Shuswap Diminutive Reduplication

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1 Introduction

In the language Shuswap (also known as Secwepemc), an Interior Salish language spoken in British Columbia, diminutives are marked by the reduplication of a single consonant (Kuipers 1974). Such patterns of reduplication have been called bare-consonant reduplication (Sloan 1988, Hendricks 1999). Representative data are given below, where the reduplicated consonant appears in underlined boldface:

(1) Diminutive Reduplication

(a)	s-qéxe	'dog'
	s-qé-**q**-xe	'little dog'
(b)	péseλk^{o}e	'lake'
	pé-**p**-seλk^{o}e	'little lake, pond'
(c)	cq'-éλp	'fir tree'
	cq'-é-**q**-λp	'little fir tree'
(d)	ɬq^{o}-éws	'both'
	ɬq^{o}-é-**q**^{o}-ws	'companion'

This type of reduplication also applies to some cases of first-person marking, as shown in (2):

(2) First-Person Reduplication

(a)	kəpqín	'her head aches'
	kəpqí-**q**-n-kn	'my head aches'
(b)	kícx	'arrive'
	kí-**k**-cx-kn	'I arrive'
(c)	cítx^{o}	'house'
	ɣ-n-cí-**c**-tx^{o}	'my house'
(d)	txíẃpm	'trim horse's tail'
	txí-**x**-ẃpm	

There are a number of generalizations that can be made regarding this data. These generalizations are given in (3):

(3) Generalizations

(a) The reduplicant is infixed after the stressed vowel.
(b) The reduplicant matches the consonant before the stressed vowel.
(c) The reduplicant is a single consonant. Sometimes this single consonant surfaces as a coda, sometimes as an onset (*sqéq.xe*, but *fq°é.q°ws*)

The following sections provide an analysis which accounts for the generalizations in (3).

2 Analysis of Shuswap Reduplication

2.1. Placement of the reduplicant

The first generalization that I account for is that given in (3)(a). Since the reduplicant is an infix, the reduplicant is placed within the root. More specifically, the reduplicant is placed within the root to the right of the stressed vowel of the root, regardless of the location of the stressed vowel. I follow McCarthy & Prince (1993b) in proposing that this placement can be accounted for by constraints defined under Generalized Alignment. I propose, therefore, that the placement of the reduplicant is determined by the following constraint:

(4) ALIGN-RED-V́ (Based on McCarthy & Prince 1993b)

Align (RED, L, V́, R)
Align the left edge of the reduplicant with the right edge of the stressed vowel.[1]

This constraint ensures that the reduplicant will be placed to the right of the stressed vowel. The following tableau illustrates this interaction:

[1] Bird (to appear) presents a similar constraint for reduplication in Stl'atl'imcets, another Salish language, but defines the alignment in terms of the stressed mora, not the vowel. In this paper, the distinction is not crucial.

(5) Infixation:

/RED, péseλk°e/	ALIGN-RED- v́
☞ a. pé-**p**-seλk°e	
b. p-**p**-éseλk°e	é!
c. **p**-péseλk°e	pé

In the above tableau, candidate (a) is chosen, as it satisfies ALIGN-RED- v́. Candidates (b) and (c) show that attempts to place the reduplicant elsewhere incur violations of ALIGN-RED- v́. Therefore, the placement of the reduplicant is accounted for by the constraint presented above.

2.2. Edge-matching of the reduplicant

The next condition on the reduplicant that I examine is the correspondence between the root and the reduplicant. The generalization is that the reduplicant matches the consonant directly preceding the vowel. This aspect of reduplicant identity falls under the category of the ANCHOR schema (McCarthy & Prince 1995), defined below:

(6) {RIGHT, LEFT}-ANCHOR(S_1, S_2)

Any element at the designated periphery of S_1 has a correspondent at the designated periphery of S_2.

This constraint is satisfied when in a particular correspondence relation, any element at one edge of one string in the relation has a corresponding element at that same edge of the other string in the relation. In order to use such a constraint, it is necessary to determine the unit to which the reduplicant corresponds for such constraints. Under the Correspondence model, shown below, the reduplicant may either correspond to the input stem, or to the base:

(7) Modeled after McCarthy & Prince (1995)

Input: /AfRED + Stem/
I-R Faithfulness *I-O Faithfulness*
Output: R ⇆ B
B-R Identity

Clearly, it is not the input root that serves as the corresponding unit, since the reduplicant does not consistently surface as a copy of either the initial segment or the final segment of the input root. For example,

(8) Root Edge-Matching

(a) s-[qé-**g**-xe]$_{Root}$
(b) [pé-**p**-seλk^{o}e]$_{Root}$
(c) [kí-**k**-cx]$_{Root}$-kn
(d) γ-n-[cí-**c**-tx^{o}]$_{Root}$

but

(e) [cq']$_{Root}$-é-**g**-λp

As shown in (8), the reduplicant in (a)-(d) surfaces as a copy of initial consonant of the input root, but in (e), the reduplicant surfaces as a copy of the final consonant of the input root. Therefore, the reduplicant does not correspond to the input root.

Does the reduplicant correspond to the input stem? McCarthy & Prince (1995) define the stem as a "morphologically-defined input construct". It is not clear from this definition what constitutes a stem, but clearly, the stem is somehow defined over the input. As discussed in Urbanczyk (1996) and Bird & Hendricks (in prep.), the reduplicant in Salish languages such as Lushootseed, Stl'atl'imcets and Shuswap must correspond to a unit that is defined at the output level, not the input. The main reason for this is that the reduplicant matches the consonant that precedes the stressed vowel. Stress is predictable in Shuswap, and therefore, not marked in the input. By virtue of these facts, the reduplicant does not correspond to the input stem, regardless of the definition of stem.

Therefore, the first parameter of ANCHOR is not part of the input, which leaves the possibility of the output base. If it is then the base, then it remains to define the base. Obviously, the base cannot be the root, for the same reasons as above. As discussed in previous chapters, there have been two different ways of defining the base in the literature. One definition is that the base is the "output of the input stem." However, since the base must be defined at the output level, there cannot be an input stem that corresponds with the base. Therefore, I will not consider this definition. Another definition of the base is the following:

(9) Base-Affixation Adjacency (after McCarthy & Prince (1993a))

"In any output candidate, the Base comprises the *morphologically-specified* phonological material that immediately precedes [or follows] the exponent of the...morpheme."

As discussed in Urbanczyk (1996) and Bird & Hendricks (in prep.), this definition can determine one edge of the base.

Since the reduplicant always follows the stressed vowel, then the right edge of the base is the stressed vowel, as shown below:

(10) Right Edge of the Base

(a) s-qé]-**q**-xe
(b) pé]-**p**-seλk^{o}e
(c) kí]-**k**-cx-kn
(d) γ-n-cí]-**c**-tx^{o}$_{Root}$
(e) cq'-é]-**q**-λp

As the diagrams in (10) show, the right edge of the base is at the stressed vowel. As for the other edge of the base, it is clear that the left edge of the base must be the consonant preceding the stressed vowel. Therefore, the domain that delimits the base begins at the consonant preceding the stressed vowel, and ends at the stressed vowel.

Another possible base for reduplication is then the stressed syllable. Taking this definition of the base into consideration[2], then the appropriate constraint would be LEFT-ANCHOR$_{BR}$. The following tableau illustrates this (I assume that the reduplicant is only a single segment):

(11) Anchoring to the Stressed Syllable

/RED, péseλk^{o}e/	LEFT-ANCHOR$_{BR}$	ALIGN-RED-σ́
☞ a. [pé]$_{BR}$[**p**]seλk^{o}e		
b. [pé]$_{BR}$[**k^{o}**]seλk^{o}e	*!	

As tableau (11) shows, the reduplicant must be anchored to a base, which is defined as the stressed syllable.

However, the data in (a), (d), and (e) show that the reduplicant does not seem to anchor to the leftmost onset of the stressed syllable, although it does anchor to the onset of the stressed syllable closest to the mora. The following tableau illustrates:

(12) Exception to Leftward Anchoring

/RED, sqéxe /	LEFT-ANCHOR$_{BR}$	ALIGN-RED-σ́
☞ a. [sqé]$_{BR}$[**q**]xe	*!	
☹ b.[sqé]$_{BR}$[**s**]xe		

In tableau (12), candidate (b) is incorrectly chosen as optimal, as it satisfies LEFT-ANCHOR$_{BR}$, while the correct surface form (a) is eliminated by that constraint.

[2] For further discussion of how bases for affixation are defined in OT, see Urbanczyk (1996) and Bird & Hendricks (in prep.)

The selection of (12)(b) over (12)(a) assumes that the stressed syllable that forms the base for reduplication is actually the sequence [sqé]. As discussed, though, the reduplicant is always the consonant directly preceding the stressed vowel. If it is possible to characterize the CV sequence as a single prosodic unit, then it is possible to characterize the base for reduplication as that unit, avoiding the anchoring problems shown in (12).

I propose that this is possible, based upon work by Bagemihl (1991)[3]. In Bagemihl (1991), peripheral consonants in an apparent consonant cluster are often not part of the same prosodic unit as the nucleus, but are moraically licensed segments of their own. This move allows one to isolate the nucleus and an immediately preceding consonant as a single prosodic unit, namely a syllable. The structure of this is shown below:

(13) Moraically Licensed Peripheral Consonants (following Bagemihl (1991))

In a structure such as that in (13), only the consonant immediately preceding the nucleus is parsed as the onset of the syllable.

This type of structure is proposed based on proposals made by Bagemihl (1991), in which such onsets are proposed for Bella Coola, another Salishan language. The data that form the basis of his proposal are illustrated by the following examples:

(14) Bella Coola (Bagemihl 1991)

p'ɬa–	p'**ɬa**ɬa–	'wink, bat the eyes/contin.'
tq̓nk –	t**q̓n**q̓nk –	'be under/underwear'
st'q^{w}lus	st**q^{w}l**q^{w}lus–i	'black bear snare'

As shown in (14), this reduplicative pattern is characterized by the copy of a vowel and the immediately preceding consonant. This pattern is very similar to the pattern in Shuswap, although in Bella Coola, two segments are reduplicated. If the peripheral consonants in the Bella Coola forms are not parsed as part of the same syllable as the nucleus and immediately preceding consonant, then the reduplicant can anchor to the syllable.

[3] Shaw (1993) also proposes that the CV structure of a syllable with an onset consonant cluster is prosodically independent from other consonants of an onset cluster.

Due to the similarity in the pattern, and the genetic relationship between Shuswap and Bella Coola, I propose a similar characterization of the base in Shuswap. This allows the constraint LEFT-ANCHOR$_{BR}$ to be satisfied in cases like *sqéqxe*, as shown in the following tableau:

(15) Anchoring to the Stressed Syllable Revisited

/RED, sqéxe /	LEFT-ANCHOR$_{BR}$	ALIGN-RED-$\acute{v}$
☞ a. s.[qé]$_{BR}$[**q**].xe		
b. s.[qé]$_{BR}$[**s**].xe	*!	

As shown in (15), if the peripheral consonant is not parsed as part of the stressed syllable, then the reduplicant satisfies LEFT-ANCHOR$_{BR}$, while candidate (b) is eliminated by that constraint.

Therefore, the identity of the reduplicant is accounted for by the use of the ANCHOR schema evaluated over base-reduplicant correspondence. This base-reduplicant correspondence requires that the base be delineated as the stressed syllable. Also, this characterization of the stressed syllable relies upon extraprosodicity of peripheral consonants. In the next section, I account for the shape of the reduplicant, which is a single C. After all, the constraints proposed so far do not select between ***sqéqxe*** and ****sqéqexe***.

2.2.1. Shape of the reduplicant

The third generalization regarding the reduplicant is the requirement that it be of the shape C, a single consonant. The shape of reduplicants in reduplicative theory has been accounted for by the application of a template constraint, such as that defined below:

(16) Template constraints (McCarthy & Prince 1993a):

Mcat = PCat

where Mcat ≡ Morphological Category ≡ Prefix, Suffix, RED, Root, Stem, LexWd, etc.

and PCat ≡ Prosodic Category ≡ Mora, Syllable (type), Foot (type), PrWd (type), etc.

Such constraints require that a morphological category such as RED must be mapped directly to a prosodic unit; no more, no less.

In this paper, the shape of the reduplicant will be accounted for without the use of a template constraint. In the case of Shuswap diminutive reduplication, the reduplicant is a single consonant which is either an onset or a coda, as

discussed above. Therefore, the reduplicant does not surface in a consistent structural role, and sometimes as an onset, which is not a canonical prosodic unit.[4]

The following tableau illustrates the evaluation of *sqéqxe* without restrictions upon the shape of the reduplicant:

(17) Shape of the Reduplicant I

/RED, sqéxe /	LEFT-ANCHOR$_{BR}$	ALIGN-RED-$\acute{v}$
☞ a. s.[qé]$_{BR}$[**q**].xe		
❽ b. s.[qé]$_{BR}$[**qe**].xe		

As tableau (17) shows, both candidates are chosen as viable candidates. In candidate (a), the reduplicant surfaces as a single consonant of the base, which is the correct surface form. However, candidate (b) surfaces as a full copy of the base, which satisfies the constraint ranking equally with (a).

In Hendricks (1999), it is proposed that the size of a reduplicant surfaces minimally in order to allow root alignment or alignment of other affixes to be maximally satisfied (this is referred to as the compression model). In this case, the reduplicant does not surface between morphemes, but inside either a root, as in *s-qé-**q**-xe*, or inside another affix, as in *cq'-é-**q**-λp*. Therefore, the minimal size of the reduplicant cannot be driven by the maximization of the alignment constraints of other morphemes.

However, the reduplicant can be seen as interrupting the root. In McCarthy & Prince (1995), a constraint is proposed which is violated by such interrupting material. This constraint is O-CONTIG, defined below:

(18) O-CONTIG (adapted from McCarthy & Prince 1995)

> The portion of the output standing in correspondence forms a contiguous substring.

This constraint requires that material not be placed within a morpheme, as such intrusive material disrupts the contiguity of an output string.[5]

One may say that the bare-C reduplicant minimally violates O-CONTIG, while any further reduplication would serve to incur further violations of the contiguity of an output string corresponding to an input string. Thus, the limitation of the reduplicant to a single consonant is driven by the need to minimally violate contiguity. The following tableau illustrates the contiguity

[4] This move is consistent with current work in prosodic morphology in OT (Hendricks 1999; Walker 1999; McCarthy & Prince 1997, Carlson 1997; Spaelti 1997), in which the shape of the reduplicant is determined by alignment, faithfulness, and markedness constraints.

[5] A similar analysis is proposed by Coelho (1999) for Thompson River Salish, using output-output correspondence.

analysis:

(19) Contiguity and Shape

/RED, sqéxe /	LEFT-ANCHOR$_{BR}$	ALIGN-RED-ṷ	O-CONTIG
☞ a. s.[qé]$_{BR}$[**q**].xe			q
b. s.[qé]$_{BR}$[**qe**].xe			qe!
c. s.$_{R}$[**qé**].[qe]$_{B}$.xe		*	
❽ d. s.[qé]$_{B}$.xe			

In the above tableau, candidate (d) is incorrectly chosen as optimal, as it vacuously satisfies all relevant constraints, as there is no reduplicant at all. In order to ensure that the reduplicant surfaces with some material, there must be a constraint that requires that all morphemes in the input be represented with distinct material in the output. Several constraints of this type have been proposed in the literature (EXPONENCE (Hendricks 1999); REALIZE MORPHEME (Gnanadesikan); MORPHDIS (McCarthy & Prince 1993)).

In this analysis, I represent such concerns with the constraint EXPONENCE, defined below.

(20) EXPONENCE
An input morpheme corresponds to some structure in the output.

The following tableau illustrates:

(21) Contiguity and Shape II

/RED, sqéxe /	EXPONENCE	LEFT-ANCHOR$_{BR}$	ALIGN-RED-ṷ	O-CONTIG
☞ a. s.[qé]$_{BR}$[**q**].xe				q
b. s.[qé]$_{BR}$[**qe**].xe				qe!
c. s.$_{R}$[**qé**].[qe]$_{B}$.xe			*	
d. s.[qé]$_{B}$.xe	*!			

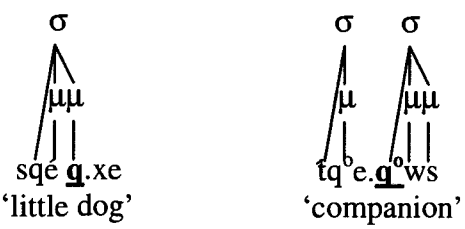
In tableau (21), candidate (a) is chosen, even though it violates O-CONTIG, as the reduplicant must be minimally represented. Candidate (c) shows that an attempt to satisfy O-CONTIG by prefixing the reduplicant violates higher-ranked constraints. Candidate (b) shows that if more of the base is copied into the reduplicant, then fatal violations of O-CONTIG are incurred. Candidate (d), the null candidate, is eliminated by EXPONENCE, as the input morpheme RED does not have a surface exponent.

2.2.2. *Shuswap Bare-Consonant Reduplication: Summary*

In this paper, I have provided an account of the bare-consonant reduplicant in Shuswap. The placement of the reduplicant is based upon alignment with a stressed syllable. The identity of the reduplicant is based upon anchoring to the stressed syllable and extraprosodicity of peripheral consonants. The shape of the reduplicant is minimally a consonant, in order to maximally satisfy both exponence and O-CONTIG. Shuswap reduplication is accounted for without the use of a prosodic template constraint.

This non-templatic account is advantageous, as it avoids the problems with the non-uniform prosody of the reduplicant. In some cases, the reduplicant is the coda of the stressed syllable, and sometimes the reduplicant surfaces as the onset of the following syllable. The following figures illustrate:

(22) Structural Role of the Reduplicant



A single prosodic template cannot capture this phenomenon.

When the reduplicant surfaces as a coda, it fits the category of mora, which is a prosodic unit. Therefore a constraint such as RED=Mora would be satisfied by the reduplicant. However, when the reduplicant surfaces as an onset, the reduplicant is not in a moraic position, and does not satisfy RED=Mora. In fact, as an onset, the reduplicant is not a prosodic unit at all. The analysis presented in this paper accounts for the shape of the Shuswap reduplicant by contiguity, rendering the prosodic categorization of the reduplicant irrelevant.

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