itwêwina
altlab.ualberta.ca/itwewina

A renewed, morphologically smart on-line Cree dictionary
Detailed walk-through of functionalities
Key functionalities – available now

• Ready-to-use version available via:
  – altlab.ualberta.ca/itwewina

• Computational model – comprehensive treatment of complex structure of Cree words (based on Wolvengrey’s Cree words)
  – analyze almost all (Maskwacîs) Cree word forms and present lexical entry and structure of the word
  – Generate exhaustive word form paradigms of all verbs and nouns

• Orthographical standards that are supported
  – Full support for Cree syllabics in word form analysis and generation
  – Full support for SRO (circumflex/macron) in word form analysis and generation

• Fuzzy matching in search
  – Model for matching search words with orthographic variation (vowel length, occurrence of –h-, influence of English in spelling) with lexical entries

• Partial matching with search words in addition to linguistic analysis
Key functionalities – latest developments

• Incorporation of multiple dictionary sources
  – Maskwacîs Cree Dictionary
  – Cree : Words / nêhiyawêwin : itwêwina (Wolvengrey)
  – Proper indication of dictionary sources for matches
  – Amalgamation of dictionary entries from multiple sources when English translations are practically equivalent

• In progress
  – Incorporation of spoken word examples (gradual expansion)
  – currently over a thousand forms with multiple thousands of carefully pronounced audio recordings
  – to be added as validation process progresses
Cree-to-English direction selected (default).

Interface language is English for now.

Standard Roman Orthography with circumflexes selected for presenting Cree content.

Cree word ‘nipâw’ input, but without the long-vowel hat/circumflex: ‘a’ instead of ‘â’
This then takes to the lexical entry/lemma nipâw, indicating that it is an intransitive verb taking an animate subject (VAI).

The English translations from both the Maskwacîs Dictionary (MD) and Cree Words (CW) are shown.

In addition to a linguistic exact match, all lemmas partially matching the search string ‘nipaw’ are presented (min. character length is 5).
The English translations from both the Maskwacîs Dictionary (MD) and Cree Words (CW) are shown. For the partial matches, the source code indicates that these are only found in Cree Words (CW).

Hovering over the source code (MD) gives the full title Maskwacîs Cree Dictionary.
This then takes to the lexical entry/lemma *nipâw*, indicating that it is a intransitive verb taking an animate subject (VAI).

In addition, the linguistic breakdown/analysis of the lexical entry, and its root form *nipâ-*, are provided.
Clicking on the *nipâw* (on the previous page) provides again various versions of paradigms – what is seen here is the smallest selection, designated as the *basic* paradigm, using plain English terminology.
Hovering over a plain English label, e.g. ‘Something is happening now’, indicating the time when the action is taking place, gives the linguistic term ‘Present tense’, for those who want to know. All labels in blue have such pop-up windows.
Clicking on the full paradigm gives all the possible word forms for this lemma, including all core tenses.

[The linguistic paradigm (not shown here) uses linguistic terminology to describe the forms in the full paradigm.]
Clicking on the full paradigm gives all the possible word forms for this lemma, including all core tenses.

In addition, we see all the Command/request forms, for both something to happen Right now or Later on.
Note on paradigms:
Currently, the full set of possible word forms for a lemma is specified in a (1) *.paradigm file, which is then associated with a set of (2) *.layout files that specify the selection of forms that will be presented, and how those will be formatted (which is static for any individual layout).

Obviously, on a mobile platform one might rather prefer re-organizing the paradigms into (a hierarchy of) sub-panes, that could each be presented when requested, and/or organized dynamically to best fit the available screen.
To exemplify search with a substantially more complex form, the word ‘niwî-nipân’, meaning ‘I want to sleep’, is highlighted. In addition, we will add the preverb nôhtê, meaning ‘want’ as well.
Cree word ‘niwinohoitenipan’ input, but without the long-vowel hat/circumflex: ‘â’ instead of ‘â’, and ‘i’ instead of ‘î’.
This then takes to the lexical entry/lemma *nipâw*, indicating that it is an intransitive verb taking an animate subject (VAI).

The word form is presented in its orthographically correct form: *niwî-nôhtê-nipân*.

In addition, the linguistic breakdown/analysis of the lexical entry, and its root form *nipâ-*, are provided.
Hovering over the analysis
*Preverb: nôhtê-* gives us a pop-up window proving its meaning:
‘*want to, desire, lack*’.
Possible mixtures of

- interface language
- interface language orthography
- search string orthography
- Cree content orthography
We can change to Standard Roman Orthography with macrons for presenting Cree content. This is indicated by how all the vowels are shown.
With the Cree content shown using SRO with macrons, the lemma and the standardized version of our search term are presented in macrons as well.

Note! The code for itwêwina is implemented in a way that requires the source XML code for the dictionary to be duplicated for each of the three orthographies, which need to be transcribed every time the dictionary is updated. Therefore, searching the current-on-line version can produce different results in terms of the English translations (and some other things). For your version, you would want to use only one source, and transcribe to the other orthographies.
With the Cree content shown using SRO/macrons, also the paradigms (and labels) are presented in macrons.
Thirdly, we can change to Cree syllabics for presenting Cree content.

The interface language has been changed to Cree (with macrons).
With the Cree content shown using syllabics, the lemma and the standardized version of our search term are presented in syllabics as well.
With the Cree content shown using syllabics, also the paradigms are presented in syllabics as well.
From Cree-to-English, one can search using any orthography (SRO with circumflexes or macrons) or syllabics, independent of which orthography is chosen for presenting the Cree content.
Here, a search with syllabics produces the Cree content results syllabics
One can even mix the orthographies in the search (SRO with circumflexes/hats or macrons) or syllabics, independent of which orthography is chosen for presenting the Cree content.
Here, a search mixing SRO with syllabics produces the Cree content results in syllabics.

Note: Ideally, the user would not need to specify whether they are searching from Cree-to-English or the other way around, but these would be determined based on the input. If the input matches the limited set of English search words, then the input can be considered English; otherwise, it could be treated by default as Cree. However, we need to allow the user to explicitly select the orthography for the presentation of Cree content (rather than guessing that form the input, perhaps with SRO/circumflex as the default).
The interface language can also be changed to Cree with syllabics.
The interface language can also be changed to Cree with syllabics. Nevertheless, the Cree word search can be done using here SRO (or any of the three variants for representing Cree content).
The Cree results are shown in SRO/circumflex, even though the interface is in Cree with syllabic orthography.
The interface language can also be changed to Cree with syllabics. Nevertheless, the Cree word search can be done using here SRO (or any of the three variants for representing Cree content).
Or, (almost) everything can be in Cree syllabics: both the language and orthography of the interface and the representation of the Cree content results.
Here, both (1) the language and orthography of the interface, and (2) the representation of the Cree content results, are all in Cree syllabics (with the exception of the stem).
English-to-Cree search
All English lexical entries matching the beginning of the input string are shown.
Search with *sleep* results in a large number of matches with lexical entries, demonstrating the richness of Cree vocabulary.

The parts-of-speech for the English search word indices (noun, verb), indicate the analysis in the English translations of the Cree word.

Note: We will likely end up either using the p-o-s code for the Cree words instead.
For each translation, an indication of its source is indicated as either MD or CW.

If the sources are in agreement, only one translation is provided, with joint source attribution, with [MD CW].
Clicking on a Cree word, here *nipâsiw*, will take us to the paradigm page.

Note that here the English-to-Cree search results are not presented in any apparent systematic order.

However, we would like to present the results based on a combination of corpus-based ranking (to be provided in the dictionary XML source, and alphabetic order.)
Clicking on a Cree word *nipâsiw* (on the preceding search page) took us to the paradigm page. The English translation are presented as well.

A linguistic analysis/breakdown is provided even for a lemma (as they are inflected forms).
How to speak Cree?

Cree words carefully pronounced by first-language Cree speakers from Maskwacîs
kâ-nêhiyawî-pîkiskwêcîk maskwacîsîhk – Maskwacîs Cree Speakers

Mary Jane Littlechild
Louise Wildcat
Jerry Roasting
Harley Simon
Annette Lee
Arlene Makinaw
Rosie Rowan
Rose Makinaw
Kisikaw
Betty Simon
Brian Lightning
Linda Oldpan
Debora Young
Ivy Raine
Paula Mackinaw
Norma Linda Saddleback

http://altlab.ualberta.ca/maskwacis/Speakers/speakers.html
Finally, a Cree search example with wâpamêw which presents first and exact match based on the linguistic analysis, and partial matches with many dictionary entries,
This Cree word \textit{wâpamêw} happens to have multiple careful pronunciations by native Cree speakers, presented on the paradigm page.
Spoken Cree words to test

iskwēsis, kimiwasin, kinēpik, kinozew, maskosis, mostos, nâpêw, nâpēsis, nêmow, niska, piyēsis, pwâtisimowin ...
Click-in-text functionality

Alpha-version at this stage

IMPORTANT: Does not work in the Safari browser
Clicking on the ‘Click-in-text’ tab takes one to this page, which allows for the installation of a bookmarklet version of the dictionary.
Dog Biscuits – Salamū ácimow


When I was a child I went to school away from my reserve. It was at Prince Albert where I went to school, there was a Residential School there where I went. There was a lot of ill treatment, but I'm not going to talk about that, I'm going to tell a story about my fellow pitiful ones, my fellow students.

The bookmarklet allows us to access the itwêwina from any webpage containing Plains Cree text, such as the Dog Biscuits story by Solomon Ratt, made available via the Cree Literacy Network.
Clicking the bookmarklet starts the Click-in-text dictionary functionality. We are selecting Cree-to-English, with the lexical entries in SRO.
Clicking the bookmarklet starts the Click-in-text dictionary functionality.
Alt-clicking a word provides us the English translation of the lemma.
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We can choose syllabics for presenting the lexical entries.
Alt-clicking a word provides us the English translation of the lemma.
Alt-clicking a word provides us the English translation of the lemma.
Clicking the bookmarklet, we can also select English-to-Cree, with the lexical entries in SRO.
Alt-clicking an English word provides us all the Cree words associated with the English translation.
Maskwacîs/MESC community feedback and suggestions welcome and needed for further development.

Application should meet community needs.