An online multimedia dictionary of Hupa (Athabaskan)

Anne Pycha*, Lindsey Newbold*, Victor Golla**, and Andrew Garrett*

* University of California, Berkeley
** Humboldt State University
Presentation outline

• Contexts
  – Berkeley lexicon & documentation projects

• Databases
  – Lexicon, audio, video, photos

• Structure
  – How the databases fit in the web

• Demonstration
Berkeley online lexicon projects (Survey of California and Other Indian Languages)

- **Yurok** (Algic, NW California)
  - Integrated multimedia database: lexicon, texts, audio, photos
  - See linguistics.berkeley.edu/~yurok

- **Karuk** (NW California)
  - Based on Toolbox lexicon by Susan Gehr and Bill Bright
  - See linguistics.berkeley.edu/~karuk/karuk-lexicon.html

- **Mono Lake Northern Paiute** (Uto-Aztecan)
  - Based on new fieldwork by Berkeley graduate students
  - See linguistics.berkeley.edu/~paiute

- **Southeastern Pomo** (Pomoan, Central Calif.)
  - Based on new fieldwork by Berkeley graduate students

- **Hupa** (Athabaskan, NW California)
Virtues of online language databases

• Resources are brought to users
  – Formerly, community members had to come to universities or other archives to find recordings and language material.

• Users determine what they see, how
  – Linguists, fluent speakers, and language learners may wish to see and hear very different subsets of the material.

• Materials of many different kinds can be integrated
  – On your home computer you can read dictionary entries, texts, pedagogical materials, listen to audio, look at maps, …

• Access can be controlled
  – Some communities may prefer open access, others not.
  – Some kinds of resource can be freely available, others not.

• For Athabaskan languages in particular
  – You don't have to decide if you're writing a root dictionary or a word dictionary. Users can decide what they want.
Databases

• **Lexicon**

• **Index of short audio clips**
  – Words and short phrases extracted from field recordings

• **Index of short video clips**
  – Legacy video plus new recordings made for this purpose

• **Index of pictures** (to illustrate vocabulary)

**bear:**  
*sa:ts’ common (black) bear (Ursus americanus)*  
*‘mikyow’ (or mikyowe’) grizzly (Ursus horribilis)*

**big:**  
*nikya:w it is big, large; niwhkya:w I'm big;*  
*ch’ingkya:w he is big; wingkyah it is getting big*  
*nitsa:s it is big around, thick (like a stick); niwhtsa:s*  
*I'm big around the waist*

**break wind:**  
’iwhtsch I’m breaking wind, farting;*  
*ch’iwintse:t he broke wind; do:-ch’itse:t don't break wind, no farting!*
General database format: XML

• "Extensible mark-up language"
• Well-structured data, for example:
  <indented-list>
    <bullet>Text</bullet>
    <bullet>More text</bullet>
  </indented-list>
• Can be generated by Shoebox / Toolbox, Excel, Word, and other database programs
• Clear enough that you can edit it manually in a text editor if you want, or use an XML editor
Database example: Lexicon (fragment of "hupa-lexicon.xml")

```
bear:   sa:ts’ common (black) bear (Ursus americanus)
       mikyow’ (or mikyowe”) grizzly (Ursus horribilis)

<lxGroup sd="mammals">
   <hw>BEAR</hw>
   <id>228</id>
   <lx>sa:ts’</lx>
   <ge>common (black) bear (Ursus americanus)</ge>
</lxGroup>

<lxGroup sd="mammals">
   <hw>BEAR</hw>
   <id>229</id>
   <lx>mikyow’</lx>
   <var>mikyowe’</var>
   <ge>grizzly (Ursus horribilis)</ge>
</lxGroup>
```
Database example: Lexicon

big: nikya:w it is big, large; niwhkya:w I'm big; ch’ingkya:w he is big; wingkyah it is getting big
• nitsa:s it is big around, thick (like a stick); niwhtsa:s I'm big around the waist
Encoding morphology & semantics

<lxGroup sd="food">
  <hw>ACORNS, CRACK</hw>
  <id>40</id>
  <pdGroup su="1sg" asp="imperf">
    <pdf>jiwa:k'iwhliwh</pdf>
    <pdge>I'm cracking acorns open</pdge>
  </pdGroup>
  <pdGroup su="1sg" asp="perf">
    <pdf>jiwa:k'e:lay</pdf>
    <pdge>I have cracked them open</pdge>
  </pdGroup>
</lxGroup>
Database example: Audio index
(fragment of "hupa-audio.xml")

```xml
<item>
  <word>kile:xich</word>
  <id>360</id>
  <gloss>boy</gloss>
  <speaker>Ned Jackson</speaker>
  <source>LA 119</source>
</item>

<item>
  <url>http://linguistics.berkeley.edu/~hupa/Words/VerdenaParker/whit'aw_VP.mp3</url>
  <word>whit'aw</word>
  <id>12</id>
  <gloss>above me</gloss>
  <speaker>Verdena Parker</speaker>
  <source>VP-020906-03</source>
  <audio-ref>17:50</audio-ref>
  <editor>LN</editor>
</item>
```
Database example: Video index
(fragment of "paiute-video.xml")

<clip>
<url>http://linguistics.berkeley.edu/~hupa/Words-Video/ABALONE-SHELL DRESS B</url>
<word>xo'chik'-kya'</word>
<id>8</id>
<speaker>Billy Carpenter</speaker>
</clip>

<clip>
<url>http://linguistics.berkeley.edu/~hupa/Words-Video/deer,whiteVCD.mpg</url>
<word>k'ilixun-lixay</word>
<id>770</id>
<gloss>white deer, white deerskin</gloss>
<speaker>Verdena Parker</speaker>
<source>VP-111106-v1</source>
<video-ref>1:38</video-ref>
<editor>LN</editor>
</clip>
What to do with a database?

• Digital archive
  – Properly annotated, printed, maintained, a database is a permanent resource

• Transforming and querying databases
  – Program for querying and serving up the results of queries
  – Used in this process: XSL documents ("Extensible stylesheet language")
XSL documents

• Formally = XML
• Contain instructions for doing stuff with other XML documents, such as (written however in computer language):
  – If e.g. you decide to change your writing system: "Find all examples of u under an <lx> node and transform them into a."
  – "If a lexicon entry contains a <sd> node that contains the text "mammal", then make a new line containing certain data."
Stylesheets respond to web requests

• XSL documents contain instructions on how to format web pages given some parameters.
• A free application AxKit, installed on an Apache server, manages requests and forwards them with parameters to XSL.
  – AxKit (axkit.org) provides on-the-fly conversion from XML to HTML (web pages) or other formats
How requests are handled

• A web page request comes to the server:
  
  http://linguistics.berkeley.edu/~hupa/hupa-lexicon.xml?lx=ch&sd=mammals

• This really has two sub-parts: the basic web address (underlined) and a set of parameters.

• AxKit intercepts this request and knows that the output should be styled by the document hupa-lexicon.xsl, with the following parameter values:
  
  lx = ch
  sd = mammals
General flow of work

1. User fills out web page requesting some information
2. AxKit forwards parameters to XSL stylesheet
3. XSL stylesheets
4. Our various databases: lexicon, audio, video, photos
5. Web page to user
Details …

• … are somewhat technical and in some cases beyond my competence …
• … are in any case not well suited to general exposition in talk format, so …
• … you should ask me about it if you're interested.
• Bottom line: For all this you do need a server and a tech person, but most of the work you can (learn to) do yourself.
Hupa Dictionary | Na:tinixwe Mixine:whe'

© Hoopa Valley Tribal Council

Based on the Hupa Language Dictionary (second edition):

- compiled by Victor Golla
- edited by Ray Baldy, Louise Badgely, Ruth Beck, Calvin Carpenter, William Carpenter, Victor Golla, James Jackson, Minnie McWilliams, Elsie Ricklefs, and Herman Sherman
- editorial and technical work for this online version by Andrew Garrett, Lindsey Newbold, and Anne Pycha

This online version is very incomplete. The complete print version is also available online: http://dscholar.humboldt.edu:8080/dspace/handle/2148/48

Enter details below. To browse, leave all fields blank.

Search details

Hupa word contains: 
Leave blank to include all Hupa words.

English translation contains: 
Leave blank to include words with any translation.

Semantic domain: 
Leave blank to include words in all semantic domains.

Search Clear Form
Hupa Dictionary | Na:tinixwe Mixine:whe'

© Hoopa Valley Tribal Council

Based on the Hupa Language Dictionary (second edition):

- compiled by Victor Golla
- edited by Ray Baldy, Louise Badgely, Ruth Beck, Calvin Carpenter, William Carpenter, Victor Golla, James Jackson, Minnie McWilliams, Elsie Ricklefs, and Herman Sherman
- editorial and technical work for this online version by Andrew Garrett, Lindsey Newbold, and Anne Pycha

This online version is very incomplete. The complete print version is also available online: http://dscholar.humboldt.edu:8080/dspace/handle/2148/48

Enter details below. To browse, leave all fields blank.

Search details

Hupa word contains: [ ]
Leave blank to include all Hupa words.

English translation contains: [beat up]
Leave blank to include words with any translation.

Semantic domain: [ ]
Leave blank to include words in all semantic domains.

Search  Clear Form
Hupa Dictionary | Na:tinixwe Mixine:whe'

© Hoopa Valley Tribal Council

Search Index

k'isa'n he beats his wife up, abuses his wife, he's a wife-beater
FROM THE LEXICON (hupa-lexicon.xml)
<lxGroup>
  <hw>ABUSE ONE'S WIFE</hw>
  <id>14</id>
  <pdGroup su="3sg" asp="imperf">
    <pdf>k'isa'n</pdf>
    <pdge>he beats his wife up, abuses his wife,
    he's a wife-beater</pdge>
  </pdGroup>
  <pdGroup su="3sg" asp="perf">
    <pdf>k'iwinsa'n</pdf>
    <pdge>he beat up his wife</pdge>
  </pdGroup>
</lxGroup>

FROM THE AUDIO LEXICON (hupa-audio.xml)
<Item>
  <url>http://linguistics.berkeley.edu/~hupa/Words/VerdenaParker/k'iwinsa'n_VP.mp3</url>
  <word>k'iwinsa'n</word>
  <id>14</id>
  <gloss>he abused his wife</gloss>
  <speaker>Verdena Parker</speaker>
  <source>VP-020906-03</source>
  <audio-ref>20:59</audio-ref>
  <editor>LN</editor>
</Item>
Hupa Dictionary | Na:tinixwe Mixine:whe'

© Hoopa Valley Tribal Council

Your search: English beat up | New search

Search Index

k'isa'n

Dictionary Entry [entry ID #14]

- IMPERFECTIVE 3SG k'isa'n he beats his wife up, abuses his wife, he's a wife-beater
- PERFECTIVE 3SG k'iwinsa'n he beat up his wife

Audio (click to listen)

- k'iwinsa'n (spoken by Verdena Parker)

Video (click to watch)

Video clips are large files (400-500K). If a clip does not open, your internet connection might be too slow or you might need to install a Quicktime plug-in.

- k'isa'n (spoken by Billy Carpenter)
- k'isa'n (spoken by M)
Hupa Dictionary | Na:tinixwe Mixine:whe'

© Hoopa Valley Tribal Council

Your search: English beat up | New search

Search Index

k'isa'n

Dictionary Entry [entry ID #14]

- IMPERFECTIVE 3SG k'isa'n he beats his wife up, abuses his wife, he's a wife-beater
- PERFECTIVE 3SG k'iwinsa'n he beat up his wife

Audio (click to listen)

- k'iwinsa'n (spoken by Verdena Parker)

Video (click to watch)

Video clips are large files (400-500K). If a clip does not open, your internet connection might be too slow or you might need to install a Quicktime plug-in.

- k'isa'n (spoken by Billy Carpenter)
- k'isa'n (spoken by M)
Hupa Dictionary | Na:tinixwe Mixine:whe'

© Hoopa Valley Tribal Council

Your search: English deer | New search

Search Index

dichwil tanned deerhide, leather, buckskin
dilqiwh forked-horn deer
dilqiwh-kyoh big forked-horned (deer)
diltsow orange-colored, brown, the color of summer deerhide
diltsow summer deerhide
diltsow-me'k'iliwal summer deerhide seed-beating burden basket
dillich fawn, yearling; hide of a young deer
dillich-dilma:y type of deerskin (grey deer)
diwa:n urtanned deerskin (dried and ready for tanning)
k'i:jiwe:xo-stit:n brisket (of deer)
k'i:lixan deer (general term), specifically blacktail deer (Odocoileus hemionus); venison
k'i:lixan-liqay white deerskin
k'i:lixan-me:nexq'-nint'ik' deer's backstrap
k'i:lixan-tehkiwilky'o:ts' "Indian dumplings" (boiled deer meat mixed with dough)
k'i:lx:l: freshly skinned (deer) hide
k'i:lx:l: he is stretching a freshly skinned (deer)hide to dry on a drying frame
k'inaq' deer lick
k'iwhtsay' I'm drying (deerhide, salmon), seasoning (acorns, wood)
k'ixal: a (deer's) hoof, deer-hoof rattle used by doctors (dried deer hooves, tied around a stick or bone)
k'ixas deer snare (set to catch deer)
l'at-k'il'iyawh a herd of deer
mide'-xo:le:n cow, cattle; (archaic: buck deer or elk)
mingwihyo:o I'm chasing along, driving (animals, e.g. horses, cattle, pigs)
miq't-k'ixl:l: frame on which deershies are stretched to dry before tanning
nahxa-ten: large (and valuable) blanket made from two (deer)hides sewn together; a 'double' blanket
t'e' traditional deershide blanket or robe, tanned with the 'fur left on'; blanket (general term for both traditional and modern blankets)
ts'il'in'-t'ohl: bowstring, made of twisted deer-sinew
tsang apron, made of fringed deershide and worn in front of the skirt (kya') by women
xoj'i-t'e' traditional deershide blanket, tanned with the fur left on
yik'iqang it (dog) barks in deer-hunting
Hupa Dictionary | Na:tinixwe Mixine:whe'

© Hoopa Valley Tribal Council

Your search: English deer | New search

Search Index

dichwil tanned deerhide, leather, buckskin
diliqwh forked-horn deer
diliqwh-kyoh big forked-horned (deer)
diltsow orange-colored, brown, the color of summer deerhide
diltsow summer deerhide
diltsow-me'k'ilwal summer deerhide seed-beating burden basket
dilxih fawn, yearling; hide of a young deer
dilxih-dilmay type of deerskin (grey deer)
diwan untanned deerhide (dried and ready for tanning)
k'ijiwe:xo-sitan brisket (of deer)
k'ixan deer (general term), specifically blacktail deer (Odocoileus hemionus); venison
k'ixan-liqay white deerskin
k'ixan-mene:q'-n'int'il'k deer's backstrap
k'ixan-teh'kwil'ky'ots' "Indian dumplings" (boiled deer meat mixed with dough)
k'ixal freshy skinned (deer) hide
k'ixal he is stretching a freshly skinned (deer) hide to dry on a drying frame
k'linag' deer lick
k'iwhtsay' I'm drying (deerhide, salmon),绷带 (wound band)

Dictionary Entry [entry ID #772]

k'ixas • deer snare (set to catch deer)

Note: archaic term

Video (click to watch)

Video clips are large files (400-500K). If a clip does not open, your internet connection might be too slow or you might need to install a Quicktime plug-in.

- k'ixas (spoken by Verlena Parker)
Hupa Dictionary | Na:tinixwe Mixine:whe'

© Hoopa Valley Tribal Council

Based on the Hupa Language Dictionary (second edition):
- compiled by Victor Golla
- edited by Ray Baldy, Louise Badgely, Ruth Beck, Calvin Carpenter, William Carpenter, Victor Golla, James Jackson, Minnie McWilliams, Elsie Ricklefs, and Herman Sherman
- editorial and technical work for this online version by Andrew Garrett, Lindsey Newbold, and Anne Pycha

This online version is very incomplete. The complete print version is also available online: http://de scholar.humboldt.edu:3080/dspace/handle/2148/48

Enter details below. To browse, leave all fields blank.

Search details

Hupa word containing (all fields are case sensitive)
Leave blank to include all words

English translation containing
Leave blank to include all translations

Semantic domains
Leave blank to include all semantic domains.

- food
- animals
- arrows
- baskets
- birds
- boats
- body
- ceremonies
- clothing
- colors
- fish
- fishing
- games
- geography
- health
- insects
- kinships
- mammals
- modern
- placenames
- plants and trees
- snakes
- time
- tools
Hupa Dictionary | Na:tinixwe Mixine:whe'

© Hoopa Valley Tribal Council

Your search: semantic domain food | New search

Search Index

'e:biilos apples
'inawwh they (nuts, acorns) are dropping
'inneh-ky'a'awh he barbecues something by burying it and building a fire over it
'iw'ah' I'm chewing it
'ch'ilxan it is bitter, sour
'dahtho:il'-mto' grape juice, wine
'de:diileh he bakes (bread, cake, etc.)
'de:diiliq' bread, baked goods
'de:diiliq'-i'xan cake, cookies, pastries
'de:nohq'il'-xotse:lin' (Christian) sacramental wine
'ditsik unshelled acorns
'jiwa:ki'wihliwh I'm cracking acorns open
'ke:sde' lumps of acorn meal that are left over after pounding
'kidmat (water) is boiling
'kijiwe:ko-sita:n brisket (of deer)
'kiiwiw small round cake made from ground grass seeds (archaic term)
'kiiwiwhin black acorn meat
'kii'imech I'll boil it! cook it by boiling!
'kita:ta:st leached acorn flour, before cooking
'kita:ta:st-de:diiliq' acorn bread
'kita:whtsit I'm leaching acorns, soaking acorns to remove tannic acid
'kiiwhtdi' I'm cracking acorns, I'm pecking at something
'kiiwhtsit I'm pounding acorns
'ki'winya'n acorn (general term)
'kiwitsit pounded acorns
'ki:na:lmats' storage cask
'ky'a:da:wnhe I'm gathering, picking up (acorns, apples, round objects)
'me'-ch'ilwaxt small bucket or bowl for acorn flour
'me:chwilchwo:k brush used to sweep acorn flour (older term)
'mil-le:natsow brush for sweeping up (acorn) flour
'mitto:y any basket large enough to cook in; (modern) pot, bucket
'miq'il-t'kiwilwiw butter
'mitah'-a'il'eo:n bakino powder
Hupa Dictionary | Na:tinixwe Mixine:whe'

© Hoopa Valley Tribal Council

Your search: semantic domain food | New search

Search Index

*e:bilos apples
*ina:wh they (nuts, acorns) are dropping
*in'yeh-ky'a:awh he barbecues something
   by burying it and building a fire over it
*it'h'ai I'm chewing it
chi'likan it is bitter, sour
dah't'od-'mif'o' grape juice, wine
deh'sileh he bakes (bread, cake, etc.)
deh:diwiliq' bread, baked goods
deh:diwiliq'-lik'an cake, cookies, pastries
deh:nok'y-xt'ote:lin' (Christian)
sacramental wine
ditsik unshelled acorns
jiwa:k'iwhliwh I'm cracking acorns open
ke'sde' lumps of acorn meal that are left
   over after pounding
kidmat (water) is boiling
k'ijiwe:xo-sit'ahn brisket (of deer)
ki'lilwih small round cake made from
   ground grass seeds (archaic term)
k'iliwhin black acorn meat
k'i'meho'h boil it! cook it by boiling!
k'itast leached acorn flour, before
   cooking
k'itast-de:diwiliq'
k'itawhtsit I'm leaching acorns, soaking
   acorns to remove tannic acid
k'iwhdik' I'm cracking acorns, I'm
   pecking at something
k'iwhdik' I'm pounding acorns
k'i'winya'n acorn (general term)
k'iwitsit pounded acorns
kin-na:lmate' storage cask
ky'a:dawhine I'm gathering, picking up
   (acorns, acorns, round objects)

Dictionary Entry [entry ID #22]

k'itast-de:diwiliq' • acorn bread [acorn dough-baked]

Video (click to watch)

Video clips are large files (400-500K). If a clip does not open, your internet connection might be too slow
or you might need to install a Quicktime plug-in.

- k'itast-de:diwiliq' (spoken by Billy Carpenter)
- k'itast-de:diwiliq' (spoken by M)