

Predictable Stress in SENĆOŦEN*

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1 Introduction

The main proposal of this paper is that primary stress in SENĆOŦEN is predictable. Feet are binary and left headed and stress is sensitive to the weight distinction between a full vowel and schwa. The predictability of stress in SENĆOŦEN is accounted for within a Optimality Theory framework (Prince & Smolensky 1993)

Drawing on the work of Dyck (2004) and Kiyota (2003), I am able to verify Montler's (1986:23) observation that stress in SENĆOŦEN roots has a tendency to be penultimate. Following (Montler 1986:23), who says that stress falls on the first full vowel in a word, I further support the claim that the language is sensitive to the weight distinction between a full vowel and a schwa. In section 2, I discuss previous accounts of stress in SENĆOŦEN. In section 3, I provide a formal account of stress in SENĆOŦEN disyllabic roots, with 3.1, being an account of stress in disyllabic roots with two full vowels, 3.2 an account of stress in disyllabic roots which have a full vowel and a schwa, and section 3.3 presenting an account of disyllabic words with two schwas. In section 4, I briefly discuss the stress assignment of words which include lexical suffixes, showing that it is predictable. Section 5 is a conclusion.

2 SENĆOŦEN

SENĆOŦEN is the Saanich dialect of North Straits Salish. It is spoken on the Saanich Peninsula and the surrounding Gulf and San Juan Islands. There are three major works which deal with stress assignment in SENĆOŦEN. These are Montler (1986), Kiyota (2003) and Leonard (in prep). Montler (1986:23) claims that the default stress pattern in SENĆOŦEN has a tendency to be penultimate and that stress prefers a full vowel over a schwa. Kiyota (2003) accounts for these claims within an OT framework in his paper dealing with the

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Saanich plural. In Leonard (in prep), I draw upon the work of Kiyota (2003) and present an OT account of SENĆOŦEN roots and morphologically complex forms involving lexical suffixes. The analysis presented in this paper is a summary of the findings in that thesis. My investigation into the properties of SENĆOŦEN stress differs from Kiyota (2003) in two major ways. First, I concentrate on monomorphemic roots and words with lexical suffixes, and second, the words used for this paper were checked, between 2004-2006, with different speakers.

3 Stress in SENĆOŦEN roots

The roots in (1) illustrate the possible surface stress patterns found in SENĆOŦEN disyllabic roots.

(1)	a.	[v̆ v]	SÇOTI	sk ^w áti	<i>crazy</i>
	b.	[v v̆]	TI,TOS	tiʔtás	<i>bucking tide</i>
	c.	[v̆ ə]	SPÁ,EF	spéʔəθ	<i>bear</i>
	d.	[ə v̆]	SḲELÁW,	sqəléwʔ	<i>beaver</i>
	e.	[ə̆ v]	ḞEKI	θə̆qi	<i>sockeye</i>
	f.	[ə̆ ə]	ḲELEḲ	qə̆ləḲ	<i>salmon eggs</i>

At first glance, stress appears to be unpredictable in SENĆOŦEN. In words with two full vowels, stress can fall on the penultimate or the final syllable. For words with a full vowel and schwa, stress can fall either on the full vowel or the schwa. Examples like those in (1) might suggest that the stress pattern of SENĆOŦEN is random. However, in section 2.1, I show that the default stress pattern in SENĆOŦEN is in fact predictable.

In this section, I present a formal analysis of stress in SENĆOŦEN disyllabic roots, focussing, in section 3.1.1, on disyllabic roots with two full vowels, in section 3.1.2, on disyllabic roots with a full vowel and a schwa, and in section 3.1.3, on disyllabic roots which surface with two schwas.

3.1 Disyllabic Roots with Two Full Vowels

Recall that the list of examples in (1) suggested that SENĆOŦEN stress is unpredictable. In this section, I examine disyllabic roots with two full vowels, showing that, despite initial appearances, the stress in these forms is in fact predictable. The default stress pattern of these kinds of roots suggests that syllables are parsed into left headed feet.

- (2) a STRESS ON THE PENULTIMATE SYLLABLE.
 SÇOTI sk^wáti *crazy*
 SKONĪ, sq^wáŋiʔ *head*
 JÁ,WI, č'éwíʔ *dish*
 KÁ,NĪ, q'éŋiʔ *girl*
- b STRESS ON THE FINAL SYLLABLE
 TI,TOS tíʔtás *bucking tide*
 SXĪ,ÁM, sǰ^wiʔém¹ *mythical story*

The data in (2a) illustrate that syllables are parsed into binary feet. These feet are stressed on the leftmost syllable and are thus trochaic at the syllabic level. This observation can be formalised by appealing to the following OT constraints :

- (3) FT-BIN σ Feet are binary at the syllabic level
 (4) HEAD L Feet are left headed at the syllabic level
 (5) PARSE σ Syllables are parsed by metrical feet

The constraints discussed so far do not need to be crucially ranked. This is because the optimal candidate does not violate any of the constraints.

(7) sk^wáti 'crazy'

sk ^w áti	HEAD L	FT -BIN σ	PARSE σ
☞ a. s(k ^w áti)			
b. s(k ^w atí)	*!		
c. sk ^w a(tí)		*!	*

In (7), candidate (a) wins because it does not violate any of the constraints. Candidate (b) loses because it violates HEAD L. Candidate (c) does not violate HEAD L; instead it loses because it violates FT-BIN σ .

The data in (2b), repeated here in (8), exhibit surface stress on the second syllable.

- (8) a. TI,TOS tíʔtás *bucking tide*
 b. SXĪ,ÁM, sǰ^wiʔém¹ *mythical story*

1 Interestingly, when there are two full vowel in a SENĆOŦEN disyllabic root one is always an /i/. I suggest that all unstressed [i]'s are unstressed [əy].

These forms have apparent iambic stress and thus present themselves as exceptions. However, notice that the first vowel in both is an [i] followed by [ʔ]. I suggest, following Shaw et al (1999), that the first syllable contains an underlying glottalised glide and that a schwa is inserted between the first consonant and this glide. The schwa takes on the features of the glide and the glottalisation is realised as glottal stop.

Only full vowels in SENĆOŦEN are considered to have weight, these segments have a mora underlyingly. Schwas, even if they take on the features of a glide, are not considered to have weight. Thus, in (11) stress is attracted to the only segment in the root that has weight. To formalise this observation, I appeal to three constraints, two used by (Kiyota 2003: 20-28), and one by Dyck (2004:91). To ensure that full vowels are stressed in the output, Kiyota (2003:25) uses the constraint Max- μ . This faithfulness constraint requires that moras present in the input should be present in the output. This constraint penalises full vowels that reduce when unstressed.

- (12) Max- μ A mora in the input is present in the output
(Kiyota 2003:25)

To capture the idea that schwas which take on the features of adjacent glides are weightless, I adopt Dep- μ , which prohibits mora in the output if not in the input.

- (13) Dep- μ A mora in the output should be present in the input
(Kiyota 2003:26)

Lastly, I use the constraint WSP'. Dyck (2004:91) uses this constraint to ensure that a vowel that has weight is stressed².

- (14) WSP' If weight then stressed (Dyck 2004:91)

These three constraints are ranked above FT BIN σ . It is more crucial that a vowel with weight be stressed than it is to have a well formed foot. Candidate (a) wins because it does not violate any of the higher ranking constraints. Candidate (b) loses because it violates MAX- μ , candidate (c) loses because it has an iambic foot thus violating HEAD L, and candidate (d) is ruled out because it does not stress the syllable with weight.

2 I use this rather than WSP (Prince 1990) because in some cases [əR] sequences pattern in the phonology as if they are equal in weight to a full V. /k^wnnax^w/ [k^wənnəx^w]

(15) tíʔ.tás 'bucking tide'

μ týtas	WSP'	MAX- μ	DEP- μ	HEAD L	FT-BIN σ	PARSE σ
μ a.tiʔ. (tás)					*	*
b.(tíʔ. tás)		*!				
μ c.(tíʔ. tás) ³				*!		
μ μ d.(tíʔ. tas)	*!		*			

3.2 Disyllabic Roots with Full Vowel and Schwa

In this section, I examine disyllabic roots containing a full vowel and a schwa. Schwa is overlooked in most cases of stress assignment in the sense that, if there is a schwa and full vowel in a root, stress will fall on the full vowel even if this results in a violation of the regular stress pattern. Along with Dyck (2004), Kager (1990), Kiyota (2003) and Shaw et al (1999), I suggest that these kinds of facts are best explained by assuming that full vowels have moraic structure, while schwas do not.

(16) REPRESENTATION OF FULL VOWEL AND SCHWA (Shaw et al 1999:5)

	a. full vowel	b. schwa	c. reduced schwa
Nucleus	Nuc	Nuc	Nuc
			+
Moraic weight	μ		μ
Root node	o		o
Features	[f]		[f]

Because schwa is weightless and a full vowel has weight, the current constraint ranking predicts that stress falls on a full vowel in preference to a schwa.⁴ This is true for all the examples except those in (17a_{ii}), below.

3 I assume that the candidate týtas is ruled out by a high ranking constraint that disallows three consonants word initially.

4 I also assume that schwas have no place features. It is because the schwa has no place features of its own that it is able to take on the place features of glides.

The examples in (17a) exhibit penultimate stress. Those in (17ai) have stress on a full vowel and those in (17aii) have stress on a schwa. Examples in (17b) have stress on a full vowel, but differ from (17a) because they stress the second syllable. (17b) show that stress is attracted to syllables with weight.

- (17) a STRESS ON THE PENULTIMATE SYLLABLE
- i SKÁLEX sqé†əǰ clam fork
 SPÁ,WEN, spéʔx^wəŋ? misty
 SNÁNET sŋénət mountain
- ii FEKI θəqi sockeye
 páwi? flounder (Montler 1991: 261)
- b STRESS ON THE FINAL SYLLABLE
- SKELÁW, sqələw beaver
 SENI, səní? Oregon berry
 EN,OX ʔənʔáǰ^w bring over

The winning candidate is (a); it is the only candidate that does not violate any of the constraints. MAX-μ ensures that candidate (b) is disqualified. The need for feet to be binary eliminates candidate (c) from the competition. Candidate (d) loses because a syllable with weight is unstressed.

(18) sqé†əǰ 'clam fork'

μ sqé†əǰ ^s	WSP'	MAX-μ	DEP-μ	HEAD L	FT-BIN σ	PARSE σ
μ ☞ a. s(qé. †əǰ)						
b. s(qə. †əǰ)		*!		*		
μ c. s(qé). †əǰ					*!	*
μ d. s(qe. †əǰ)	*!			*		

At first glance the data in (17aii) look as though they are exceptions to

5 I have included schwa in the input and assume that there is a high ranking constraint which disallows these kinds of clusters. [ə] is not underlying in this example.

the current analysis. They conform to HEAD L, but appear to stress a schwa over a full vowel. However, as discussed above, the final syllable in these examples actually consists of a schwa followed by a glide. The two surface syllables are both equally weightless. Syllables of equal weight always have stress on the leftmost syllable of a binary foot. In (19), candidate (b) is disqualified for violating DEP- μ , and candidate (c) is out because it violates HEAD L.

(19) θάγι 'sockeye'

θάγι	WSP'	MAX- μ	DEP- μ	HEAD L	FT-BIN σ	PARSE σ
☞ a. (θά. γί)						
μ b. θά. (γί)			*!			
c. (θά. γί)				*!		

(17b) show that if there is only one underlying full vowel in the root, it will attract stress. Stressing a syllable with weight is more important than having well formed foot structure. Candidate (a) wins even though this candidate does not have a left-headed binary foot. Candidate (b) is ruled out because it violates MAX- μ and candidate (c) is excluded because it violates HEAD L. Candidate (d) loses because it fails to reduce an unstressed full vowel.

(20) sqə.léw̃ 'beaver'

μ sqəlew̃ ⁶	WSP'	MAX- μ	DEP- μ	HEAD L	FT-BIN σ	PARSE σ
μ ☞ a. sqə. (léw̃)					*	*
b. (sqə. lew̃)		*!				
μ c. (sqə. léw)				*!		
μ d. (sqə. lew̃)	*!					

6 Again, schwa is included in the input for space considerations and also because the cluster constraints need to be worked out. Schwa is not underlying in these examples.

3.3 Disyllabic Roots with Two Schwas

Disyllabic roots with two schwas always stress the penultimate syllable. This is expected because these kinds of roots have syllables which are equally weightless. Feet with syllables that are equal in regards to weight are always left-headed.

- (21) STRESS ON THE PENULTIMATE SYLLABLE
- | | | |
|-------|--------------------|--------------------|
| TENEW | təŋəx ^w | <i>earth</i> |
| KELEX | qələx | <i>salmon eggs</i> |
| LELEJ | lələč ^ʔ | <i>yellow</i> |

The data in (21) are formalised in (22). Candidate (a) is optimal because it does not violate any of the constraints. Candidate (a) is the optimal candidate because it conforms to HEAD L.

(22) lələč^ʔ 'yellow'

lələč ^ʔ	WSP'	MAX-μ	DEP-μ	HEAD L	FT-BIN σ	PARSE σ
☞ a. (lə. ləč ^ʔ)						
b. (lə. ləč ^ʔ)				*!		

4. Stress in Polymorphemic forms

In this section, I present a few examples of polymorphemic SENĆOŦEN words which involve lexical suffixation. I do this to illustrate how the analysis in the previous section can be extended to predict forms with added morphology. For a more in depth study please see Leonard (in prep).

4.1 Lexical Suffixes

According to Montler (1986:64), "Lexical Suffixes are derivational morphemes with substantive root-like meanings". These morphemes always occur bound to a root. SENĆOŦEN also has free forms with meanings similar to those of some of these lexical suffixes, but these words often do not resemble the lexical suffixes in form.

- (1) a. MÁ,ŦEŁ LÁ,E TFE SKOŦI,
 méʔk^wət ləʔə t^ʔə sɔ́^waqi?
 hurt PART DET head
 'hurt on the head'

- b. $t^{\text{h}}\text{ək}^w=\text{iq}^w\text{-əŋ}$
 wash=LS(HEAD)-CML-[ACT]⁷
 'She's cleaning her hair.' (Montler 1986:85)

Montler (1986: 23) claims that the stress assignment of words which include lexical suffixes is a highly complicated matter, and that it is necessary to distinguish classes of morphemes based on how they participate in stress assignment. He says that roots and suffixes compete for primary stress when concatenated in a word and the stronger of the two wins out. Montler (1986: 23) recognises three types of roots: strong, weak, and vowelless. He also recognises four types of suffixes, strong, ambivalent, weak and vowelless.

- (3) MORPHOLOGICAL STRESS HIERARCHY FOR SAANICH (Montler, 1986:23)
 StgSfx >> StgRt >> AmbSfx >> WkRt >> WkSfx >> VIRt >> UnstrSfx⁸

Kiyota (2003:7) in his paper examining the plural in SENĆOŦEN, agrees with Montler (1986: 23) that stress is morphologically complex in SENĆOŦEN. However, I argue that it is the phonological properties of roots and suffixes which determines stress assignment.

4.1 Monosyllabic lexical suffixes

When full vowel monosyllabic lexical suffixes concatenate with a root that has a full vowel, the root is stressed. This is predicted by the analysis in this paper. The two syllables are of equal weight and thus can be parsed into a binary foot which is left headed.

- (5) a. $\text{W}\underline{\text{T}}\underline{\text{E}}\underline{\text{K}}\underline{\text{T}}\text{NEĆ}$ $x^w\text{-}\acute{\text{x}}\acute{\text{q}}\text{t}=\text{n}\acute{\text{e}}\text{č}^{\text{h}}$ / $x^w\text{-}\sqrt{\acute{\text{x}}\acute{\text{e}}\text{q}}\text{t}=\text{n}\acute{\text{e}}\text{č}/$
 LOC-long=LS(TAIL)
 'Cougar'
- b. $\text{W}\underline{\text{N}}\underline{\text{Á}}\underline{\text{J}}\underline{\text{E}}\text{S}$ $x^w\text{-}\text{n}\acute{\text{e}}\text{č}^{\text{h}}=\text{ə}\text{s}$ / $x^w\text{-}\sqrt{\text{n}\acute{\text{e}}\text{č}^{\text{h}}}\text{=}\text{ə}\text{s}/$
 LOC-different=LS(FACE)
 'He looks different'

⁷ CML=CONTROL MIDDLE; LS=LEXICAL SUFFIX; CONN=CONNECTOR; CTR=CONTROL TRANSITIVE; ACT=ACTUAL; INSTR=INSTRUMENTAL; 1SUBJ=1ST PERSON SUBJECT; 1OBJ=1ST PERSON OBJECT; PART=PARTICLE;

⁸ Stg=strong, Amb=ambivalent, Wk=weak, Vl=vowelless, Unstr=unstressed, Sfx=suffix and Rt=root

⁹ After careful review of the recording of this word, it is clear that the first vowel sounds like a schwa: however, it is stressed. This segment may in fact be a slightly lowered /e/. This lowering may be caused by the adjacent uvular segment. I assume that this segment has retained its mora.

the stress in these forms could be predicted with the analysis used to predict SENĆOŦEN roots. For a more involved analysis of these kinds of forms, I refer the reader to Leonard (in prep). In this paper, I have suggested that stress in SENĆOŦEN is phonologically predictable. In order to see if stress is predictable in the language overall; it is necessary to investigate more complex forms. Kiyota (2003) has shown that stress is predictable for the SENĆOŦEN plural and Leonard (in prep) and this paper have illustrated that stress is predictable in many words which contain lexical suffixes. The next stage in the investigation into SENĆOŦEN stress should include the transitivity paradigm and actual morphology (reduplication, infixation and stress shift metathesis).

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Dave Elliott with Phonetic Equivalent

<i>DEA</i> ¹⁰	<i>APA</i>	<i>IPA</i>	<i>DEA</i>	<i>APA</i>	<i>IPA</i>	<i>DEA</i>	<i>APA</i>	<i>IPA</i>
A	ɛ	ɛ	K	q̇	q'	Q	k̇ ^w	k ^w '
Ǻ	ey	ej	Ɔ	q̇ ^w	qw'	S	s	s
Á	e	e	Ɔ	q	q	Ś	š	ʃ
B	ṗ	p'	Ɔ	q ^w	q ^w	T	t	t
C	k	k	L	l	l	Ɔ	ʔ	tʃ'
Ć	č	tʃ	Ł	ɮ	ɮ	F	θ	θ
Ø	k ^w	k ^w	M	m	m	Ɔ	t ^h ~č	tθ'~ts'
D	ṫ	t'	N	n	n	U	u~əw	u~əw
E	ə	ə	Ń	ɲ	ɲ	W	w	w
H	h	h	O	a	a	Ɔ	x ^w	x ^w
I	i	i	P	p	p	X	χ	χ
Í	əy~ay	əj~aj				Ɔ	χ ^w	χ ^w
J	č'	tʃ'				Y	y	j
						Z	z	z

10 DEA=Dave Elliott Alphabet, APA=Americanist Phonetic Alphabet IPA = International Phonetic Alphabet