Arapaho Verbal Reduplication: Form and Meaning

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BACKGROUND

The Arapaho practical orthography used in this paper is as follows:¹

(1) Arapaho practical orthography

Consonants: Vowels:

b t c [tʃ] k ’ [ʔ] i [i], ii [iː] u [u], uu [uː]

3 [θ] s x h e [æ], ee [æː] o [ɔ], oo [oː]

n
w y

Examples of diphthongs: ei [ej], oe [aj], ou [ow]
Examples of disyllabic extra-long vowels: iii [iː.i] or [iː.ʔi], ooo [ɔː.ɔ] or [ɔː.ʔɔ]

Pitch accent: high: i, falling (on long vowels only): ii [iː]
Note: In this paper, pitch accent is marked on words, but not on verb stems.

The dialect represented here is Northern Arapho and all the fluent speakers consulted are over the age of 50.

Note that vowel initial words have an epenthetic word-initial /h/. Therefore the category ‘vowel-initial words’ can be considered the same

1. Unless otherwise attributed, data in this paper is from the author’s 2003-04 fieldwork at the Wind River Reservation, Wyoming (Northern Arapaho Tribe). I would like to thank the speakers of Arapaho with whom I have worked for their generosity and patience when teaching me their language. Data in this paper is primarily drawn from work with Howard Antelope, Joseph Antelope, Wayne C'Hair, William J. C'Hair, Lloyd Dewey, Charles Gambler, John Goodman, Leonard Moss, Zona Moss, Mark Soldier Wolf, Ardidene Spotted Elk and Mary Kate Underwood.

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as ‘h-initial words.’ Also note that initial change occurs on independent realis verbs in Arapaho, causing short vowels to lengthen and inserting an infix of -Vn- (where V= e, o) into verbs with first-syllable long vowels or diphthongs.

An overview of initial change which will be relevant in later sections:

(2) Arapaho initial change (occurs on independent realis verbs)

\[
\begin{align*}
\text{Ce} & \rightarrow \text{Cee} & \text{Cee} & \rightarrow \text{Cenee} & \text{Cei} & \rightarrow \text{Cenei} \\
\text{Co} & \rightarrow \text{Coo} & \text{Coo} & \rightarrow \text{Conoo} & \text{Cou} & \rightarrow \text{Conou} \\
(\text{Cu} & \rightarrow \text{Cuu}) & (\text{Cuu} & \rightarrow \text{Conuu}) & \text{Coe} & \rightarrow \text{Conoe} \\
\text{Ci} & \rightarrow \text{Ci} & \text{Ci} & \rightarrow \text{Cenii}
\end{align*}
\]

I first describe the form of verbal reduplication in Arapaho, including irregularities with vowel-initial verbs that point to an ongoing change in the form of the reduplicant. I then turn to the distribution of reduplication within the verb complex, and the range of meanings of reduplication. In the conclusion I give some speculations about interaction between reduplication and initial change.

**FORM OF REDUPLICANT**

Like many Algonquian languages, Arapaho has a verbal reduplication construction with a broadly pluractional meaning. Reduplication is most common on verbs, though numerals and quantifiers can also be reduplicated, resulting in a distributive meaning. The reduplicant is a (C)V:- prefix (a consonant followed by a long vowel). For consonant-initial verbs, the prefix takes the form CV:-, while vowel-initial verbs take an hVV-prefix and have an additional epenthesis of \( n \) (from earlier \( y \); cf. Goddard 1974:106) between the prefix and base (hVV-n-). This basic pattern is as follows:

(3) Consonant-initial verbs \hspace{2cm} Vowel-initial verbs

\[
\begin{align*}
\text{Ce(e)} & \rightarrow \text{CeeCe(o)} & \text{he(e)} & \rightarrow \text{heene(e)} \\
\text{Co(o)} & \rightarrow \text{CooCo(o)} & \text{ho(o)} & \rightarrow \text{hoono(o)} \\
\text{Ci(i)} & \rightarrow \text{CeeCi(i), CiiCi(i)} & \text{hi} & \rightarrow \text{heenei, heeni} & \text{hii} & \rightarrow \text{heenei}
\end{align*}
\]

Due to relatively recent developments in the distribution of /u/ in Arapaho, there are no examples of /u(-)/ as a reduplicant vowel. Quoting God-
dard (1974:111): “in Arapaho [Proto-Arapaho-Atsina] *i and *iː become respectively Ar /u/ and /uː/ (lower-high back unrounded vowels) after a syllable containing *o or *oː, provided that the intervening consonant, if any, is not a dental.” This is a synchronically productive process, as in example (4a). The vowel /u/ also results from assimilation across a glottal stop, as in (4b).

(4) Alternation of /i(i)/ and /u(u)/

(4a)  
\[
\begin{align*}
\text{koo-hei-[ii]s-bii3ihi} & \quad \text{nēi-h-’oow-ūūs-bii3ihi} \\
\text{INTERR-2-PERF-eat(AI)} & \quad 1\text{-PAST-NEG-PERF-eat(AI)} \\
\text{‘have you already eaten?’} & \quad \text{‘I hadn’t already eaten’}
\end{align*}
\]

(Cowell, Grammatical sketch, C&M)

(4b)  
\[
\begin{align*}
\text{tih ‘ūūsini’} & \quad \text{nuhu ‘ūūsi’} \\
\text{‘yesterday’} & \quad \text{today’ cf. hiisi’ ‘day’}
\end{align*}
\]

This change of /i(i)/ to /u(u)/ resulted in a situation in which Arapaho /u/ does not commonly occur in initial syllables. In contemporary Arapaho, there are a few words with first-syllable /u(u)/, in most cases alternating with /i(i)/. These instances seem to fall into two categories, vowel-initial words and ‘function words’:

(5) Arapaho initial syllable /u(u)/.

\[
\begin{align*}
huni’ & \sim hini’ \quad \text{‘that’} \\
huut & \sim hiit \quad \text{‘here’} \\
hūū3e’ & \sim hii3e’ \quad \text{‘over there’} \\
hūūwo’ & \sim hiiwo’ \quad \text{‘contrary to expectation’ PC} \\
nuhu’ & \quad \text{‘this’} \\
nuhu’ūūno & \quad \text{‘these’}
\end{align*}
\]

To summarize, /u(u)/ is for the most part confined to non-initial syllables, though word-initially some instances of /i(i)/ alternate with /u(u)/. There are a few other instances of initial-syllable /u(u)/, especially in adverbs and particles. The rare occurrence of initial-syllable /u(u)/ explains its absence in the reduplication data here.

The remaining vowels to be considered are /i(i)/, /e(e)/ and /o(o)/.

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2. Abbreviations used in glossing: AI = animate intransitive, DEM = demonstrative, HAB = habitual, IC = initial change, II = inanimate intransitive, NEG = negative, OBV = obviative, p = plural, PC = particle, PERF = perfective, PV = preverb, INV = inverse, PART = participle, REC = reciprocal, RED = reduplicant, s = singular, TA = transitive animate, TI = transitive inanimate.
With /e(e)/ and /o(o)/, the reduplicant vowel is always a copy of the base vowel, while with /i(i)/, there is variation. Sometimes the reduplicant is /e(e)/, and sometimes it is /i(i)/, likely reflecting an ongoing change (to be discussed below).

Short vowels are lengthened to form the reduplicant prefix, with the vowel /i/ sometimes reduplicated as /ii/, and sometimes as /ee/:

(6) Short vowel in first syllable

<table>
<thead>
<tr>
<th>Base</th>
<th>Reduplicant</th>
</tr>
</thead>
<tbody>
<tr>
<td>ceno 'oo-</td>
<td>'jump (AI)'</td>
</tr>
<tr>
<td>woxeih-</td>
<td>'be bad (AI)'</td>
</tr>
<tr>
<td>bixoo3-</td>
<td>'love s.o. (TA)'</td>
</tr>
<tr>
<td>ceeceno 'oo-</td>
<td>'jump around (AI)'</td>
</tr>
<tr>
<td>woowoxeih-</td>
<td>'be really bad (AI)'</td>
</tr>
<tr>
<td>beebixoo3-</td>
<td>'really love s.o. (TA)'</td>
</tr>
<tr>
<td>biibixoo3-</td>
<td></td>
</tr>
</tbody>
</table>

Long vowels are simply copied to form a reduplicant prefix. Again, there is variation in how /ii/ is reduplicated:

(7) Long vowel in first syllable

<table>
<thead>
<tr>
<th>Base</th>
<th>Reduplicant</th>
</tr>
</thead>
<tbody>
<tr>
<td>nee'ees-</td>
<td>'thus (PV)'</td>
</tr>
<tr>
<td>kooh 'oti-</td>
<td>'be cracked (II)'</td>
</tr>
<tr>
<td>bii3i-</td>
<td>'eat s.t. (AI)'</td>
</tr>
<tr>
<td>neenee'ees-</td>
<td>'just like that (PV)'</td>
</tr>
<tr>
<td>kookooh 'oti-</td>
<td>'be cracked all over (II)'</td>
</tr>
<tr>
<td>beebii3i-, biibii3i-</td>
<td>'eat s.t. regularly (AI)'</td>
</tr>
</tbody>
</table>

For diphthongs, the first member of the diphthong is lengthened, to form a long /ee/ or /oo/:

(8) Diphthong in first syllable

<table>
<thead>
<tr>
<th>Base</th>
<th>Reduplicant</th>
</tr>
</thead>
<tbody>
<tr>
<td>tei'oo-</td>
<td>'be strong (II)'</td>
</tr>
<tr>
<td>koe'sohoe-</td>
<td>'clap (AI)'</td>
</tr>
<tr>
<td>hei-toustoo?</td>
<td>'what are you doing?'</td>
</tr>
<tr>
<td>teetei'oo-</td>
<td>'be really tough (II)'</td>
</tr>
<tr>
<td>koookoe'sohoe-</td>
<td>'clap really hard (AI)'</td>
</tr>
<tr>
<td>hei-tootoustoo?</td>
<td>'what are you up to?'</td>
</tr>
</tbody>
</table>

Vowel-initial verbs behave slightly differently. For /e/ and /o/, the vowel is copied or lengthened as expected, and a word-initial epenthetic /h/ is inserted as is usual. Additionally, an epenthetic /n/ is inserted between the prefix and the base:

(9) Vowel-initial (h-initial) verbs:

<table>
<thead>
<tr>
<th>Base</th>
<th>Reduplicant</th>
</tr>
</thead>
<tbody>
<tr>
<td>hecexooku-</td>
<td>'have a small eye (AI)'</td>
</tr>
<tr>
<td>hoo3iteen-</td>
<td>'tell a story (AI)'</td>
</tr>
<tr>
<td>heenecexooku-</td>
<td>'have small eyes (AI)'</td>
</tr>
<tr>
<td>hoonoo3iteen-</td>
<td>'tell stories (AI)'</td>
</tr>
</tbody>
</table>

Epenthesis of /n/ word-internally across morphemes is a regular process which is comparable to epenthesis of /y/ in other Algonquian languages. One comparable process is Meskwaki monosyllabic reduplication of
vowel-initial verbs, where /a(-)/, for example, becomes /a-\textbackslash-y-a(-)/ (Dahlstrom 1997:212-3). A second is epenthesis of \textbackslash y in initial change on long vowels in several languages.

(10) Word-internal epenthetic \textbackslash n in contexts other than reduplication

\begin{tabular}{ll}
\textit{hinenihii-noséíno} & ‘moose meat’ \quad cf. \textit{hoséíno} ‘meat’ \\
\textit{heet-nóóxo\textasciiblack{\textbackslash b}3en} & ‘I will feed you’ \quad cf. \textit{hooxo\textasciiblack{\textbackslash b}} ‘feed s.o. (TA)’ \\
-\textit{Vu-} & IC for long vowels \quad cf. Ojibwe a: \rightarrow \textit{aya}: \\
\end{tabular}

Examples of the reduplication of /i(i)/ in (6) and (7) show that the reduplicant varies between /ii/ and /ee/. When the verb is vowel-initial, however, /i(i)/ is always reduplicated as /ee/. Additionally, when the base syllable has a long /ii/, the vowel assimilates to the prefix and becomes the diphthong /ei/. The result is that /hi/ reduplicates as /heeni/, and /hii/ as /heenei/:

(11) Reduplication of word-initial /i(i)/

\begin{tabular}{ll}
\textit{hiten-} & ‘grab s.t. (TI)’ \quad \textit{heeniten-}, \textit{heeneiten-} ‘be taking stuff (TI)’ \\
\textit{hiixoohoo3} & ‘teach (TA)’ \quad \textit{heeneiixoohoo3} ‘teach >1 person (TA)’ \\
\textit{hiicoo-} & ‘smoke (AI)’ \quad \textit{heeneicoo-} ‘sit around smoking (AI)’ \\
\end{tabular}

There is also variation in how short initial /i/ is treated. In some instances a short /i/ is reduplicated just as a long /ii/, e.g., \textit{heneeneitenowoo} ‘I’m taking stuff’ from \textit{hiten-} ‘take s.t. (TI)’ with RED, IC and 1:3 inflection. Any generalizations about the status of short /i/ would be speculative at this time.

To summarize, the basic form of the reduplicant is (C)V:-. This can be compared to the corresponding patterns in Proto-Algic *Caa-, Meskwaki and Ojibwe Caa-:

(12) Proto Algic \quad *\textit{Caa-} (Garrett 2001) \\
Meskwaki \quad \textit{Caa-, Cee-} (Dahlstrom 1997) \\
Ojibwe \quad \textit{Caa-} (Valentine 2001:913-4) \\
Arapaho \quad \textit{CV:-} \\

The form of the reduplicant is thus directly comparable to that in Meskwaki, where /e(e)/ gets copied as /e:/ and all other vowels get copied as /a:/.

The variation in the reduplication of /i(i)/ indicates that some speakers have reanalyzed the reduplicant vowel as a copy of the base vowel rather than as having a fixed, partially harmonizing form. Vowel-
initial verbs remain conservative in this respect, reduplicating as /hee-n-/,
never as /hii-n-/. 

**DISTRIBUTION WITHIN THE VERB COMPLEX**

Preverbs as well as verb stems can be reduplicated, e.g.,

(13a) **hei-too-tóüs-too?**  
2-RED-how-do(Al)  
‘what are you up to?’

Verb complexes can have more than one morpheme reduplicated, as in
(13b), where both the preverb and verb stem are reduplicated:

(13b) **hee-néis-nii-niitehéiw-oot**  
RED-how(PV)-RED-help(TA)-3:3OBV  
‘the ways she helped them’ (Paul Moss, ‘The Woman Captive,’ C&M)

No examples have been found of multiple reduplication on a single mor­
pheme. Nor have any been found of medials being reduplicated (the only
word-internal reduplication is of verb stems preceded by preverbs or
inflectional morphemes). Inflectional morphemes (prefixes or suffixes)
are never reduplicated, as indicated by the starred example in (13c):

(13c) ***hee-nei-tóüs-too**  
RED-2-how-do(Al)

Initial change always occurs on the reduplicant, not on the base of a
reduplicated verb:

(14) **Base**       **Base +1C**       **Base+RED+1C**
cii ‘isee-     cenii ‘iseenoo     ceniiicicii ‘iseenoo, *ceecenii ‘iseenoo
‘I’m limping’  ‘I’m limping around’
woxei-     wooxéiht     woonoowoxéiht, *woowoowoaxéiht
‘he’s bad’  ‘he’s really bad’

That is, when they co-occur, reduplication occurs ‘before’ initial change.

**MEANINGS**

Though some verbs seem to have a set meaning, many reduplicated verbs can
have more than one meaning, or they have a meaning which varies across
speakers. Sometimes a single form can have more than one meaning for the
same speaker. Examples of multiple interpretations of reduplicated verbs:
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(15) cii'isee- 'limp (AI)'  cii'isee- 'really limp, limp badly (AI)'
      to3ih- 'follow s.o. (TA)'  tooto3ih- 'follow s.o. wherever (TA)'
      tesni'coo- 'taste very good (II)'  teetesni'coo- 'taste super good (II)'

The following sections describe rather informally the meanings I have found in reduplicated verbs. The categories in these sections overlap, and sometimes a single interpretation can fall in to more than one category.

Repetition of an action or event, on a single occasion

This is a common meaning for accomplishments, achievements and events. The reduplicated verb has a meaning in which an action or event is repeated several times on a single occasion, e.g.:

(16a) nih-no'óésee-noo  nonoo-no'óésee-noo
      past-walk.in.circle-1(AI)  RED.lC-walk.in.circle-1(AI)
      'I walked in a circle'  'I'm walking in circles'

(16b) nih-koonén-owoo  nih-koo-koonén-owoo
      PAST-open-1:3(TI)  PAST-RED-open-1:3(TI)
      'I opened it [e.g., window]'  'I opened them [e.g., windows]'

Repetition of an event, on different occasions

Habitual or frequent occurrence is a common meaning of reduplicated verbs, often in conjunction with preverbs such as nii 'habitual aspect' and niitoco 'on- 'always'. In these cases, the action or event is repeated over a longer period of time on different occasions:

(17a) tih'ísini' nih-bééci-'  nih-bééci-
      yesterdayPAST-snow(II)-3  PAST-snow(II)-3
      'it snowed yesterday'  'it snowed a lot [last winter]'

(17b) konooneeyéi-3i'  nii(to)có 'on-koo'-kooneeyéi-3i'
      open.s.t.(AI)-3p  always(PV)-RED-open.s.t.(AI)-3p
      'they’re opening something'  'they’re always opening things'

(17c) nih-nokoonii-noo  nih-noo-nokoonii-noo
      PAST-yawn(AI)-1  PAST-yawn(AI)-1
      'I yawned'  'I’ve been yawnng a lot lately'
Plural arguments

Plural arguments indicated by reduplication are often body-part medials, but plurality can also refer to the internal argument (object of a transitive or subject of an intransitive) of the verb:

(18a)  *benées-etée-t*
       big.IC-ear-3(AI)  
       `s/he has a big ear`

(18b)  *ceebisee-t*
       walk.by.IC-3(AI)  
       `s/he is walking by`

(18c)  *neneiniʾéi-t*
       be.dizzy.IC(AI)-3  
       `s/he is dizzy`

(18d)  *néʾ-nii-niitóouhu-ni3i*
       then.PAST-RED-blow(AI)-3PL.OBV  
       `then they were blowing those bugles [of theirs]`

Note that with body-part medials it is the incorporated noun that is pluralized (18a), though that is not the locus of the reduplication. That is, the semantic scope of pluralization does not necessarily match up with the morphological locus of reduplication.

Intensity

With attributes, reduplication indicates intensity (translated by ‘very’ or ‘really’). An intensive meaning can also occur with modals (e.g., ‘want to,’ with the meaning ‘really want to’):

(19a)  *heenixonoeh-t*
       be.tall.IC(AI)-3  
       `s/he is tall`

(19b)  *henee-nenixonoeh-t*
       RED.IC-be.tall(AI)-3  
       `s/he is very tall`
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(19b) tees-ni’coo’-
very(PV).IC-taste.good(II)-3
‘it tastes very good’

(19c) toyoo(ho)b-
‘wait for s.o. (TA)’

tenee-tes-ni’coo’-
RED.IC-very(PV)-taste.good(II)-3
‘it tastes super good’

too-toyoob-etti-t
RED-wait.for(TA)-REC-PART
‘one has to wait patiently’

(Paul Moss, ‘The Woman Captive,’ C&M)

Distribution in space

Reduplication sometimes indicates that an event or attribute is distributed within a space, with a meaning such as ‘all over’ or ‘here and there’:

(20a) kooh’oti’-
be.cracked.IC-3(II)
‘it’s cracked’

(20b) nonookoe’éih-t
white.hair.IC(AI)-3
‘he/she has white hair’

(20c) nih-toyob-éi-noo wóxhoox
PAST-bite(TA)-INV-1horse
‘the horse bit me’

(20d) cééheekuu-t
lightning.IC(AI)-3
‘there is a flash of lightning’

konoo-koh’oti’-
RED.IC-be.cracked-3(II)
‘it’s cracked in several places’

nonoo-nookoe’éih-t
RED.IC-white.hair(AI)-3
‘s/he has white hair here and there’

nih-too-toyob-éi-noo wóxhoox
PAST-RED-bite(TA)-INV-1horse
‘the horse bit me up, bit me all over’

cenee-céheekuu-t
RED.IC-lightning(AI)-3
‘there is lightning here and there’

Complex events

Pluractionals can indicate that a single event is made up of complex sub-events:

(21a) ceeno-t
jump.IC(AI)-3
‘he/she’s jumping’

cenee-ceno-t
RED.IC-jump(AI)-3
‘he/she’s jumping up and down, jumping around’

nih-bee-t
PAST-bark(AI)-3
‘[a dog] yelped once’

(benee-bee-t
RED.IC-bark(AI)-3
‘[a dog] is barking’

[acceptable to some speakers only]
(21c) \[ \text{nih-bii3i-'i hoseino} \quad \text{nih-bii-bii3i-'i hoseino} \]
\begin{align*}
\text{PAST-eat.s.t.-3p(Al) meat} & \quad \text{PAST-RED-eat.s.t.-3p(Al) meat} \\
\text{‘they ate meat’} & \quad \text{‘they were nibbling on meat’}
\end{align*}

The single event of ‘jumping around’ or ‘barking’ is made up of several smaller sub-events of a single jump or bark.

CONCLUSION

Arapaho reduplication is comparable to monosyllabic reduplication in Meskwaki, Ojibwe and other Central Algonquian languages, having both a similar form and range of meanings as in those languages. I did not attempt a detailed comparison with other Algonquian languages, which would surely provide interesting results.

Additionally, there is an interesting interaction between reduplication and initial change in Arapaho. Because of the history of Arapaho inflectional categories, initial change has a very different distribution than in other Algonquian languages. Initial change in Arapaho occurs on independent indicative (realis) verbs unless they contain a prefix that does not take initial change (such as past or future tense prefixes). Further details of when initial change is used and what its semantic content is have yet to be worked out. My current working hypothesis is that initial change has come to have an aspectual meaning of imperfectivity that developed because of its distribution on present tense verbs. Most tense and aspect prefixes (preverbs) do not take initial change, and unprefixed verbs with initial change have a default present tense meaning, as in the prefixed and unprefixed verbs in (16a).

Plain, unchanged verbs without prefixes or initial change are rare, but when they do occur, they have a perfective (usually past perfective) meaning. Reduplicated verbs, however, never occur in this plain, unchanged form. This is most likely due to the inherently imperfective aspect of reduplicated verbs (expansion, repetition). Further, younger semi-speakers do not use initial change consistently. They do, however, use initial change more often with reduplicated verbs than with non-reduplicated verbs. This might indicate that the aspectual distinction marked by initial change is being lost generally, but retained with reduplicated verbs where imperfectivity is more salient.
REFERENCES


WIHS: unpublished educational texts from the Wyoming Indian High School, Ethete, Wyoming.