

A tale of two apostrophes: Marking of ejectives, aspirates, and geminates in Dorsey's Omaha-Ponca materials

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Abstract: James Owen Dorsey's Omaha and Ponca materials contain idiosyncratic and sometimes inconsistent marking of the distinction between ejective, aspirated, geminate, and plain stops, affricates, and fricatives. In this talk I describe Dorsey's shifting and sometimes confusing practice, especially including his use of two different apostrophe-like symbols to mark ejective/glottal on different types of sounds in his slip file, and one of the same symbols to mark aspiration in other cases. In his published works Dorsey used other conventions, including upside-down letters, but with some of the same quirks of using one convention to mark what in modern phonetic understanding are two different features. Throughout his career he treated stops differently from fricatives in marking ejectivity, and tended to conflate gemination and voicing.

Introduction

James Owen Dorsey was a missionary linguist who lived and worked with both the Ponca and Omaha peoples from the 1870's through the early 1890's. His materials are the most important source of information on Omaha-Ponca, and perhaps Dhegiha as a whole. Nearly all later work on Omaha-Ponca is derived wholly or in part from Dorsey's voluminous texts, grammar manuscript, and slip file; this includes numerous works by Koontz, Eschenberg, Shea, and other linguists. In particular the Omaha and Ponca Digital Dictionary, which Mark Awakuni-Swetland and I have talked about at several recent Siouan & Caddoan conferences is derived directly from Dorsey's unfinished slip file. Correct interpretation of his materials, including his writing system, is thus critical to an understanding of Omaha-Ponca linguistics in general, and phonology in particular. Unfortunately, Dorsey's transcription practices are not as clear as they might be: they evolved during his career, were sometimes inconsistent, and sometimes followed a logic that meshes oddly with modern phonological concepts. In this paper I examine his representation of aspirated, ejective and other stop and fricative series, which is a moving target, more complex than it first appears, and easy to misinterpret.

The story of ígađó^hk'agthágtha

I got interested in this topic through a mistake. I sent John Koontz a copy of the paper on reduplication that I presented at last year's meeting (Rudin 2012) and he questioned what looks like a glottal /k'/ in one example, saying he was pretty sure, aside from perhaps an onomatopoeic form or two, k' shouldn't exist in OP (having changed to glottal stop); was I **sure** this word didn't have an aspirated or plain /k/ instead of glottal?:

1. ígađó^hk'agthágtha 'to cut off all the branches of a tree in quick succession...'

To make a long story short, it eventually turned out that all of the putative /k'/ words in our database were written with a particular type of apostrophe in the slip file -- a handwritten open-quote mark instead of a typewritten close-quote mark. Mark Awakuni-Swetland and I had taken these to be variants of a single diacritic, but in fact they are two distinct diacritics. John was right, as usual -- the word he objected to should have been ígadó^hk^hagthágtha.

This meant that some data had been mis-entered in the dictionary database from the slip file, and that all the supposed /k'/ words had to be corrected by hand in the modern orthography. But that was a minor problem; since Dorsey usually does not mark aspiration, we were having to hand correct aspiration on large numbers of words anyway.

The story of wes⁶a and t'e.

Things got more interesting once I started paying attention to the two different apostrophe-like marks. One of the reasons we had thought that the typed and handwritten apostrophes were variants of a single diacritic is that both do mark glottal (or ejective):

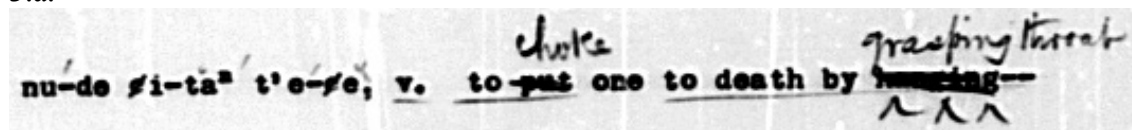
2. wes⁶a 'snake'
- t'e 'die'

Why would Dorsey use two different diacritics to mark ejective articulation, and why would one of them also be used to mark aspiration? I will try to partially answer this in my presentation today. I start by just laying out the basic facts of how Dorsey indicates aspiration and glottalization in the slip file; then move to some speculations about why with brief notes on his usage in other works.

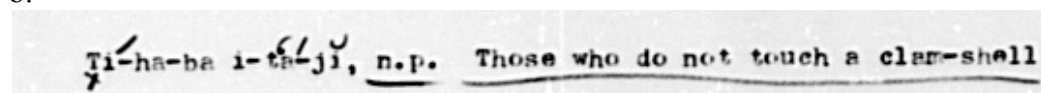
The diacritics

In the slip file there are three diacritics used on stops and fricatives: ' ° x. All occur with letter *t* in the lexemes in (3), which are samples excerpted from the slip file: a typed apostrophe (*t'*) in (3a), a handwritten open-quote mark (*t⁶*) in (3a) and more clearly in (3b), a small *x* under the letter in (3c), as well as *t* with no diacritic in two places in (3c).

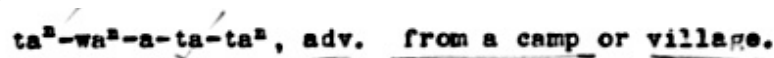
3.a.

nu-de si-ta⁶ t'e-se, v. to put one to death by ^{choke} ~~hanging~~ ^{grasping throat}


b.

Ti-ha-ba i-ta⁶-ji, n.p. Those who do not touch a clam-shell,


c.

ta⁶-wa⁶-a-ta-ta⁶, adv. from a camp or village.


These four markings (' , ʔ, x, and nothing) represent different types of stops and fricatives ... more or less consistently.

The Consonants of Omaha-Ponca.

The inventory of stops that need to be distinguished is shown in (4) and the fricatives in (5):.

4. The stop (and affricate) phonemes

<i>stops</i>	plain	glottal/ejective	aspirated	geminate/tense
<i>labial</i>	b ~ p	p̣	p ^h	pp
<i>alveolar</i>	d ~ t	ṭ	t ^h	tt
<i>velar</i>	g ~ k	ḳ	k ^h	kk
<i>palatal</i>	dʒ ~ tʃ	tʃ̣	tʃ ^h	ttʃ

5. The fricative phonemes

<i>fricatives</i>	voiced	voiceless	glottal/ejective
<i>alveolar</i>	z	s	ṣ
<i>palatal</i>	ʒ	ʃ	ʃ̣
<i>velar</i>	ʁ	x	x̣

In the slip file the diacritics represent these stop and fricative series as follows:

'	T'	= glottal/ejective stop
ʔ	ʔ	= glottal stop (initial or V_V)
	Sʔ	= glottal/ejective fricative
	Tʔ	= aspirated stop (inconsistent)
x	T _x	= geminate stop (inconsistent)
	S _x	= semi-voiced fricative allophone (_n)
(none)	T	= (in clusters) plain stop
	T	= (elsewhere) usually aspirated stop; can be geminate stop
	S/Z	= voiceless/voiced plain fricative

In the rest of my talk I show examples of these diacritic usages from the slips and consider what Dorsey might have been thinking to come up with this odd system.


Aspirates: marked and unmarked

Let's begin with marking of aspiration. Early on Dorsey appears not to have been aware of the distinction between the aspirated and geminate stop series, writing them both with a plain stop letter in his 1870's grammar manuscript. In later works, including the slip file, he did often mark the distinction, usually by using a special symbol of some kind for the geminate series and a plain p, t, k, tc for the aspirated series. But in the slip file, some


aspirated stops are overtly marked with the large handwritten open quote; see the t in (6a) and k in (6b); the phonemic transcription given in // for each example can be compared to Dorsey's writing of the lexeme in the image given below it.

6. aspirated, marked with ˆ:

a. /wet^haⁿ/


 **we-ta^ˆ, n. of ta^ˆ; that by means of which something may be possessed. Syn., wiuketa^ˆ. See ita^ˆ, i^ˆi^ˆwi^ˆ, waweci,**

b. /ðadoⁿk^ha/

 **ca-daŋ-ka, v. to cut off with the teeth at one bite — cnadaŋ**

However, the aspirated /p^h, t^h, k^h, tʃ^h/ are most often represented by unadorned stop letters (p, t, k, tc). (7) is an example that is actually homophonous with (6a), though Dorsey writes it differently.


7. aspirated, no diacritic: /wet^haⁿ/

 **we-ta, 1st. dat. of ata; to tread on their property accidentally; to tread on it for them (not the owners) -- we'ata, weata, wiŋgatai.**


It's not entirely clear to me why he sometimes overtly marks aspiration. The open-quote diacritic tends to be consistently used only on certain roots (like the t^haⁿ root meaning 'possess'); he seems to have heard these as somehow different from other aspirated stops, but I do not claim to understand why or how.

The unmarked stop letters are also used regularly for the plain /p, t, k/ in clusters, as seen in (8), and also sporadically for the geminate series, as in (9).

8. no diacritic = plain stop in clusters: /ʃtaⁿʃtaⁿga/

 **cta'ctaŋ-ga, freq. of ctaŋga; soft or bunchy here and there.**

9. no diacritic = geminate (not aspirated) /tappuska/

 **ta-pu-ska, n. a teacher; a missionary. Used by the Omahas.**

Thus, plain letter p, t, k, tc not in clusters are ambiguous: they usually represent an aspirated stop but can also represent unaspirated (geminate) stop. In (10) we see both usages in a single lexeme; (11) shows that a geminate stop can be marked with under-x (to be discussed later), but this marking is not consistent.

10. unmarked --- one aspirated, one geminate /tta t^hedi/

ta-t^hē-di (tatox ēdi), when about to — (t^haitēdi). Pi' tatēdi, Then
I was about to start hither (GPH: 155, 3; 163, 2;

11. two geminates -- one marked, one not: /ttaiátta/

ta-i-a-ta, adv. of tai; a' or near the back of the head.

Unfortunately, it is necessary to check each item with speakers or against other sources to ascertain whether a given diacriticless stop is in fact aspirated.

Ejectives: The two apostrophes

Unlike aspirated stops, glottal/ejective consonants are marked very consistently in the slip file (and in most of Dorsey's work, though in the grammar he did write *wau* for *wa'u*.) But as we've seen, stops and fricatives are treated differently. Ejective stops are marked with the typewritten close-quote mark (or a small close-quote mark in handwritten examples): p', t', tc', k'.

12. a. typed /t'iⁿye/

t' iⁿ - ze, wrinkled, L.

- b. typed /tʃ'eðe/

tc'e' - e' (= t'e' e'), used by old women and children, to kill

- c. handwritten: (p'uçaⁿ 'steaming'; /p'uðāⁿ/)

p' u - çāⁿ,

Rather confusingly, the larger handwritten open quote °, the same mark used for aspiration with stops, is used to indicate glottalized/ejective fricatives s°/c°/x°. (c=[ʃ]).

13. a. c° = /ʃ°/; /iⁿʃ°age hi/

✓ iⁿ - c° - ge hi, v. to reach old age - iⁿ c° ge ci, iⁿ c° ge pi.

- b. s° = /s°/ (compare t' = /t°/ with different diacritic); /t'us'a/

✓ t'u^hsa, adj. hump-backed, L. much bent, more than is implied
by bagije. Said of very aged persons.

c. q^h = /x' / ; /x'iⁿx'iⁿða/

q^hi^a-q^hi^a-fa, adj. inelastic,

d. handwritten: (compare to 10c)

q^hi^a-q^hi^a-fa,

This same symbol (the larger handwritten open quote) represents glottal stop initially or between vowels; in (12b) notice that glottal stop is written with the same mark as aspirated *t*.

14. a. /'abe/; /ʒaⁿabe/

'a-be, n^h a leaf; leaves.
See jaⁿabe,

b. /u'aⁿ t^haⁿ/

u-aⁿ t^haⁿ, to afford the enemy cause for seeking revenge (by killing one or more of their people)--u-aⁿ ʒaⁿ t^haⁿ, u-aⁿ aⁿ t^haⁿ. U-aⁿ t^haⁿ aⁿgi-

If we had been paying closer attention we might have noticed earlier that examples like (15) have two different diacritics; the two different types of apostrophes marking aspiration vs. glottalization:

15. ejective vs aspirated /wet'e t^haⁿ/

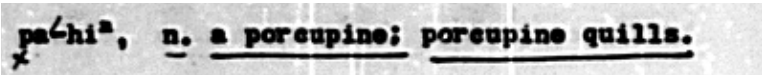
wet-t'e t^haⁿ, v. "to have his friends, etc., dead:" to mourn for his dead ones -- wet'e ʒaⁿ t^haⁿ, wet'e aⁿ t^haⁿ, wet'e aⁿ t^haⁿi.

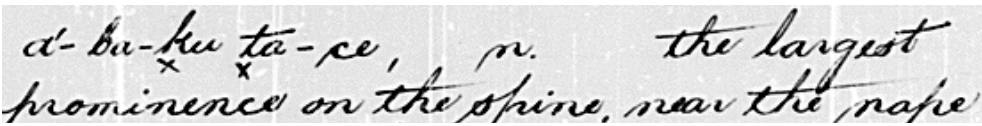
Geminates and "sonant-surds"

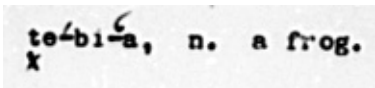
Another interesting use of diacritics is the marking of geminate stops and what Dorsey calls "sonant-surds", the semi-voiced fricative allophones preceding /n/. In some published works Dorsey used upside-down letters for both of these, or sometimes a dot underneath, but always the same convention for both types of sounds, suggesting that he saw them as somehow "the same". In the slip file geminate stops and "sonant-surd"

fricatives are marked with a small x below the letter, probably a way of making the under-dot more visible. (16) shows some stops with this diacritic; (17) some fricatives.

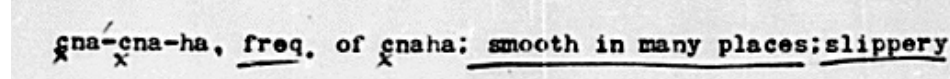
16.

a. 

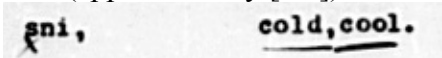
b. 

c. 

17. a. /ɲnaɲnaha/ (approximately [ɲnaɲnaha])



b. /sni/ (approximately [zɲi])



What was Dorsey thinking?

Just a couple of quick remarks about what Dorsey's reasoning may have been.

(1) First, the use of the same diacritic, the under-x, to mark geminate stops and semi-voiced fricative allophones is almost surely due to Dorsey's mis-hearing the geminate stops as partially voiced; i.e. coming from English he probably processed the contrast between aspirated and non-aspirated stops as voiceless vs. voiced. The geminate stops and "sonant-surd" fricatives are marked with the same convention in all Dorsey's works, as mentioned above, and he describes them identically in the front matter of *The Cegiha Language* (where they are spelled with an upside-down letter; I do not attempt to reproduce that here, but instead use the under-x convention):

18. k_x "a medial k (between k and g). Modified initially; not synthetic"
 s_x "a medial s (between s and z). Not synthetic; modified initially"

I am not sure what "modified" and "synthetic" mean in this context, but it is apparent that Dorsey heard the geminates' lack of aspiration as related to voicing.

(2) Dorsey's tendency to mark the (unaspirated) geminate stop series and NOT mark the aspirated one is probably because the geminate is the one that does not sound like any English sound, and his very sporadic overt marking of aspiration is because aspirated

stops do tend to sound like unremarkable English sounds in many contexts. I have not investigated systematically, the contexts in which he marks aspiration (with ʰ) or lack of aspiration (with x) but I suspect he is especially prone to missing aspiration on stressed syllables and hearing it more in unstressed positions where it is not expected in English.

(3), Dorsey's use of the same mark, the large open quote ʰ, for both overt aspiration of stops and glottalization of fricatives may indicate that he considered aspiration and glottalization to be somehow the same -- but not necessarily.

There are a few cases of words in the slip file which have alternate forms, one aspirated and one glottal; e.g. *ðik'axe* vs. *ðik^haxe* in (19): compare the head word and the synonym given at lower right:

19.

ɸi-k'a-xe, v. to make a scratching noise, as a dog that wishes to have a door opened — cnik'axe. Syn., ɸikaxe, etc.

Though very rare, these cases to some extent could be seen as supporting Dorsey's apparent view that aspiration and glottalization can be equated. However, there are also minimal pairs:

20.a. /it'e/

i-t'e(ɿt'e), to die from (some cause which is named)

b. /it^he/

i-t^he, v. to touch an ob.

Another minimal pair example is the pair *bat^hé* 'to be thoroughly gorged with food' and *bat'é* 'to kill by stabbing or punching'.

In a few cases Dorsey seems to have heard Omaha and Ponca speakers as differing in aspiration: In the two words for 'spider' in (21), Omaha is represented as having unaspirated (geminate) *k*, while Ponca has apparently aspirated (written with no diacritic but contrasted with under-x). "O." in the second example indicates it is only Omaha dialect, not Ponca.

21. (ukigthiske vs. uk^higthiske)

u-ki-gsi-ske, n. of ugiske(O.); a spider. See ukigiskē, ugiske.

u-ki-gsi-skē(O.), n. a spider; wagsicka ukigiskē. See ukigiskē, ugiske.

However, I really do not think Dorsey heard aspiration and glotalization as being the same thing or even particularly related. Perhaps in both cases the open-quote mark was just an easy way of marking an “odd” sound that didn’t have an obvious symbol in European writing systems. It apparently didn’t bother him that it didn’t mark the same phonetic feature in the two cases.

The two apostrophe-like diacritics are used this way only in the slip file, not in Dorsey’s other works. In his 1870’s grammar, ejective fricatives as well as ejective stops are written with a small apostrophe, and he clearly defines them both as “explosive”. No open quote mark is used at all. (22) gives representative definitions from the sound-list of the grammar.

22. t’ “is an explosive t”
 s’ “is an explosive s”

In the 1890 text collection *The Cegiha Language*, Dorsey does use an open-quote mark, but only for what he calls “exploded” vowels. He does not include any ejective fricatives or glottal stop in the “List of Sounds”, instead treating the glottal element in all contexts except ejective stop as part of the following vowel:

23. ‘ă an initially exploded ă, as in *wěs* ‘ă, a snake.

It’s conceivable that he was right -- perhaps what we think of as glotalized fricatives are actually a fricative plus a separate glottal stop, or that glottal stop is actually a feature of certain vowels.

The slip file has no pronunciation guide or list of sounds; it is possible Dorsey still thought of glottal stop and ejective fricatives as involving an “exploded” vowel in the 1890s. Aspiration is not overtly marked in any of Dorsey’s materials except the slip file, as far as I am aware. Clearly his thinking on aspiration and glottal features of consonants was in flux throughout his career; some of the inconsistencies of the slip file are surely due to its having been assembled over a period of some years, and the fact that it was never finished.

Implications for phonology??

The marking of aspiration, glotalization, and gemination gives some insight into how Dorsey heard and thought about these sounds, which in turn may illuminate their proper phonetic analysis, and how they function in the language. Issues raised by Dorsey’s transcription practices that might eventually be investigated, through acoustic or articulatory studies or through phonologically informed studies, include whether the various stop series are best analyzed as complex segments or as clusters, whether “glottalized” fricatives and “ejective” stops actually involve the same or similar articulatory gestures or not, and whether the tense stops are truly geminate. All of these issues are beyond the scope of this paper, however, and left for future research.

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