

Literacy and language learning tools for Plains Cree

The *Alberta Language Technology Laboratory* (<http://altlab.artsrn.ualberta.ca/>) at the University of Alberta has been working in conjunction with the *Giellatekno Center* (<http://giellatekno.uit.no/>) at the University of Tromsø, Norway, to produce a computational model of Plains Cree morphology for use in the development of digital writing, teaching and learning tools.

Our approach is technologically based on the Finite State Transducer (FST) formalism (Beesley and Karttunen, 2003), which has been used during the previous decade by Giellatekno in developing for the indigenous Saami languages in Northern Scandinavia a suite of language technological tools and an overall software architecture for their efficient uniform maintenance. The FST formalism is particularly apt for modeling word structure in morphologically rich languages, e.g. Plains Cree, since the formalism explicitly describes affixation and morphophonological regularities, whether in inflection, derivation or compounding, allowing for direct control of the resultant models by language specialists together with native speakers. The FST model can work with both Standard Roman Orthography and Cree syllabics.

There are many practical applications that can be derived from such a computational model of Plains Cree. Firstly, one can create an electronic dictionary allowing for finding lexical entries via any of their inflected forms. Secondly, one can create a spell-checker integrated seamlessly within a word-processor, providing exactly the same functionality as for English or French. Thirdly, the model can be used in computer-aided language learning applications for e.g. practicing correct word formation. Importantly, these language technological tools are being developed together with native speakers of the Plains Cree and in collaboration with the respective communities, e.g. the Miyo Wahkohtowin Education in Maskwacis, AB.

In our talk, we will present the practical advantages of our model and describe planned language applications that can further writing, speaking, teaching and learning Plains Cree.

REFERENCES

Beesley, Kenneth R. & Lauri Karttunen (2003) *Finite State Morphology*. Stanford, CA: CSLI Publications.