A Metrical Analysis of Primary Stress Placement in Southern East Cree

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INTRODUCTION

This paper provides a metrical analysis of the system of primary stress placement in Southern East Cree (SE Cree), based on data collected at Rupert House, Québec, in 1974.¹ Mackenzie (1980) shows two major patterns of stress placement for palatalized dialects of the Cree-Montagnais-Naskapi dialect continuum: final stress placement and non-final stress placement. SE Cree falls into the non-final area; that is, although primary stress may fall on the final syllable, there is a lesser tendency toward this pattern than there is in the more easterly dialects. This fact is accounted for in the metrical analysis presented here. Secondary stress was noted on rather few of the lexical items. Where it was noted, however, it is marked on the data examined here; in all cases, secondary stress occurs in a position predicted by the analysis.

THEORETICAL ASSUMPTIONS

This analysis assumes the principles of metrical stress theory. Central to the analysis is the assumption that different stress patterns across languages are the result of limited parametric variation made available by Universal Grammar. SE Cree is a quantity-sensitive language, meaning that stress assignment rules are sensitive to syllable weight; specifically, heavy syllables attract stress, whereas light syllables do not. This concurs with MacKenzie’s observation that stress is attracted to heavy syllables in those dialects in which stress is non-final. In SE Cree, any syllable which has either a long vowel, or a short vowel closed by a glide or a nasal, is heavy. A syllable closed by the segment /kʷ/ is also heavy. All other

¹ Thanks to Marguerite MacKenzie for providing me with the data examined in this paper. The data were collected by Marguerite MacKenzie and provided by language consultants Annie Whiskeychan and William Gull. Grateful thanks to Carrie Dyck and Elan Dresher for their comments on earlier versions of this paper. This research has been supported by Social Sciences and Humanities Research Council of Canada doctoral fellowship 752-94-1003.
syllables are light.\(^2\)

The final syllables of the examples in 1 show that the sequences vowel–nasal, vowel–glide and vowel–/k\(^w\)/ pattern with a vowel–vowel sequence; all four sequences attract stress.\(^3\)

(1) Heavy Syllables in Southern East Cree

<table>
<thead>
<tr>
<th>Syllable type</th>
<th>Syllabification</th>
</tr>
</thead>
<tbody>
<tr>
<td>vowel–vowel</td>
<td>pi.mii</td>
</tr>
<tr>
<td>vowel–glide</td>
<td>was.kway</td>
</tr>
<tr>
<td>vowel–nasal</td>
<td>pi.pun</td>
</tr>
<tr>
<td>vowel–/k(^w)/</td>
<td>ni.chik(^w)</td>
</tr>
</tbody>
</table>

Why disyllabic words have final syllable primary stress rather than the more frequently occurring penultimate stress is a matter to which I return presently.

Stress placement in SE Cree can be derived by assuming that syllables are grouped into binary feet, metrical units containing maximally two syllables.\(^4\) SE Cree has iambic feet, meaning that any disyllabic foot will have a light syllable as its left member, followed by a heavy syllable. Ideally, an iamb is constructed on the syllable sequence LH; if this is not available, an iambic foot may also be constructed on a heavy syllable. Although universally the option exists for an iamb to be constructed on the syllable sequence LL, I shall show that this option is not available in SE Cree. Universally, an iamb may not be constructed on a single light syllable.

Further, stress placement for SE Cree can be predicted by assuming that the rightmost foot of a lexical item is extrametrical; that is, it is not counted for primary stress placement. Syllables which are not affected by extrametricality are referred to as being “visible” — that is, they are visible

\(^2\) This paper has been extracted from a longer work in which justification for these claims is provided. Due to space constraints, much of the theoretical argumentation of the original paper has been omitted from the present version.

\(^3\) Throughout this paper, data are presented as shown in 1. The transcription in square brackets is a rough phonetic representation. Predictable processes such as the voicing of voiceless consonants in intervocalic position are omitted. The column to the right of the gloss provides an orthographic representation of each item (following the orthographic conventions of MacKenzie et al. 1987), and at the same time indicates syllabification.

\(^4\) An alternative analysis, assuming that SE Cree allows unbounded feet (potentially consisting of an unlimited number of light syllables and a single heavy syllable), is examined in the final section of this paper.
to stress assignment rules. Extrametrical feet are placed between angled brackets in the analysis, while visible feet are between parentheses.

Finally, after the syllables have been parsed into feet, a rule referred to as End-Rule Right (formalized in Hayes 1985:61) assigns primary stress at the right edge; primary stress is thus located on or near the penultimate heavy syllable, i.e., on the rightmost visible foot.

(2) Summary of Relevant Parameters:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity Sensitive</td>
<td>Yes</td>
</tr>
<tr>
<td>Heavy syllables</td>
<td>vowel–vowel</td>
</tr>
<tr>
<td></td>
<td>vowel–glide</td>
</tr>
<tr>
<td></td>
<td>vowel–nasal</td>
</tr>
<tr>
<td></td>
<td>vowel–/kʷ/</td>
</tr>
<tr>
<td>Foot type</td>
<td>Iambic</td>
</tr>
<tr>
<td></td>
<td>(Construct a maximal iambic foot (LH) where possible, otherwise construct (H); *(LL) in SE Cree, *(L) universally)</td>
</tr>
<tr>
<td>Extrametricality</td>
<td>Rightmost foot</td>
</tr>
<tr>
<td></td>
<td>(Extrametricality is revoked under certain conditions.)</td>
</tr>
<tr>
<td>End-Rule Right</td>
<td>Main stress assigned to right edge</td>
</tr>
</tbody>
</table>

DATA IN SUPPORT OF PARAMETER SETTINGS

Stress assignment for words of the form LHH provides evidence for right-edge extrametricality. A maximal iambic foot (LH) is constructed on the first two syllables, and the rightmost foot is extrametrical; stress therefore falls on the penultimate syllable. Assuming quantity sensitivity, non-final stress cannot be explained any other way in these forms, which have a final heavy syllable:

(3) (LH)<H>

<table>
<thead>
<tr>
<th></th>
<th>Syllabification</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. [namé·pi·]</td>
<td>‘sucker fish’</td>
</tr>
<tr>
<td>b. [nipé·win]</td>
<td>‘bed’</td>
</tr>
<tr>
<td>c. [wiyá·kan]</td>
<td>‘plate’</td>
</tr>
<tr>
<td>d. [čįsté·ma·w]</td>
<td>‘tobacco’</td>
</tr>
<tr>
<td>e. [nkwá·kan]</td>
<td>‘snare’</td>
</tr>
<tr>
<td>f. [hčá·pi·], [ćá·pi·]</td>
<td>‘bow’</td>
</tr>
<tr>
<td>g. [įstä·hkun], [štā·hkun]</td>
<td>‘bough’</td>
</tr>
<tr>
<td>h. [ąyú·skan]</td>
<td>‘raspberry’</td>
</tr>
</tbody>
</table>

MacKenzie (1980:116) observes that the non-round short vowels /i/ and /a/ are particularly prone to deletion when they occur in a metrically weak
position. This process can be seen in 3e, f, g, and elsewhere in the data, though I shall not draw attention to it again. Unlike some iambic Algonquinian languages (see, for example, Valentine 1994 on Ojibwa), vowel deletion is optional in SE Cree.

Devoicing optionally affects /a/, /i/ and /u/ when the vowel occupies a metrically weak position (see, for example, 3d–h). The body of data under discussion shows that a metrically weak vowel is generally subject to optional deletion or devoicing generally when it is in the immediate environment of the voiceless consonants /t, s, č, š, h/. Example 3h shows that devoicing may also occur before a glide.

The data in 4 confirm right-edge extrametricality, with primary stress falling on the rightmost visible heavy syllable, in this case the penultimate:

\[
\begin{align*}
(4) & \quad (H)(LH)<H> \\
 a. & \quad [a\cdot pih\cdot ká\cdot tam] \quad 'untie' \quad \text{aa.pih.kaa.tam} \\
b. & \quad [me\cdot ŋwá\cdot kan] \quad 'toy' \quad \text{me.wa.kan} \\
c. & \quad [sa\cdot ká\cdot kan] \quad 'lake' \quad \text{saa.ká.kan} \\
d. & \quad [ta\cdot piská\cdot kan] \quad 'scarf' \quad \text{taa.pis.kan} \\
e. & \quad [te\cdot wá\cdot kan] \quad 'drum' \quad \text{tee.wá.kan} \\
f. & \quad [we\cdot pahí\cdot kan] \quad 'broom' \quad \text{wee.pá.kan} \\
g. & \quad [ka\cdot čisé\cdot pahk] \quad 'plant' \quad \text{kaa.chi.see.pahk} \\
h. & \quad [či\cdot ká\· kan] \quad 'axe' \quad \text{chi.ká.kan}
\end{align*}
\]

The data in 5 raise an important question: how are syllables grouped into feet when there are two adjacent light syllables?

\[
\begin{align*}
(5) & \quad LLHH \\
a. & \quad [kapata\· kan] \quad 'portage' \quad \text{ka.pá.taa.kan} \\
b. & \quad [muhkutá\· kan] \quad 'crooked knife' \quad \text{muh.ku.taa.kan} \\
c. & \quad [wanihi\· kan] \quad 'a trap' \quad \text{wa.ni.hii.kan} \\
d. & \quad [apisá\· siw] \quad 'be small' (II) \quad \text{a.pi.saa.siw} \\
e. & \quad [amiskú\· kan] \quad 'beaver bone' \quad \text{a.mis.kuu.kan}
\end{align*}
\]

There are two possibilities:

\[
\begin{align*}
(6) & \quad \text{a. LLHH } \rightarrow (L)(LH)<H> \\
& \quad \text{b. LLHH } \rightarrow (LL)(H)<H>
\end{align*}
\]

In 6a, the initial syllable is not footed, an option permitted within metrical stress theory. In 6b, a foot consisting of two light syllables has been constructed. Either option results in the correct placement of stress, on the penultimate syllable. I propose that the only parsing option for the data in
5 is that shown in 6a, thus avoiding the creation of a foot consisting of two light syllables. The words in 5 are therefore parsed as follows:

(7) \[ L(LH)<H> \]

a. \([\text{kapata-kan}]\) ‘portage’
b. \([\text{muhkutá-kan}]\) ‘crooked knife’
c. \([\text{wanihí-kan}]\) ‘a trap’
d. \([\text{apisá-siw}]\) ‘be small’ (II)
e. \([\text{amiskú-kan}]\) ‘beaver bone’

In order to show that SE Cree does not permit feet of the form (LL), I turn to data of the form LLLH. The only way to account for the final stresses in 8 is to assume that extrametricality is revoked just because of the prohibition against a LL iambic foot:

(8) \[ LL<LH> \rightarrow LL(LH) \]

a. \([\text{tatahkumá-w}]\) ‘scissors’
b. \([\text{pačiwiyá-n}]\) ‘cloth’

If an iambic foot could be constructed on two light syllables, stress would be incorrectly expected on the rightmost member of the visible iamb — the antepenultimate syllable — in these forms.

Extrametricality revocation is a last-resort mechanism without which words of the form LLLH would be unstressable. One of the conditions under which extrametricality is revoked in SE Cree is when there are no heavy syllables in the visible portion of a lexical item: a sequence of light syllables cannot be footed.

(9) Foot (LL) incorrectly predicts stress placement:

*\([\text{LL}<LH>] \rightarrow LL(LH)\)*

Extrametricality revoked, stressing final syllable: \[ LL<LH> \rightarrow LL(LH) \]

Therefore words of the form LLH can only be footed if extrametricality is revoked, as in 10:

(10) \[ L<LH> \rightarrow L(LH) \]

a. \([\text{asíní-}]\) ‘stone’
b. \([\text{apiší-š}]\) ‘little’
c. \([\text{nukučá-š}]\) ‘squirrel’
d. \([\text{makušá-n}]\) ‘feast’
e. \([\text{mihčikún}]\) ‘scraper’
f. \([\text{masčísín}]\) ‘moccasin’
g. \([\text{uhpinám}]\) ‘he picks it up’
h. \([\text{ačíškáw}]\) ‘it is raw’
Comparison of 10 with 8 shows that in both cases extrametricality is revoked because the visible portion of the lexical items contain no heavy syllables.

The data in 11 provide evidence that extrametricality is also revoked if the visible portion of the lexical item is monosyllabic:

\[
\begin{array}{ll}
\text{(11)} & (H)<LH> \rightarrow (H)(LH) \\
\text{a. [a-pihtiin]} & \text{‘Wednesday’} \\
\text{b. [a-suukan]} & \text{‘bridge’} \\
\text{c. [mu-skami-] } & \text{‘moose broth’} \\
\text{d. [mu-suya-n]} & \text{‘moose hide’} \\
\text{e. [mu-suikan]} & \text{‘moose bone’} \\
\text{f. [sha-wensу-]} & \text{‘south’} \\
\text{g. [mu-hkumа-n]} & \text{‘knife’} \\
\text{h. [mi-ciжwá-hp]} & \text{‘tent’} \\
\text{i. [e-mihkwá-n]} & \text{‘spoon’} \\
\text{j. [u-stá-sk\^w]} & \text{‘axe’} \\
\text{k. [ma-nte-w]} & \text{‘stranger’} \\
\text{l. [ni-psi-]} & \text{‘willow’} \\
\text{m. [ši-khun]} & \text{‘comb’} \\
\text{n. [ni-psi-]} & \text{‘willow’} \\
\end{array}
\]

The initial syllable of the words in 11 is heavy and therefore, based on the data seen thus far, capable of bearing stress. The only way to account for final syllable stress is to propose that extrametricality is revoked. In a sense, then, there is double motivation for revoking extrametricality for the data in 10 — the visible portion of the word is both a monosyllable and a light syllable.

Compare the parsing of the data in 10 and 11 with the parsing of the data in 3:

\[
\begin{array}{ll}
\text{(12)} & \text{Extrametricality not revoked:} \\
& (LH)<H> \quad (3) \\
& \text{Extrametricality revoked:} \\
& L(LH) \quad (10) \\
& (H)(LH) \quad (11)
\end{array}
\]

Extrametricality is not revoked in 3 because the visible portion of the word is disyllabic and one of the syllables is heavy. The conditions under which
extrametricality is revoked are therefore as follows:

(13) Extrametricality is revoked when the visible portion of the lexical item:
   a. contains no heavy syllables e.g. LL< LH> → LL(LH)
   b. is monosyllabic e.g. (H)< LH> → (H)LH)

Stress placement for the data shown in 14 and 15 follows in a predictable manner — primary stress falls on the rightmost heavy syllable that is visible:

\[
\begin{align*}
\text{(14)} & \quad \text{< LH> \rightarrow LH> } & \text{Syllabification} \\
& \quad \text{a. [piyé-sikan]} & \text{'duffle sock'} & \text{pi.yee.si.kan} \\
& \quad \text{b. [pahkwé-sikan]} & \text{'bread'} & \text{pah.kwee.si.kan} \\
& \quad \text{c. [miská-kanù-]} & \text{'found'} & \text{mis.kaa.ka.nuu} \\
\end{align*}
\]

\[
\begin{align*}
\text{(15)} & \quad \text{< LH> \rightarrow LH> } & \text{Syllabification} \\
& \quad \text{a. [wa-pahtá-kanú-]} & \text{'seen' (TA)} & \text{waa.pah.taa.ka.nuu} \\
& \quad \text{b. [we-piná-kanú-]} & \text{'thrown' (TA)} & \text{wee.pi.naa.ka.nuu} \\
& \quad \text{c. [má-čí-kanú-]} & \text{'cut' (TI)} & \text{maa.ti.shii.ka.nuu} \\
& \quad \text{d. [má-tswá-kanú-]} & \text{'cut' (TA)} & \text{maa.ti.swaa.ka.nuu} \\
\end{align*}
\]

**DISYLLABIC WORDS**

Disyllabic words necessarily pose problems for any parsing system with extrametricality at the foot level. Assuming an iambic system, two syllables (at most) can be extrametrical, exhausting the entire domain of the disyllabic word. In SE Cree, since the visible portion of a lexical item must be at least disyllabic, disyllables of any form will motivate extrametricality revocation.

The words in 16 are of the form LH. Extrametricality is revoked, and stress is assigned in the predicted manner, to the heavy syllable:

\[
\begin{align*}
\text{(16)} & \quad \text{< LH> \rightarrow ( LH) } & \text{Syllabification} \\
& \quad \text{a. [waskwáy]} & \text{'birch'} & \text{was.kway} \\
& \quad \text{b. [mitá-s]} & \text{'sock'} & \text{mi.taas} \\
& \quad \text{c. [pimi]-} & \text{'fat'} & \text{pi.mii} \\
& \quad \text{d. [pisú-]} & \text{'lynx'} & \text{pi.siw} \\
& \quad \text{e. [pipún]} & \text{'winter'} & \text{pi.pun} \\
& \quad \text{f. [paká-n]} & \text{'nut'} & \text{pa.kaan} \\
& \quad \text{g. [apúy]} & \text{'paddle'} & \text{a.puy} \\
& \quad \text{h. [atim]} & \text{'dog'} & \text{a.tim} \\
\end{align*}
\]
In principle, the words in 16 are the same as those in 8 or 10. Note that examples 16j–o provide evidence that the segment /kʷ/ patterns with nasals and glides in creating a heavy syllable.

Extrametricality is revoked for words of the form HH in 17 because the visible portion of the word is a monosyllable; the rightmost syllable therefore receives primary stress:

\[
\begin{align*}
(a) & \quad (H)<H> \rightarrow (H)(H) \quad \text{Syllabification} \\
\text{a. [màːčiːs]} & \quad \text{‘match’} \quad \text{maa.chiis} \\
\text{b. [čuːčuːs]} & \quad \text{‘nipple’} \quad \text{chuu.chuus} \\
\text{c. [niːpiːʃ]} & \quad \text{‘leaf’} \quad \text{niː.piish} \\
\text{d. [sù∶káːw]} & \quad \text{‘sugar’} \quad \text{suu.kaaw} \\
\text{e. [tùːháːn]} & \quad \text{‘ball’} \quad \text{tuu.haan} \\
\text{f. [èːskán]} & \quad \text{‘antler’} \quad \text{eesh.kan} \\
\text{g. [čiːmáːn]} & \quad \text{‘canoe’} \quad \text{chii.maan} \\
\text{h. [nàːpéːs]} & \quad \text{‘boy’} \quad \text{naa.peesh} \\
\text{i. [pìːʃím]} & \quad \text{‘sun’} \quad \text{pìː.sim\(^w\)}
\end{align*}
\]

**SUMMARY AND CONCLUSIONS**

Thus far, I have assumed binary feet: the working assumption has been that SE Cree is an iambic system. However, an interesting feature of the data is that, with only one exception, stress placement can be predicted just as accurately by assuming that syllables are organized into unbounded feet, that is, metrical units potentially in excess of two syllables.

An unbounded foot potentially consists of an unlimited number of light syllables and a single heavy syllable, which is the head of the foot. Parametric variation allows unbounded feet to be left-strong — (HLL), (HLLL), etc. — or right-strong — (LLH), (LLLH), etc. Unbounded systems are therefore sensitive to syllable weight but impose no limits on
foot size. Obviously, the right-strong option is relevant to SE Cree.\(^5\)

Consider the data examined thus far under the hypothesis that SE Cree syllables are organized into right-strong unbounded feet:

(18) **Summary of Data**

<table>
<thead>
<tr>
<th>Data</th>
<th>Binary Analysis</th>
<th>Unbounded Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3)</td>
<td>(LH)&lt;H&gt;</td>
<td>(LH)&lt;H&gt;</td>
</tr>
<tr>
<td>(4)</td>
<td>(H)(LH)&lt;H&gt;</td>
<td>(H)(LH)&lt;H&gt;</td>
</tr>
<tr>
<td>(7)</td>
<td>L(LH)&lt;H&gt;</td>
<td>(LH)&lt;H&gt;</td>
</tr>
<tr>
<td>(8)</td>
<td>LL&lt;LH&gt; \rightarrow LL(LH)</td>
<td>&lt;LLLH&gt; \rightarrow (LLLH)</td>
</tr>
<tr>
<td>(10)</td>
<td>L&lt;LH&gt; \rightarrow L(LH)</td>
<td>&lt;LLH&gt; \rightarrow (LLH)</td>
</tr>
<tr>
<td>(11)</td>
<td>(H)&lt;LH&gt; \rightarrow (H)(LH)</td>
<td>(H)&lt;LH&gt; \rightarrow (H)(LH)</td>
</tr>
<tr>
<td>(14)</td>
<td>(LH)&lt;LH&gt;</td>
<td>(LH)&lt;LH&gt;</td>
</tr>
<tr>
<td>(15)</td>
<td>(H)(LH)&lt;LH&gt;</td>
<td>(H)(LH)&lt;LH</td>
</tr>
<tr>
<td>(16)</td>
<td>&lt;LH&gt; \rightarrow (LH)</td>
<td>&lt;LH&gt; \rightarrow (LH)</td>
</tr>
<tr>
<td>(17)</td>
<td>(H)&lt;H&gt; \rightarrow (H)(H)</td>
<td>(H)&lt;H&gt; \rightarrow (H)(H)</td>
</tr>
</tbody>
</table>

An unbounded analysis predicts the placement of primary stress as accurately as a binary analysis. However, only a binary analysis correctly places the primary stress for the data in 19:

(19) **HLLH**

<table>
<thead>
<tr>
<th></th>
<th>Syllabification</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>[á-yahkuna-w] ‘bannock’</td>
</tr>
<tr>
<td>b.</td>
<td>[pí-simuka-n] ‘clock’</td>
</tr>
<tr>
<td>c.</td>
<td>[wá-spisuyan] ‘baby wrapping’</td>
</tr>
<tr>
<td>d.</td>
<td>[wá-pusuyan] ‘rabbit skin’</td>
</tr>
<tr>
<td>e.</td>
<td>[pí-h tusina-n] ‘ammunition pouch’</td>
</tr>
<tr>
<td>f.</td>
<td>[pú-tinikan] ‘thimble’</td>
</tr>
<tr>
<td>g.</td>
<td>[té-htapu-n] ‘chair’</td>
</tr>
</tbody>
</table>

If extrametricality is revoked when the visible portion of a word is monosyllabic, the unbounded analysis incorrectly places the stress on the final syllable, as shown in 20:

(20) **Binary Analysis**

<table>
<thead>
<tr>
<th>(H)L&lt;LH&gt;</th>
<th>Unbounded Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(H)&lt;LLH&gt; \rightarrow *(H)(LLH)</td>
</tr>
</tbody>
</table>

\(^5\) All other parameter settings remain as given in the summary in 2. An unbounded analysis of SE Cree would make it comparable to Western Cheremis (a Finno-Ugric language spoken in Russia), described by Itkonen (1955) and discussed from a metrical viewpoint by Hayes (1995). In Western Cheremis, the rightmost heavy syllable is stressed (otherwise, the rightmost syllable is stressed) and final syllables are extrametrical.
SE Cree is interesting because only a very limited set of data points to a binary analysis: both systems — binary (iambic) and unbounded — work almost equally well. A number of other Algonquian languages have either been analyzed as iambic, or have systems which are compatible with an iambic system:

Munsee and Unami Delaware (Goddard 1979, 1982; Hayes 1995)

Malecite-Passamaquoddy (Teeter 1971; Stowell 1979; Teeter & LeSourd 1983; LeSourd 1993; Hayes 1995)


Potawatomi (Hockett 1948; Hayes 1995)

However, there are also Algonquian languages which are not iambic, and researchers (Cowan 1982, Hayes 1995) who do not assume iambicity to be a characteristic of Algonquian languages. Thus, I do not assume that SE Cree must be iambic just because it is Algonquian.

It is not my aim to pursue the theoretical implications of the fact that primary stress assignment in SE Cree can be accounted almost equally well by assuming either an iambic system or an unbounded system. It is possible that the SE Cree data examined here, recorded in 1974, represent a language in transition — at a stage when both systems work. The language samples examined in this paper are already a generation distant from the present. New research would establish whether or not contemporary SE Cree stress patterns have altered to definitively favour one system over the other. Only in this way could the language samples recorded in 1974 be determined, retrospectively, to have captured a system in transition.

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