



Design Issues in Athabaskan Dictionaries

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Typical bilingual dictionary

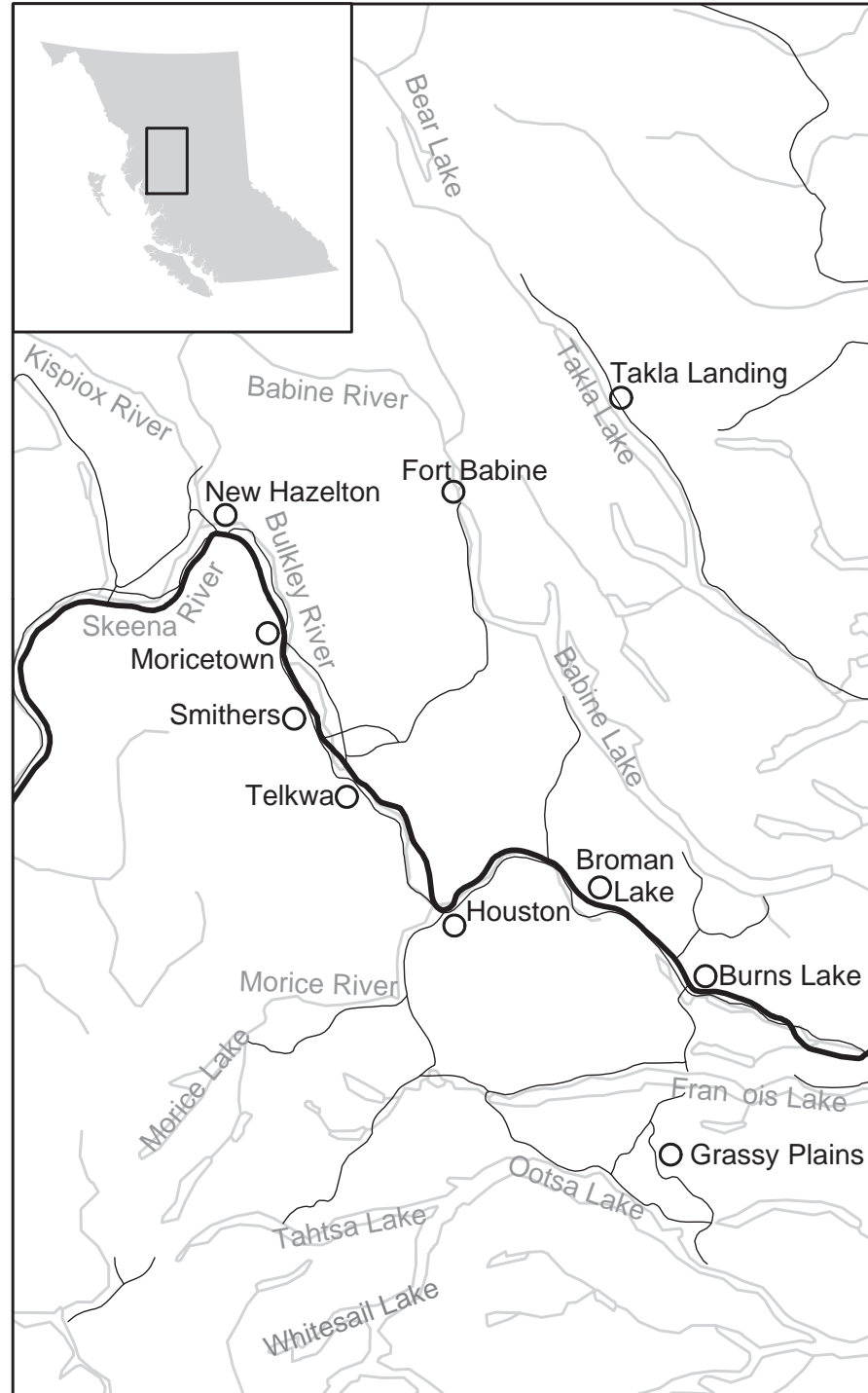
- Organization
 - Ath-English
 - English-Ath
- Generated from a single database via Toolbox, Shoebox, Lexware, Access, etc.

Issues in the representation of verbs in Athabaskan dictionaries

1. Discontinuity
2. Headword choice

1. Discontinuity

- An example of verb-internal discontinuity from Witsuwit'en



Some Witsuwit'en speakers

- Mabel Forsythe, Smithers



- Lillian Morris, Moricetown



- Beatrice Morris, Moricetown



Background on Witsuwit'en verb system

- Four 'modes'
 - imperfective, perfective, future, optative
 - (there is a customary stem; customary is otherwise like an imperfective)
- Seven subjects
 - 1s, 2s, 3s, 1d, 1p, 2p, 3p
- Positive vs. negative forms
- Regular verbs have 56 forms

‘a language like Navajo, in which ten or more separate prefixes may often be added to a root to produce a pronounceable verb, has so many possible words that the decision of how to list them in the dictionary raises innumerable problems for the lexicographer.’ (Munro 2002)

Some forms of ‘pick berries’

i = [ə], **ï** = [i], **ë** = [ɛ], **lh** = [ʎ]; **g c c'** are palatal stops, **gg k k'** are uvular stops

c'oniyin, c'oyin ‘she’s picking berries’

so' tsalhtsë uniyin ‘she’s good at picking cranberries’

uninyin ‘(you) pick berries’

digï ts'oniyin ‘we’re picking huckleberries’

wec'its'oniyil ‘we didn’t pick berries’

digï ts'ontayilh ‘we’re going to pick huckleberries’

c'onudityin' wika'dit'ah ‘we (du.) are trying to pick berries’

...

Common denominator

In all sentences containing ‘pick berries’

- obligatory elements
 - an object: **c’**- unspecified, **digī** ‘huckleberry’ ...
 - **o/u-** prefix
 - **yīn** stem: **yīn**, **yīn’**, **yīl**, **yīlh** ...
- optional element
 - **n-** round

The discontinuity problem in a nutshell

- Athabaskan verbs consist of pieces
 - e.g. object, **o/u-**, **yin**
- How to represent that fact in a dictionary (if at all?)

Possible lexical entries for ‘pick berries’ in Witsuwit’en

Currently (Hargus in prep.) (show the pieces)

O+u+yïñ v. pick O (berries). (*commonly occurs with n- round object*)

Better?

O-u-yïñ v. pick O (berries). (*commonly occurs with n- round object*)

Some alternatives

Show more pieces

O+u+G+yïñ *v.* pick O (berries).

(G = gender)

or **O+u+(n+)yïñ** *v.* pick O (berries).

Show fewer pieces

u+yïñ *vt.* pick (berries). (*commonly occurs with n- round object*)

Another alternative: ignore discontinuity

Show no pieces; i.e. in place of

O+u+yïin v. pick O (berries). (*commonly occurs with n- round object*)

1. Provide a citation form from which all other forms can be predicted; e.g. 1pS pf

c'its'onïnyïn' ~ **c'its'onnyïn'** 'we picked berries'

(In Witsuwit'en as a whole, there is no single form from which all others can be predicted.)

Or in place of

O+u+yïn v. pick O (berries). (*commonly occurs with n- round object*)

2. Provide a random, representative form of ‘pick berries’; e.g.

so’ tsalhtsë uniyïn ‘she’s good at picking cranberries’

This approach is very common in dictionaries with no Athabaskan-English section (e.g. Elford and Elford 1998 (Dene Sųłiné dictionary), MacAlpine, Taff, Winkelman, Jones and Dementi 2007 (online Deg Xinag dictionary)).

‘steal’ in several languages

- How is discontinuity represented?
 - Navajo (based on Young and Morgan 1992, 252 ff.)
ni-(0/si)-’íí’₂... ‘to steal or pilfer O’. **Nish’íih/né’íí’**
 - Ahtna (based on Kari 1990: 92)
O+n+0+’ii ... steal O. **inez’iin** he stole it
 - South Slavey (based on Howard 1990)
ets’ene?ih / zhené?i / enu?ih
ena?i
 - Deg Xinag (based on MacAlpine, Taff et al. 2007)
Gini’eyh ^{JD+ED} lit. S/he steals.
Niłtreth dangan xał ye gini’eyh. ^{JD+ED} Wolverine
steals from the trap.
Dlen yeno’eyh. ^{JD+ED} The mice will steal it.
 - Carrier (based on Antoine, Bird, Isaac, Prince, Sam, Walker and Wilkinson 1974: 38)
’undunut’ih (v); **(-t’ih)**: he is stealing [for himself]

Lakhota

- Some verbs from Munro, Fixico and Iron Teeth 1999
 - *a*phá/é* ‘to hit’
 - *ina*xma/e* ‘to hide’
 - *i*tómni* ‘to be drunk’
- ‘...we use a * to mark the position of inflection...and we write ablaut verbs with a final *a/e*...This type of entry is thus rather abstract, since * and “*a/e*” are not sounds of Lakhota. This degree of abstraction seems useful, but it remains to be seen whether it would be appropriate for a dictionary to be used extensively by native speakers and other nonacademics.’
(Munro 2002:104)

Discontinuity elsewhere

- In the English-Athabaskan section
 - learner: how do you say ‘pick berries’?
- Witsuwit’en (currently)

pick

berry pickers: **nididilhni** (<ye).


pick O (berries): **O+u+yin** (<yin).

pick up P, go back for P: **P+k’i+ne#D+ye/’as/dilh**
(<ye).

sg./du./pl. go berry picking, go look for berries:
d+D+ye/’as/dilh (<ye).

- the learner’s problem: how do you pronounce **O+u+yin**?

Traditional solution to the learner's problem

- Look it up in the Ath-English section
 - pick O (berries): **O+u+yin** (<yin). 
- Is this a reasonable expectation?

O+u+yin v. pick O (berries). (*commonly occurs with n- round object*)

dur **c'oniyin, c'oyin** she's picking (berries); **c'its'oniyin** (*impf* 1s **c'onisyin**, 2s **c'onin-**, 3s **c'oni-**, 1d **c'onidit-**, 1p **c'its'oni-**, 2p **c'onih-**, 3p **c'ooni-**) we're picking berries ...

pass **'usa bi c'otyin** berries are picked in pots (LM/DR)

dist **'et 'awet nik lha'ts'idit'iyh. Ts'iyewh nit'ay nts'oniyih. Ts'iyewh digi nts'oniyih 'et 'awet nekhelh c'iztildilh** now we were done up there. We had picked all the berries. We had picked all the berries and were starting to pack back down (ET)

cust **ggin 'et digi ts'oniyih** we used to pick huckleberries there; **dindze tl'a digi 'elhikhin zeh hanenityekh. Dindze digi binis tsoyilnih 'aw wik'ë'et 'inilco. 'Et wilegh ts'ah digi winis lhay ts'oyih** high-bush blueberries and huckleberries grow back in the same place. Blueberries are sweeter than huckleberries but they're smaller. That's why we pick more huckleberries (LM/DR); **digi ts'oniyih, tl'a tsët nik hats'idilh 'et digi tah ts'iyewh lha'aaydilh'iyh** we'd pick huckleberries. When we first got up there we'd finish all the huckleberries (ET)

Bik'it Digi Ts'oyih *pn.* unnamed hill south of Moricetown. (*lit.* on it we pick huckleberries) (*Ut'akhgut territory*)

An alternative to discontinuity in English-Ath section

- Two English-Athabaskan sections; e.g.
 - English-Witsuwit'en (index of real words)
pick
we already picked berries: **c'its'oninyin'** (<yin).
 - Index of verbs and verb prefixes
pick
pick O (berries): **O+u+yin** (<yin).

- Problems with two indices
 - Adds to length of dictionary
 - Requires extra time of lexicographer and/or programmer
 - Users might avoid the Ath-English section
- Problem with index of real words
 - can't as easily show range of meanings for lexical item. Tsek'ene examples
 - kuda ts'e'' i`du`sja he's sneaking after a moose
 - 'i`#d+D- (s mom) pursue, stalk, follow, in stealth

Discontinuity summary

- Athabaskan verbs consist of pieces
- Dictionaries vary in how they represent discontinuity
 - show more vs. fewer vs. no pieces in lexical entry
- Dictionaries could represent discontinuity in different ways in different sections (Ath-Eng vs. Eng-Ath)

2. Headwords

- What is the organizing point for the lexical entry?
 - How is the entry alphabetized with respect to other entries?
- This issue is avoided to a certain extent in a dictionary whose contents are accessible by search only.

‘steal’ again

- Navajo (based on Young and Morgan 1992, 252 ff.)
’íí’₂
... ni-(0/si)... ‘to steal or pilfer O’. Nish’íh/né’íí’
- Ahtna (based on Kari 1990: 92)
’ii₄
O+n+0+’ii ... steal O. inez’iin he stole it
- South Slavey (based on Howard 1990)
ʔíH
ets’eneʔíh / zhenéʔi / enuʔíh
enaʔi
- Deg Xinag (based on MacAlpine, Taff et al. 2007)
STEAL Gini'eyh ^{JD+ED} lit. S/he steals.
Níłtreth dangan xał ye gini'eyh. ^{JD+ED} Wolverine steals
from the trap.
Dlen yeno'eyh. ^{JD+ED} The mice will steal it.
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Headword choices

- Headword is an Athabaskan element
 - Athabaskan root: Navajo, Ahtna, S. Slavey
 - Athabaskan word: Carrier
- Headword is an English word
 - Deg Xinag

Problems with headword as Ath root

- Identifying root (imagine speaker browsing dictionary)
 - root = “final” or stressed element of word
 - Wit. **c’oniyin** ‘she’s picking berries’
 - but root not always exactly final syllable
 - Wit. **wec’oniyil** ‘she didn’t pick berries’
 - Deg Xinag **ngistl’i** ‘it’s small’

Problems with headword as Ath root

- Some entries organized under word-initial C or V, some are not. Confusing?

– noun

'a¹

'a *n.* fog, mist. 'a **hozdlī**' it got foggy; 'a **welew** it's not foggy

– number

tak'iy *num* three. **tak'iy k'iy** three birches; **tak'iy yikh 'et wit'iy** she has three houses; **ndu nek biynilts'ilh? Tak'iy 'e nek biynilts'ilh** what comes after two? Three comes after two (LM/DR)

hō verb prefix

ho# *vpf.* (*mom* **0,e**) out, forth.

mot **dic'ats honye** he went out on the territory...

ho#n- *vpf.* (**0,e**) start to. (*mom*) *this prefix is not used with ordinary motion verbs; it is not compatible with continuative aspect.*

clf-mot 'usa **hontinilts'it** the pot started to tip...

Problems with headword as Ath root

- Determining meanings of roots; e.g. Wit. 'a³

'a³

neu 'a 'a' 'alh' 'a'

neuneg 'ah 'al 'atl' 'a'

-'a v. linear object is. *some objects which require this root are: ts'o spruce (if standing), lho glacier, tiy trail.*

neu ts'o hodin'a the spruce is standing; *ts'o howedi'ah* the spruce is not standing; *gwe'ilh nts'oon'a?* where's the bag? *lho tan'a* a glacier flows into the water ...

lh+'a v. vegetation is.

neu ggit dicin halh'a the bush is thick there; *'et hayilh'a* a bush is sticking up there; *talh'a* it (tree) is growing in water

lh+'a v. body part is. *neu dekw'ëts nis yilh'a* he's sticking his lower

lip out; *tetseniclh'a* I'm sticking my head out;

hotl'awdiclh'a I'm sticking my butt out; *tse'alh hiyik'it*

tсенilh'a people put their heads on pillows (LM/DR)

Problems with headword as Ath root

- Determining root of non-verbs (see Hargus 2005)
 - Wit. **dini** ‘man, male, person’
 - -ni? dini?
 - Wit. ’**atan**’ a *n.* bay. (looks deverbal, but literal (or even etymological) meaning = ?)

Valid units?

- Are roots an artifact of linguists' analyses or are speakers aware of roots on some level?
 - humorous Wit.: **tinec'itas***wash*
 - cf. regular Wit. **tinec'itasggis** 'I'm going to wash (something)' (Hargus 2007)
 - borrowing: Fort Ware Tsek'ene **k'idajùme** 'he's going to jump around'
 - 'jump' borrowed as root **-jùm** (Hargus and Abou in preparation)

Headword as Ath word

Carrier

'undunut'ih (v); (-t'ih): he is stealing [for himself]

This entry alphabetized under ' (glottal stop), along with other glottal stop-initial words, some root-initial and some prefix-initial.

- Problems with headword as Ath word
 - This form of 'steal' just happens to have ' word-initially, another might be y-initial; potential for much disorganization if more than one form of 'steal' included in dictionary (forms of 'steal' would not all be in one place)
 - Doesn't show relationship to other **n-** prefixed words or other words based on **-'ih**

Consequences of word-initial organization

- Some examples from Wall and Morgan 1958, Navajo-English dictionary
 - 'ádin 'there is nothing, none' (p. 3),
'ádaadin 'there are none of them' (p. 1)
 - ʔibá 'gray' (p. 41)
dinilbá 'light gray' (p. 29)

Headword as English word

Deg Xinag

STEAL Gini'eyh ^{JD+ED} lit. S/he steals.

This entry alphabetized under S.

- Problems with headword as English word
 - This approach says “I give up. I will not even try to represent the language on its own terms.”
 - Doesn't show relationship to other words, such as SNEAK
 - Minimal contribution of linguistics to this dictionary.

Headword summary

- Organizing dictionary entries under word-initial segment leads to disorganization, obscures relations between words.
- Organizing dictionary entries using only a non-Ath word does not represent the language on its own terms.
- Organizing dictionary entries under roots avoids these problems, but root-organization has its own issues. In general, we need to learn more about validity of roots through psycholinguistic tests.

Conclusions

- Two design issues regarding verbs in Athabaskan dictionaries
 - Whether to represent verbal discontinuity, and if so, how much?
 - (show the pieces, but minimize non-linguistic symbols)
 - What is the organizing point for entry? Ath root, Ath word-initial, non-Ath word?
 - (morpheme: root (justify) or prefix)

Who decides these issues?

- What are opinions of local speakers, learners?
 - decide between linguistically adequate alternatives
 - cf. architectural mock-up
 - lessons from Sahaptin dictionary (Beavert and Hargus in prep.)
 - another design issue: flat vs. nested organization?
- Who has final say?
 - varying degrees of competence in the language
 - varying degrees of literacy
 - varying degrees of linguistic awareness

Misiyh



Looking south towards southern part of Witsuwit'en territory
between Houston and **De' ilkwah** (Telkwa)