certain nouns ending in /l/, he noted:

> Note:* Nettie and I agreed (usu. not) at breakfast that neither of us say, *qàuátjàu* (dish), but that we use the term as shown above in *thạiqáuâjàu* ['china']. Also: *dàuâjàu* (pail; bucket). Some do use the terms with the *t* [*qàuátjàu*, *thạiqáuátjàu*, *dàuátjàu*].
>
> * also: Justin Poolaw   (letter to Watkins 12.27.77)

Orthographically, the different between *át* and *â* might seem large. However, given that glottal stops may replace syllable-final *t* and intrude after falling vowels and before syllable-initial voiceless unaspirated stops (section 4.4), the difference in question is in fact quite a subtle one.

Similarly, in another letter that attests to his resourcefulness and independence as a researcher, McKenzie mentions that he had given Harrington's version of 'The Udder-Angry Travelers Off' (1928: 252) 'a minute going-over'. Though only 12 lines long, McKenzie made a number observations about it. The tenth was:

> 10. Of particular interest (to me) is: *hā'gi* [Harrington's *hī'gi*]. Quite a few Kiowas use it thusly when the majority usage is *hágá*, per PM [the initial short vowel is intentional]. It's possible DK [Delos K. Lonewolf, McKenzie's stepfather, from whom Harrington transcribed the story] did use it in that form. I pass it off to imprecise usage.
>
> <div align="right">(letter to Watkins 1.7.80)</div>

Although his normative attitudes are still present, the quotation nonetheless displays an ear for majority/minority speech patterns (cf, also footnote 18). (See Watkins 1984 on grammatically conditioned *i~ya* alternations.)

In summary, then, history, accuracy, and phonemic and normative concerns all evidence that McKenzie's invention was very much the embodiment of his own insights, not a calque from Harrington's.

5.   McKenzie's orthography in the present day

McKenzie was passionate about preservation of the Kiowa language and was eager to spread knowledge of his invention. For instance, in planning activities for a Rainy Mountain school reunion, he suggested:

> *Câul dá bàt câum áuihyàu ẹ́gàu bát cáuigùtjàudè nàu á cáunqòmbààtcà gàu gá càuncàuicùthàigà.*[19]

> You could then show this to some people, how we are writing Kiowa, so they might be motivated to do likewise and learn Kiowa writing.
>
> <div align="right">(letter to Charlie Redbird 2.16.63)</div>

He realized that Kiowa had entered a process of probably terminal decline. For instance, he commented that 'Kiowa has the structural capacity for unlimited

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[19]The high-low contour on *gá càuncàuicùthàigà* 'they might learn Kiowa writing' is surprising: it is a tonal contour associated with transitives, whereas 'learn' is normally non-transitive (with the learner as indirect object) and the expected contour here is *gà cáuncàuicùthàigà*.

expansion, but the trend now is ended by the new life that engulfs the tribe on every side' (McKenzie n.d.b: 47), and:

> I know that in a few more decades, Kiowa will be no more spoken and it'll be as dead as a doorknob. The general run of people, including younger Kiowas, rightly have the idea that it's just a waste of time to be spending on Kiowa, knowing that it's going to be dead anyway.
>
> (letter to Watkins 11.18.78)

Yet he believed that written Kiowa could play a substantial role in language preservation:

> *Yàl ḗdè étjé câugàuál châu ḗugàujǭgà gá hầfàu àn bà ḗudèp àut mḗu háunàn téndḁumầu. Áugàul ố tǫgầu ḗgàu Cáuijǫgà gàt gútjàudéchò hḗjêl gà ḗumḗnàu, áugàul hègáu ôihyầu jépàui gát cáuicùthàigàdầuthầu.*
>
> I often wish that many others would take an interest in our own language, but it seems they don't want to. If someone long ago had devised a system for writing Kiowa as I am now doing, then right now everyone would know how to write it.
>
> (letter to Charlie Redbird 10.15.63)

> *Né nḗu gàu ám gát háigádầu nàu háun gà cyǫ́igâuthầu nègáu Cáuijǫgà hḗ gà dḗuthḗu. Hàgà ḗgàu gàt gútjàu gàu áutcàu étjé jábàpàl yḗ cáuicùtdầudè thófḗgù gà bḗthḗu.*
>
> But you and I know, it will not be long before the Kiowa language is gone. Perhaps many Kiowas will be writing in the future as I am now.
>
> (letter to Watkins n.d.)

> But, how can Kiowa be kept for posterity's sake if it is not a language in simplified-written form? ... The Kiowa-writing system I developed is quite simple; in fact, it is simple enough that a fellow tribesman of little book learning was about to "catch on" readily and carry on correspondence with me. (McKenzie c. 1970)

McKenzie's orthography has been incorporated into some language preservation attempts and is in use in Kiowa language classes at the University of Oklahoma, in theoretical work by McKenzie's great-grandson, Andrew McKenzie (at the University of Massachusetts Amherst), and in ethnographic work by Palmer (e.g., 2003) and Meadows (e.g., 1999). Furthermore, other writing systems show clear influence from McKenzie's. For instance, use of *th* for /t$^?$/ and *au* for /ɔ/

(as opposed to SIL *aw(h)*) in some more recent informal orthographies by various tribal members is unlikely to be coincidence.

However, there has not been general uptake of the system, for several reasons. First, users trained in English frequently find it difficult to unlearn the English values of various letters ('Even me, I get *k* and *c*, *p* and *f*, *t* and *j* occasionally mixed up', he wrote to Watkins; 12.27.77). Second, many non-fluent or merely semi-fluent speakers do not appreciate language learners' need for tone markings and other diacritics. Third, one of the main uses of Kiowa among non-speakers is in hymns. Given that the principle non-oral resource for Kiowa hymns is a SIL publication (Gibson, Redbird, Redbird, Toyebo, and Wolfe 1962; reprinted as sleeve notes to Kotay 2005), many people's main exposure to written Kiowa is via the SIL orthography, which they consequently prefer (for McKenzie's opinion of this system, see section 4.1). The situation and its implications are discussed by Neely and Palmer (2009).

6. Conclusion

Parker McKenzie had only rudimentary schooling and no formal training in linguistics. Yet, the system he devised for writing his native tongue shows a firm grasp of such linguistically central concepts as place of articulation, glottalic manner of articulation, allophony, phonotactics and syllable structure. Moreover, he strove for economic, unambiguous representations. The result is a system that is more precise and more compact than that of his collaborator, Harrington, which nonetheless permitted its inventor to express his personal phonemic and normative concerns. Although not universally adopted, the orthography is a widely recognized and influential system among today's Kiowas. It constitutes a remarkable achievement.

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