



itwêwina itwewina.altlab.app



A morphologically intelligent and user-friendly on-line dictionary of Plains Cree

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National Research Council Canada Conseil national de recherches Canada



Social Sciences and Humanities Research Council of Canada Conseil de recherches en sciences humaines du Canada



21st Century Tools for Indigenous Languages Partnership Project

- <u>http://altlab.ualberta.ca</u>
- <u>https://21c.tools/</u>
 - MESC is one of the two spearhead language community partners
- Developing "low-hanging fruit" software for Indigenous languages
 - (1) intelligent electronic dictionaries (I-DICT)
 - (2) intelligent databases of spoken recordings and written texts (easily searchable, linguistically analyzed)
 - (3) intelligent keyboards and spell-checkers (+ grammar-checkers), and
 - (4) intelligent computer-aided language learning applications (ICALL)

• Intelligent \rightarrow

- make use of language technology
- to deal with the complex word structure

Acknowledgements

- Numerous native (Plains) Cree speakers and Elders
- Cree language instructors
 - Miyo Wahkohtowin Education \rightarrow Maskwacı̂s Education Schools Commission (MESC)
 - First Nations University of Canada
 - Wayne Jackson / nêhiyawêwin word of the day
- Long-standing, continuing, meticulous lexicographical work by Arok Wolvengrey
 - nêhiyawêwin : itwêwina / Cree : Words
- Funding through multiple grants from SSHRC, UAlberta, and Kule Institute of Advanced Study
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Spoken dictionary of Maskwacîs Cree

Mary Jean Littlechild, Louise Wildcat, Jerry Roasting, Harley Simon, Annette Lee, Arlene Makinaw, Rosie Roan, Rose Makinaw, Kîsikâw Kiseyiniw, Betty Simon, Brian Lightning, Brian Lee, Linda Oldpan, Mariam Buffalo, Debora Young, Ivy Raine, Agnes Fraynn, Paula Mackinaw, Norma Linda Saddleback, Jack Mackinaw, Renee Makinaw, Linda Whitebear, Linda Wolfe, Ronald Littlechild, Lawrence Wildcat, and Marvin Littlechild; under the management of Rose Makinaw, Patricia Johnson, and Brian Wildcat

Miyo Wahkohtowin Education (MWE) & Maskwacîs Education Schools Commission (MESC)

Morphological intelligence – rich word structure (English vs. Plains Cree)

- see
 - sees
 - saw
 - seen
 - seeing
 - I see $\emptyset \square$ I see it \square I see him/her

wâpiw 's/he sees Ø'

. . .

. . .

- wâpahtam 's/he sees it'
- wâpamêw 's/he see him/her'
 - kiwâpamin 'You [one] see me'
 - *ê-wâpamiyan* 'You [one] see me'
 - kiwâpaminân 'You [one] see us'
 - *ê-wâpamiyâhk* 'You [one] see us'
 - kiwâpaminâwâw 'You all see me'
 - ê-wâpamiyêk 'You all see me'
 - kiwâpaminân 'You all see us'
 - ê-wâpamiyâhk 'You all see us
 - and up to 500 other core forms
 - plus thousands more complex forms (with 1-N preverbs)
- pê-wâpamêw 's/he comes and sees him/her
- nikî-nitawi-wâpamâw 'I went and saw him/her

Morphological intelligence – rich word structure (Plains Cree)

ispîhk kâ-kî-awâsisîwiyân nikî-nitawi-kiskinwahamâkosin ohpimê nitiskonikanihk ohci. kistapinânihk mâna kâ-kî-nitawi-kiskinwahamâkosiyân, êkota Residential School ê-kî-itohtahikawiyân. mistahi mâna nikî-kitimâkihikawinân, mâka namôya êwako niwî-âtotên, niwî-âcimâwak nîci-kitimâkisak, nîci-okiskinwahamâkanak.

- Entries (particles/base-forms) in known Cree dictionaries: 10/21 (47.6%)
- Inflected word-forms in cells in extended paradigms: 9/21 (42.8%)
- Inflected word-forms not in extended paradigms: 2/21 (9.5%)
- Without a computational model, 11/21 (52.3%) word-forms would not be recognized.

Dog Biscuits (Plains Cree / Y-dialect), by Solomon Ratt

Cree Literacy Network: https://creeliteracy.org/2014/01/20/dog-biscuits-y-dialect-with-audio

itwêwina – Intelligent on-line Plains Cree dictionary – key features

- Ready to use on-line ← continued feedback needed from instructors, learners, and others
 - URL: <u>http://itwewina.altlab.app/</u>
 - intended to replace the current on-line Cree Dictionary: <u>creedictionary.com</u>
- Computational model of Cree
 - comprehensive treatment of the complex structure of Cree words
 - recognizing any Cree word forms
 - generating inflectional paradigms for Cree entries
 - based on Wolvengrey's Cree : Words / nêhiyawêwin : itwêwina (CW)
- Multiple dictionary and audio sources
 - Maskwacîs Cree Dictionary (9k entries)
 - Cree : Words / nêhiyawêwin : itwêwina (Wolvengrey: 31k+ entries)
 - Alberta Elders' Dictionary of Cree (10k entries)
- Multiple spoken Cree dialects (gradual expansion)
 - Maskwacîs ← Spoken Dictionary of Maskwacîs Cree (20+k entries)
 - môswacîhk ← Jean Okimâsis (Great Bear FN, SK) (1+k entries)

Identifying expectations – Part 0

← Language instructors, feedback sessions, CILLDI courses delivered in 2020, feedback emails

 \rightarrow simple, but extendible app

- Automatic handling of both Cree and English as search language
- Showing only most essential core information first
 But full lexicographical and other details easily accessible
- Plain (English) terminology as primary
 - But linguistic terminology/analysis easily accessible

Identifying expectations – Part 1

- Facebook: nêhiyawêwin word of the day what linguistic help do people ask for?
 - Cree naming
 - What is the Cree word for X (English concept)?
 - Cree phrases
 - How does one say X (English phrase) in Cree?
 - Cree syllabics
 - How does one write X (Cree word) in Cree syllabics?
 - Cree pronunciation
 - How does one say X (Cree word) in Cree?
 - Cree-to-English translation
 - What does X (Cree word) mean in English?

Identifying expectations – Part 2

- On-line dictionary as a language learning/instruction tool
 - Cree word building
 - What are little Cree words made up of?
- Meeting the needs and expectations of multiple user communities
 - Spoken examples through spoken paradigms
 - Supporting community identity
 - Configurability → Enabling different features for different user groups

What is the Cree word for X? Part 1

- multi-word searches
- "missing" rare words
- synonyms



long Cree words (e.g., <u>ê-kî-nitawi-kâh-kîmôci-kotiskâwêyâhk</u>). Or you can type an English word and find its possible Cree translations. You can write words in Cree using standard Roman orthography (SRO) (e.g., <u>acimosis</u>) or using syllabics (e.g., <u>4(1)/2)</u>.

itwêwina was made by the Alberta Language Technology Lab (ALTLab), in collaboration with the First Nations University and Maskwacîs Education Schools Commission (MESC). The dictionary entries are courtesy of Prof. Arok Wolvengrey, MESC, and Prof. emeritus Earle Waugh.

The spoken Cree word recordings are courtesy of **speakers in Maskwacîs** and **Moswacîhk**. The **synthesized word-forms** are based on recordings of a **speaker from Maskêko-sâkahikanihk**.

Help ZSettingsLegend of abbreviations2019-2025 © Alberta Language Technology Lab.View search results with:About2019-2025 © Alberta Language Technology Lab.Plain English labelsContact usModified icons copyright © 2019 Font Awesome, licensed under CC BYLinguistic labels4.0.Plains Cree labels

itwêwina landing page, for initiating searches with Cree/English words



Searching with a multi-word expression: *work together*



Searching with the corresponding single word: *co-operate*



Searching with a rarer/synonymous word not in the English definitions: collaborate



Searching with a rarer/synonymous word not in the English definitions: collaborate

What is behind these search results?

- Using multiple criteria to rank the relevance of the Cree dictionary entries in the search results
 - edit-distance
 - occurrence in glossaries of introductory Cree textbooks
 - corpus-based frequency in Cree corpora
 - morpheme frequency in Cree dictionaries
 - user survey of relevance ranking of search results
- English search: semantic vectors (trained on huge English corpora with billions of words ← Google News Corpus)
 - applied to English search words, and
 - English definitions

What is the Cree word for X? Part 2

Search within *English sense networks*



Choosing English sense search in the settings



Results show all entries that have been classified under the **WordNet** sense: *collaborate, cooperate*



This **WordNet** entry – *collaborate, cooperate* – has only **one single sense**.





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| _ | 7. see (A go to see a Similar wo | Action word) a place, as for entertai ords: visit, see. | nment w | | | | | | • | | | | |
| | 8. see (Action word) undergo or live through a difficult experience www. Similar words: experience, see, go through | | | | | | | | |] | | | |
| L | | | | | | | | | | | | | |
| ſ | 9. see (/ | Action word) | | | | | | | | | ٦ | | |
| | take charg | e of or deal with ww | look see | | | | | | | | | | |
| | Similar wo | ords: attend, take care | , 100N, SEE. | | | | | | • | | | | |



Opening up the **tenth** and last sense: *see, examine* ~ *observe, check out, and look over carefully or inspect*



WordNet A Lexical Database for English

What is WordNet?

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the creators of WordNet and do not necessarily reflect the views of any funding agency or Princeton University.

When writing a paper or producing a software application, tool, or interface based on WordNet, it is necessary to properly **cite the source**. Citation figures are critical to WordNet funding.

About WordNet

WordNet® is a large lexical database of English. Nouns, verbs, adjectives and adverbs are grouped into sets of cognitive synonyms (synsets), each expressing a distinct concept. Synsets are interlinked by means of conceptual-semantic and

Note

Due to funding and staffing issues, we are no longer able to accept comment and suggestions.

We get numerous questions regarding topics that are addressed on our **FAQ** page. If you have a problem or question regarding

WordNet (WN) is a lexical database of English with the entries organized by senses (meanings) into synonym sets (synsets) and a network of their hypernyms (more general senses) and hyponyms (more specific senses). WordNet contains 117,000 synsets.

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| | see | | | | | | | | | |
| | Name | Definition | Lemmas | Hyponym | S | Нуре | ernym | S | | |
| | (n) see#1 | the seat within a bishop's diocese where his cathedral is located | <u>see</u> | | | <u>(n) se</u> | eat#5 | | | |
| | (v) see#1 | perceive by sight or have the power to perceive by sight | <u>see</u> | (v) behold (v) glimpse (v) see#17 (v) catch_s | #1 e#1 sight#1 | <u>(v)</u> perce | eive#1 | | | |
| | (v) understand#2 | perceive (an idea or situation) mentally | understand realize realise see | (v) perceiv (v) apprec | <u>ve#2</u> iate#2 | | | | | |
| | (v) witness#2 | perceive or be contemporaneous with | witness find see | (v) catch# | 28 | <u>(v)</u> expe | rience | <u>#1</u> | | |
| | (v) | imagine: conceive | visualize | | | (v) in | naqine | #1 | | |

Looking up an English word **see** and its senses in ALTLab's copy of WordNet (WN) – available at: <u>https://wordnet.altlab.dev/</u>.



Going back to the first sense: see

The English sense groupings are organized by English corpus frequency Within the English senses, the Cree entries are ranked by Cree corpus frequency. For each English sense, its definition from WordNet is shown, as well as part-of-speech.



<u>Other information</u> shown for every entry: **(A)** the **linguistic features** of the entry. Multiple labeling alternatives can be chosen from: 1) plain English, 2) plain Cree (*nêhiyawêwin*), and 3) linguistic.



Other information shown for every entry: **(B)** the **semantic classes** of the entry Two semantic networks are used: 1) RapidWords and 2) WordNet.



Other information shown for every entry: (C) the major **argument class** of the entry. Possibilities are: Animate/Inanimate nouns (NA 🙆 / NI 🍐), Dependent Animate/Inanimate nouns (NDA 👤 🔞 / NDI 👤 🍐), Inanimate/Animate Intransitive Verbs (VII 🍐 🔁 / VAI 🔞 💽), and Transitive Inanimate/Animate Verbs (VTI 💽 🍐 /VTA



Other information shown for every entry: **(D)** the **inflectional class** of the entry Three wordings are provided: 1-2) Example word (Cree/English) and 3) Linguistic code.



Other information shown for every entry: (E) the stem(s) of the entry. For verbs, only one stem is shown.

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| Plains Cree Dict | onary | | | | | | | | |
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| NA-1 😹 🛽 | ke: pahkwêsikan, asikan | | | | | | | | |
| 1. duck | w/ | | | | | | | | |
| | No ownership | | | | | | | | |
| <u>sîsîpi-</u> | whose / whom something belongs to -sîsîpim- | | | | | | | | |
| IPN like: a | miano- | | | | | | | | |
| 1. duck, | pertaining to a duck 🚥 | | | | | | | | |
| | | | | | | | | | |
| <u>sîsîpis</u> | 1 ¹ ■ | | | | | | | | |
| NA-1 😹 🔟 | ke: pahkwêsikan, asikan 📖 | | | | | | | | |
| 1. small | duck cw | | | | | | | | |
| | | | | | | | | | |

Other information shown for every entry: (E) the stem(s) of the entry For nouns, two stems can be shown: 1) Non-possessed and 2) Possessed.

How do I say X in Cree? – Part 1

 Matching simple English phrases directly with most frequent/central Cree word-forms


Searching with an English multi-word phrase: *I see you / I saw you all*



Searching with an English multi-word phrase: I see you / I saw you all

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| | | ► Show Plain English labels | |
| | $I \rightarrow you \ (one)$ $I \rightarrow him/her$ $you \ (one) \rightarrow me$ $you \ (one) \rightarrow him/her$ $s/he \rightarrow me$ $s/he \rightarrow you \ (one)$ $s/he \rightarrow another/others$ $another/others \rightarrow him/her$ $I \rightarrow you \ (one)$ $I \rightarrow him/her$ $you \ (one) \rightarrow me$ $you \ (one) \rightarrow him/her$ $s/he \rightarrow me$ | ni-/ki- word ki·wâpam·itin ni·wâpam·âw ki·wâpam·în ki·wâpam·îk ki·wâpam·ik wâpam·ik wâpam·ik wâpam·ikow ê-/kâ- word êwâpam·itân ê-·wâpam·igan ê-·wâpam·itân | |

Searching with an English multi-word phrase: *I see you*



Changing the paradigm labeling to nêhiyawêwin (Cree)



Searching with an English multi-word phrase: I see you



Looking up an inflected word-form in the paradigm (choosing **Show more** forms): see + Past + I + you (all) \rightarrow *I saw you all*

How do I say X in Cree? – Part 2

- What is the Cree word-form that corresponds to a simple English phrase?
- Is there a better solution than paradigm lookup?

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| Plains Cree Diction | search for «I saw you» | | | | | | |
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Looking up a simple English phrase: *I saw you* → *kikî-wâpamitin*



Looking up another simple English phrase: when I see you all \rightarrow wâpamitako



Looking up another simple English phrase: *for me to see them* \rightarrow *ka-wâpamakik*



Looking up another simple English phrase: *let you and us to see them (now)* → *wâpamâtânik*

How is this achieved?

- A computational model for the analysis of simple English phrases
- These are matched with the Cree word-forms in the full paradigms



How is this functionality selected? \rightarrow Settings





- Verb phrases
 - Subject
 - first/second/third person singular/plural/obviative, unspecified
 - Object
 - first/second/third person singular/plural/obviative, unspecified
 - Tense/aspect
 - Present, Past (kî-)
 - Future Definite (ka-)
 - Future Intentional (wî-)
 - Future Conditional, Infinitive/Irrealis (ka-/ta- + Conjunct),
 - Imperative (Immediate)
 - Imperative (Delayed)

• Verb phrases

- Actor
 - I, you, he, she, it, we, you and we, you all, they, another/others, someone/people
- Goal
 - me, you, him, her, it, us, you and us, you all, them, another/others, someone/people
- Time/completion
 - something happens now / someone does something now
 - s.t. happened / s.o. did s.t. earlier (kî-)
 - s.t. will certainly happen / s.o. will certainly do s.t. (ka-)
 - s.t. is going to happen / s.o. is going to do s.t. (wî-)
 - when s.t. happens / when s.o. does s.t.
 - for s.t. to happen / for s.o. to do s.t. (ka-/ta- + Conjunct),
 - let s.o. do s.t. now
 - let s.o. do s.t. later

• Noun phrases

- Non-possessed
 - singular, plural, obviative, locative
- Possessed
 - Possessor: first/second/third person singular/plural/obviative, unspecified
 - singular, plural, obviative, locative, (distributive)

- Noun phrases
 - Non-possessed
 - one (a/an), many, further, in/on/to
 - Possessed
 - "Owner": my, your, his, her, its, our, your and our, your, their, someone's/people's
 - one (a/an), many, further, in/on/to, (among)

How do I write X in Cree syllabics?



Choosing (5) *Western Cree syllabics* as the display orthography for the Cree content. Other major alternatives: (1-2) **Standard Roman Orthography (SRO)** with **circumflexes** for **long vowels** $\langle \hat{a}, \hat{e}, \hat{i}, \hat{o} \rangle$ vs. (3-4) **SRO** with **macrons** for **long vowels** $\langle \bar{a}, \bar{e}, \bar{i}, \bar{o} \rangle$ Other minor alternatives: (2/4) **SRO** with $\langle \hat{y} \rangle$ for Plains Cree **/j/** ($\langle y \rangle$) sound corresponding to Woods Cree **/ô/** ($\langle th \rangle$) vs. (1/3) for **SRO** without such a distinction.

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Choosing *Western Cree syllabics* as the display orthography for the Cree content. With any selection of display orthography, **Cree search words** written in any of the other orthographies will continue to work.

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| 1. s/he se | es s.o., s/he beholds s.o. ལ | v | | | | | | |
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| | $I \rightarrow him/her$ | ᡔ᠂ᢤ᠆ᠺᡃ᠂ᢤ | | | | | | |
| | vou (one) -> me | ٥٠٩٠ | | | | | | |

Choosing *Western Cree syllabics* as the display orthography for the Cree content. Then, syllabics are also used in the paradigms.

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| | | | ▼ Show nêhiyawêwin labels | |
| | | σ-/ ቦ- ΔυΔ ³ | Plain English labels | |
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| | $\sigma \not\rightarrow \Delta $ | ᡔ᠂᠋ᡠ᠋ᢆ᠆ᠺᡃ᠇᠅ | Linguistic labels | |
| | $ ho ho ightarrow \sigma ho$ | ρ·ϥ·<ϲ·∇ _ͻ | nêhivawêwin labels | |
| | $ ho hear_{ ightarrow}\Delta$ | ٩٠ ٩٠٩ | | |
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| | $\Delta \not \to \sigma \not$ | ⊽५ं<५०′ ॖॖॖॖॖ• |) | |

Choosing *Western Cree syllabics* as the display orthography for the Cree content. If one changes the paradigm labels to Cree, those are also shown in syllabics.

How do I **SAY** X in Cree?





Selecting among **speakers** for their recordings. One can click the link to learn more about the selected **speaker**



Looking up the speaker page for Jerry Roasting (Maskwacîs)



Read in nêhiyawêwin:

0:00 / 0:00

mâkwa kâ-nihtâ-sâkowêt nitisiyihkâson. maskwacîsihk ohci niya. êkwa ê-âkayâsîmoyân ôma ayahk niwîhowin ayahk Jerry Roasting. êwakoni ôh aya kâ-kakwêcihkêmocik ayahk, kakwêcihkêmowinisa ayahk, nîsta mêcimwâc ohci ê-kî-pê-nêhiyawêyân ê-kî-kinihtâwikiyân êwako ôma ôma ayahk nêhiyawêwin. ê-kîkiskinwahamâkawiyân tânisi kêsi-âkayâsîmoyân pâmwayês nitawi-kiskinwahamâkosiyân, akihcikêwinihk tahki isi ahpô tânisi kêsi-masinahamân niwîhowin. mâka, êwako ôma ayahk, nîsta ayahk nikêhtêyimak ê-kî-pêpêhtawak tâpitaw ê-kî-nêhiyawimototâkoyâhkik ahpô isko môy ohci ê-kî-kiskêyihtamân ê-âkayâsîmot nimosôm kâkikê ê-kî-nêhiyawitotâkoyâhk. nânitaw êtokwê mitâtaht ê-tahto-piponeyân kâ-kî-pêhtâwak nimosômipan e-âkayâsîmot. kâkikê ê-kî-pê-nêhiyawêt. êwako ôma ayahk, êwako ôma ayahk, tânisi kititêyihtên ôma kipîkiskwêwin kêtikawiyân. ê-mamâhtâwahk anima. kisê-manitow ê-kî-nîkâni-pakitinikoyâhk ôta ôma askiy êkwa pîkiskwêwin ê-kî-mîkoyâhk êwako ôma nêhiyawêwin. êwako ohci mâni mamâhtâwahk êitwêyân ahpô ayahk cahkipêkasinahikêwin ôma ayahk, iyikohk ê-mamâhtâwahk acâhkosak ê-ohtinât, êkiskinwahamâkoyâhk tânisi kêsi-masinahikêyâhk, tânisi kêsi-pîkiskwâtitoyâhk masinahikêwin itêhkê isi. ayahk, nîsta nitâhkamêyimon ê-kakwê-kiskinwahamawakik osk-âyak tânisi kêsi-nêhiyawêcik. âyiman tâpwê, mâka ohcitaw piko ka-âhkamêyimototâcik, tâpitaw ka-nêhiyawitotâcik piyisk ka-nisitohtamwak. niya ohci, kêyâpic ê-oskayowiyân mâka êwako ôma ayahk nîsta ninaskomon ayahk. ê-kî-pê-nikiskinwahamâkawiyân tânisi kêsi-nêhiyawêyân. nikêhtêminânak wiyawâw mistahi ê-kî-pîkiskwêcik êwako ôma ayahk nêhiyawêwin, mâka niya kêsi-wâpahtamân, omisîsi, ay-âtiht cacêpân ê-ihtakocik ayisiyiniwak ê-nêhiyawêcik. tâpwê, âyiman ka-sakinamihk, mâka môy mâskôc ka-kî-wanihcikâtêw, êsi-mâmitonêyihtamân. mâka, apisîs nitâkayâsîmosin

Listen in English:



Looking up the speaker page for Jerry Roasting (Maskwacîs)



kâ-nêhiyawi-pîkiskwêcik maskwacîsihk — Maskwacîs Cree Speakers











Mary Jane Littlechild

Louise Wildcat

Jerry Roasting



Arlene Makinaw



Rose Makinaw





Betty Simon





Rosie Rowan







How is Cree spoken?

More audio: Spoken Paradigms





What does X (Cree) mean (in English)?

 Providing a simple English phrase as a translation, rather than a linguistic analysis

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| itwêwi Plains Cree Dic | na tionary nikiwapa | maw | | | | | C | | | <u>Se</u> | etting | <u>(5</u> 0 |
| ni·kî- | wâpam·âv | 0 | | | | | | | | | | |
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| 1. s/he 2. s/he | sees s.o., s/he be recognizes s.o. ‹w | holds s.o. cw | | | | | | | | | | |

Looking up the relatively common Cree word-form: $nik\hat{i}-w\hat{a}pam\hat{a}w$ The English definitions are manipulated to match the Cree word form: $nik\hat{i}-w\hat{a}pam\hat{a}w \rightarrow I$ saw him/her, ...



Swapping the presentation of linguistic features to: *linguistic labels*



Swapping the presentation of linguistic features to: *plain nêhiyawêwin (Cree) labels*


For more complex Cree word-forms: *nikî-nitawi-wâpamâw* \rightarrow *only pop-up analysis available*

How is this achieved?

 Linguistic analyses for Cree word-forms are used to computationally generate corresponding simple English phrases



What parts are Cree words made up of?

Morphemes and their boundaries









Configurability → Settings Can I choose the dictionary source or speech community?



Select Dictionary Source

Select one of the following options to choose which entries are displayed in the search results

 \bigcirc CW

Show entries from the Cree: Words dictionary. Wolvengrey, Arok, editor. Cree: Words. Regina, University of Regina Press, 2001

) MD

Show entries from the Maskwacîs Dictionary. Maskwacîs Dictionary. Maskwacîs, Maskwachees Cultural College, 1998.

O AECD

Show entries from the Alberta Elders' Cree Dictionary/alberta ohci kehtehayak nehiyaw otwestamâkewasinahikan compiled by Nancy LeClaire and George Cardinal, edited by Earle H. Waugh. Edmonton: University of Alberta Press, 2002.

O ALL

Show entries from CW, AECD, and MD (default)

Select Audio Source

Select one of the following options to choose which audio source you would like to hear

Maskwacîs

Show audio from the Maskwacîs Cree community

) mōswacīhk

Show audio from the moswacihk community (White Bear First Nations, Saskatchewan

Configurability → Settings Can I choose my preferred format for how information is shown?

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| Examples. | 5 | Syllabics | | | | | |
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| Examples: | : niya, kiya, wiya; ê-ispayik anohc/mêkwâc/mâna, ê-ispayik kwayâc | 1 | /iew all se | tting | <u>gs</u> | | |
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Show emojis with entries?

Emojis illustrate word classes

Yes

Show emojis with my entries (default)

 \bigcirc No

Don't show emojis with my entries

Emoji for animate nouns (awa words)

Choose the emoji that will represent all awa words.



Select Dictionary Source

Select one of the following options to choose which entries are displayed in the search results



Attempt semantic search for English queries

Yes

Attempt semantic search to provide results distinguishing between different English meanings when data is available

 \bigcirc No

Use only the standard language search

Automatically translate English phrases into Cree word-forms

Yes

Generate Cree word-forms matching simple English verb or noun phrases

🔿 No

Only show dictionary entry headwords as they are

Automatically translate Cree word-forms into English phrases

Yes

Generate English definitions matching core Cree word-forms

 \bigcirc No

Only show dictionary definitions as they are

Questions? Comments! Feedback?

Application: <u>https://itwewina.altlab.app/</u> New features: <u>https://itwewina.altlab.dev/</u> Instructions: <u>https://altlab.ualberta.ca/itwewina/</u> Feedback: <u>https://itwewina.altlab.dev/feedback</u> Source code: <u>https://github.com/UAlbertaALTLab/morphodict/</u>

Speech-DB Spoken Dictionary of Maskwacîs Cree

speech-db.altlab.app

speech-db.altlab.app/maskwacis/entries



Tsuut'ina

Spoken by Tsuut'ina Nation, Treaty 7

Nakoda:

https://speech-db.altlab.app/api/set_language/stoney-alexis

Speech-DB has data from multiple languages and dialects. Here, we choose **Plains Cree** as spoken in Maskwacîs, Alberta.



The **semantic class** selection field allows for selecting sets of words/phrases organized according the the RapidWords (RW) semantic domains.



The first number indicates how many entries have been classified under this (terminal) RW category (**1.1.3.4** *Snow, ice*: **56**). For a more general categories, the second number indicates how many entries have been classified in all the subordinate classes (**1.3.3** *Weather*: **199**).



Selecting **1.1.3.4** *Snow, ice* gives us **56** entries (which may be individual words, short phrases or example sentences) related to this RW semantic domain.



The 56 entries for **1.1.3.4** *Snow, ice*: **56** are grouped into 12 pages, with upto 5 entries per each page.

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The **Advanced Search** button takes to a page where one can search the contents according to multiple criteria.

Vocabulary Explorer for Plains Cree

vocabulary.altlab.dev



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| itwêwina Plains Cree Dictionary sakahikan | Q Settings O |
| sakahikan Image: Temperature NI-1 Iike: cîmân, astotin 1. nail cw AECD MD 2. spike cw | Clicking on the network icon opens a pop-up with the semantic classes/domains |
| <mark>sâkahikan</mark> ᠿ ❣ ॆ ॆ ➡ ♠) NI-1 | and WordNet [WN]) linked to an entry. |
| 1. la Related words sâkahikan is in the RapidWords categories: • Water (1.3) • Ocean, lake (1.3.1.1) sâkahikan is in the WordNet category: | Clicking on an RW or WN link transfers to the Vocabulary Explorer. |
| 1 small nail swup | |



For every RW domain, its **sibling**, **aunt**, and **daughter** domains are provided, when applicable.







RapidWords (RW): a hierarchical network for close to 1800 semantic domains.



RapidWords (RW): semantic domains related to "lake".



Home » 1 Universe, creation » 1.3 Water » 1.3.1 Bodies of water » 1.3.1.1 Ocean, lake

1.3.1.1 Ocean, lake

Use this domain for words referring to bodies of standing water.

Related domains: 9.7.2.8 Names of oceans and lakes What words refer to bodies of standing water of different sizes?

ocean, sea, lake, pond, pool, puddle, wallow What words refer to a man-made lake?

reservoir, man-made lake, catchment area

What are the parts of bodies of water?

surface, bottom, abyssal depths, abyssal plain, thermal layer, seamount, continental shelf, shallows, the depths, the deep, open sea What words refer to the study of the ocean?

up

oceanography

< 1.3.1 Bodies of water

Printer-Friendly Version

Semantic Domains



» 1.1 Sky

» 1.2 World » 1.3 Water

- » 1.3.1 Bodies of water
- » 1.3.1.1 Ocean, lake
- » 1.3.1.2 Swamp
- » 1.3.1.3 River
- » 1.3.1.4 Spring, well
- » 1.3.1.5 Island, shore
- » 1.3.2 Movement of water
- » 1.3.3 Wet
- » 1.3.4 Be in water
- » 1.3.5 Solutions of water
- » 1.3.6 Water quality
- » 1.4 Living things
- » 1.5 Plant
- » 1.6 Animal
- » 1.7 Nature, environment

RapidWords (RW): English prompt words and elicitation questions for RW category 1.3.1.1 Ocean, Lake.

1.3.1.2 Swamp >



RapidWords (RW) topics for school subjects – astronomy: 1.1.1 Sun.



RapidWords (RW) topics for school subjects – biology: 1.5 Plant, 1.6 Animal, 2.1 Body.



RapidWords (RW) topics for school subjects – geography: 1.3 Water.



RapidWords (RW) topics for school subjects – chemistry/physics: 1.2.3 Solid, liquid, gas, 1.2.2 Substance, matter.



RapidWords (RW) topics for school subjects – social sciences: 4.5 Authority, 4.6 Government, 4.7 Law.


RapidWords (RW) topics for school subjects – literature: 3.5.4 Story.

Korp: text collection for Cree

<u>korp.altlab.app</u> (Production) <u>korp.altlab.dev</u> (Development)





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| kî-tako- nikî-tak | konâw ana nîsta; kiwâ | pamâwak ôki mân á | àya, sâka | hikanihk | | | support | | | , inconte | |
| itâpacihtânâwâ | w?''nititâw.```êsi | sak ' isiyîhkâtêw, m | âna sâka | hikanihk mân a | âyâwak a | nikik, ''i | twêw, `` | | | | |
| | îtwêw. [6] `` [î | ? record] nipîhk, sise | onê sâka | hikanihk ê-pê- | pimohtê | /ân êkwa | , kîkway? | – kêti | sk ês é | ê- ê-pi | |
| | | ê-kî - ~ ê-kî-nitona | ıhk, sâka | hikanihk êkota | ; ôsi mâr | ı ê-kî-ayâ | t, êkota m | nîna m | nân ê- | kî-wîc | |
| ê-r | mâmâkwa - ~ ê-mâm | âkwamiht. [FA:] sise | onê sâka | hikanihk mâka | , kikî-mo | wâwâw - | - kikî-mar | nâhon | lâwâw | r cî mấ | |
| ê-itahtopiponê | yân, sâsay nipâpâ ê-k | kî-wîcihak ê-pakitah | wât sâka | hikanihk | | | | | | | |
| | â | tiht ê-itohtatâyân, â | tiht sâka | hikanihk itê kâ | -pakitah | wât. êkwa | a ispî mîn | êkwa | , ê-kî- | aya - ^ | |
| ohk êkwa ê-itoł | htahâcik awâsisa; ê-kî | î-wâsakâmêpayit m | âna sâka | hikanihk ê-kî-â | iwayât, ê | kota mîn | a mâna kî | -misi- | sôniya | âhkêw | I |
| awâw êkota, ê-k | kî-âh-asêyatiyâhk mâr | na êkotê sakâhk, sise | onê sâka | hikanihk ê-wîk | iyâhk, pa | pakwayâ | inikamiko | hk; m | iôya w | viya wî | L |
| kî-itatoskêyâhk | mîna, ê-nitawi-twâhi | pêyâhk ê-âwasipêyâ | ihk; sâka | hikanihk ohc ê | -kî-minił | kwêhk – | | | | | |
| « < 1 > | Go to page | of 1 | | | | | | | | | |

By default, Korp shows the search results with Key Word in Context (KWIC) format.







Thank you – *ay hay* – kiitos!

Questions? Comments! Feedback?

itwêwina (production): <u>https://itwewina.altlab.app/</u> itwêwina (development version with new features): <u>https://itwewina.altlab.dev/</u> itwêwina (instructions): <u>https://altlab.ualberta.ca/itwewina/</u> Feedback: <u>https://itwewina.altlab.dev/feedback</u> Vocabulary explorer: <u>https://vocabulary.altlab.dev</u> Speech-DB: <u>https://speech-db.altlab.app</u> Korp text collection: <u>https://korp.altlab.app</u> (prod), <u>https://korp.altab.dev</u> (dev) Source code: <u>https://github.com/UAlbertaALTLab/morphodict/</u>

ALTLab: https://altlab.ualberta.ca/