MODELING OUT-OF-CONTROL REDUPLICATION IN SPOKANE[1]

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0. Introduction. A number of recent treatments have considered phonological, semantic, grammatical, and historical aspects of out-of-control reduplication in Spokane and other Salish languages. These include Carlson and Thompson (1982), Kroeber (1988), Mattina (1989), Van Eijk (1989), and Carlson (1989). This morpheme copies the vowel and the second consonant of typical Spokane CVC roots, attaching the copy directly after C_2. Stress and vowel deletion rules create surface variants as illustrated in the following pair of forms. (1) shows stress on the root and out-of-control as $-C_2$; (2) shows stress on the affix with out-of-control as $-\acute{V}C_2$. Out-of-control affixes are underlined.

(1) hék^{w}k^{w} 'It came open a crack without my knowing it.'
(hek^{w} 'opened a crack')

(2) qćíć 'It got tangled up [as a thread might do as you are sewing]
(qić 'braided; woven')

This paper will pursue a description of out-of-control (henceforth OC) reduplication using constructs from nonlinear phonology and prosodic morphology (see esp. McCarthy and Prince (1986)). This is necessary (1) to fit OC reduplication into the Spokane stress system and (2) to account for the surface variants of OC reduplication that occur with root shapes other than canonical CVC.

1. Stress-Overview. Spokane stress has a morphological base with the following characteristics: Primary stress assignment is on either a root or a suffix; prefixes are unstressed.[2] There is no distinctive secondary stress. Certain suffixes are strong, always taking stress when they appear in a form. Roots are of two types, strong and weak.[3] Strong roots take stress unless a strong suffix is present. Weak roots lose stress to all stressable suffixes (those with an underlying vowel). Weak roots may be stressed when they occur without suffixes.

Spokane suffixes are either grammatical or lexical. The latter, numbering about 100, are root-like in meaning and trace historically to free forms (Carlson, to appear). There are a small number of strong suffixes in both categories. The remaining are variable; stressed with weak roots and unstressed with strong roots. If a variable lexical suffix and a variable grammatical suffix are both present with a weak root, the lexical grammatical suffix will take the stress. Examples illustrating the core of this framework can be found in Carlson (1989) and Bates and Carlson

(1989a,b).

In current descriptions of Spokane, stress is described using the metrical grid, which is created from the properties of the morphemes in a word. Bates and Carlson (1989b) argue that all roots and strong suffixes have lexical accent (in the terminology of Halle and Vergnaud (1987), a line 1 grid mark). This accent produces prominences on top of the sequence of stress-bearing units, here vowels (line 0). The most prominent grid column carries the main word stress:

(3)

```
 x          line 1
 x    x     line 0
k"uł-nt-ex" --> Unstressed Vowel Deletion--> k"úłntx" 'You made it.'
make-TRANS-2S
```

The distinction between having and lacking lexical accent replaces and simplifies the stress hierarchy analysis of Carlson's earlier work. The strong/weak distinction in roots must be maintained in any analysis; here we simply designate the class of weak roots as such in the lexicon. Some sample lexical entries follow; a grid mark over a form indicates that it carries lexical accent.

(4)

x ćip	'pinch'	root
x ʔaǰil	'be a certain way'	root
x q^{w}um	'pile'	root, [weak]
x sut	reflexive	gram. suffix
ex^{w}	2 Sg. Subj.	gram. suffix
nt	transitive	gram. suffix
cin	'mouth; language'	lex. suffix
qin	'head; top'	lex. suffix
hec	progressive	prefix

Ignoring the effects of Unstressed Vowel Deletion and concentrating on the placement of word stress, the lexical entries above will render representations like the following, correctly deriving initial stress in this form with a strong root.

(5)

```
          x          line 1
          x   x   x  line 0
        ćip-cin-nt-en
```

As in other accent systems (e.g., Japanese), if a morpheme contains more than one vowel, the underlying representation of that morpheme includes a specification as to which of its vowels receives the accent. Compare the strong root ʔaǰíl 'be a certain way', with the strong suffix -éye? 'seems to be'. The lexical entry of the former is included above.

General phonological processes familiar from other languages operate

on the grid in Spokane. For example, a Clash Avoidance Rule gives prominence to the rightmost in a series of same-level grid columns; the same rule is found in English (cf. Bates (1988)).

(6)

```
                    x       Clash Avoidance
              x     x       line 1
              x     x       line 0
            ćip-nt-sut
```

The innovation of the analysis involves the behavior of weak roots. We claim in Bates and Carlson (1989a,b) that the accent associated to a weak root shifts to a following vowel, if one is present:[4]

(7) Weak Shift

```
x               x
x   x   -->     x
```

Condition: Shift from a vowel in a [weak] stem.

The following derivations illustrate the application of Weak Shift when there is a vowel to receive the shifted stress.

(8)

```
                            Weak Shift
          (x)   x           line 1 (gives (x))
           x    x           line 0
         q̓ʷum-nt-en
```

The rule of Weak Shift derives the difference in stress behavior between strong and weak roots, correctly predicting that the only time a weak root will surface with stress is when it is word-final:

(9)

```
                            Weak Shift non-applicable
              x             line 1
              x             line 0
         hec-q̓ʷum
```

The Weak Shift analysis is attractive because it eliminates the need for an underlying stress category 'variable suffix'; formerly 'variable' suffixes are now simply suffixes with no lexical accent which have received stress via Weak Shift. The analysis also accounts for data with multiple variable suffixes (a problem for Carlson (1989)), and maintains the generalization that stress is fundamentally a property of roots in Spokane (cf. Bates and Carlson (1989a) for argumentation).

This completes our overview of Spokane stress; although we will continue to informally employ the familiar terminology of Carlson's earlier work, the derivations given will be consistent with the analysis presented here. For example, we will often refer to a root which has lexical accent and does not occasion Weak Shift with its traditional name of 'strong root'.

2. Out-of-Control Reduplication and Stress

2.1. Infix as Suffix. (1) and (2) above show a strong ([s]) root hek̓ʷ [s] 'opened a crack' and a weak ([w]) root qić [w] 'braided; woven ' with OC reduplication. The strong root retains stress, the weak root loses

it to the OC affix. If OC reduplication is an affix (suffix) with no lexical accent, Weak Shift will account for (2) as below.

(10)

```
                            Weak Shift
      (x)       x           line 1
       x        x           line 0
      qić      -ić
```

However, a CVCC root shows that OC still copies the vowel and second consonant, appearing as an infix.

(11) ʔáććx̌ 'observe' (ʔaćx̌ [s] 'watch')

Following a treatment of internal reduplication in McCarthy and Prince (1986), OC can be analyzed as copying a prosodic constituent, the mora of the root. Therefore, OC reduplication involves suffixation of the VC_2 to the mora. Since only the melody of the mora (VC) is copied, right-to-left association of the suffix can never incorrectly link the final consonant of a CVCC root. After copying and association (shown with ....), (11) would have the following representation.

(12)

```
          ać
          ⋮⋮
      CVC-VC-C  -> stress and Unstressed Vowel Deletion -> ʔáććx̌
      |||   |
      ʔać   x̌
```

2.2. CVCC and Other Root Shapes. (11) ʔáććx̌ 'observe' shows a strong CVCC root with OC reduplication and stress assigned as in the following derivation.

(13)

```
            x           line 1
            x  x        line 0
          ʔać-ać-x̌
```

While there are some rough edges to be accounted for, it appears that weak CVCC roots regularly form OC as $C_1C_2C_2\sqrt{C_3C_3}$. Some examples follow.

(14) cllálx̌ʷx̌ʷ 'It suddenly bunched up.'
(calx̌ʷ [w] 'bunched')

(15) čnníṗṗ 'It suddenly got banded.'
(činṗ [w] 'banded')

(16) ʔammáx̌ʷx̌ʷ 'It got shaved by mistake.'[5]
(ʔamx̌ʷ [w] 'shave')

(17) mllílkʷkʷ 'It turned into solid lumps.'
(milkʷ [w] 'whole; solid' Compare míllqʷ 'It accidentally made itself round.'
milqʷ [s] 'round'.)

(18) čsʔoććíqq 'Someone turned somersaults."
(ʔocq(eʔ) [w] 'go out')

(19) ćiʔýéxʷxʷ 'He is sated."
(ćeýxʷ [w] 'lacking')

(20) čńńúx̆ʷx̆ʷ 'He found himself in a compromising, crowded, boring, embarrassing situation or became these accidentally.'
(čińx̆ʷ [w] 'crowding; pesty')

Weak CCVC roots also appear as $C_1C_2C_2\sqrt{C_3C_3}$ in OC.

(21) ṕrraḍḍ 'It got turned back by accident.'
(ṕraḍ [w] 'turned back; folded back')

(22) šlíčč 'It got turned by accident.'
(šlič [w] 'turn')

(23) ṕtíčč 'It got broken open by accident.'
(ṕtič [w] 'broken open')

(24) ćṕṕóx̆ʷx̆ʷ 'It got pierced by accident.'
(ćṕox̆ʷ [w] 'pierced')

As well, weak CVC√C roots appear as $C_1C_2C_2\sqrt{C_3C_3}$.

(25) čehehéx̆ʷx̆ʷ~čehhéx̆ʷx̆ʷ 'It suddenly became uncovered.'
(čehéx̆ʷ [w] 'uncovered; bare')

(26) ʔemmútt 'He sat by accident.'
(ʔemút [w] 'sit singular')

(27) ʔemmúkʷkʷ 'It got skinned by accident.'
(ʔemúkʷ [w] 'skinned')

(28) ʔewwétt 'He sneaked up on it by accident.'
(ʔewét [w] 'sneak up on')

It may be that all these weak roots have the underlying shape CVCVC (even though the quality of each vowel may not always be known as in examples 21-24). OC reduplication copies each mora (VC) creating two affixes with no lexical accent, as in (29) using the example from (14) where the root shape is now /calax̆ʷ/).[6] This root must have its first vowel specified as accented; this would explain its surface form calx̆ʷ.

(29)

```
      x                  line 1
      x  x  x    x       line 0
     cal-al-ax̆ʷ-ax̆ʷ
```

The question arises as to how Weak Shift applies to this form to derive the correct surface representation. Characteristic of OC with weak roots of this type is that the second root vowel is stressed, not the OC affixes. Weak Shift must apply more than once to this form; a single application would result in the illformed *clálx̆ʷx̆ʷ. Our solution to this problem rests on Weak Shift being a cyclic phonological rule; it therefore applies once on every cycle, where each cycle is occasioned by the affixation of a morpheme to a base. Weak Shift applies once in a form like (8) above, where the two affixes each induce a cycle, but on the first cycle, created by the affixation of -nt, the structural description of Weak Shift is not met, since there is no vowel for the stress to shift onto:

(30)

```
                          Cycle I
                          Weak Shift non-applicable
      x                   line 1
      x                   line 0
    ḳʷum-nt
                          Cycle II
                          Weak Shift
     (x)    x             line 1 (gives (x))
      x     x             line 0
    ḳʷum-nt-en
```

The affixation of a single OC affix creates a cycle and a vowel to receive the shifted stress, as shown in (10) above; the following derivation illustrates how the structural description of Weak Shift is met on both cycles created by the OC affixes in (29).

(31)

```
                          Cycle I
                          Weak Shift
    (x) x                 line 1
     x  x  x   x          line 0
    cal-al-ax̆ʷ-ax̆ʷ
                          Cycle II
                          Weak Shift
       (x) x              line 1
     x  x  x   x          line 0
    cal-al-ax̆ʷ-ax̆ʷ
```

This derivation creates the desired cllax̆ʷx̆ʷ. The same solution holds for the reduplicated forms in (15)-(20).

Weak Shift applies in the same manner in (21)-(28) above; the stress behavior of the reduplicated forms indicates that these roots also have lexically accented initial vowels. A sample derivation appears below. We use V to designate an underlying vowel the quality of which has not been determined.

(32)

```
                          Cycle I
                          Weak Shift
    (x) x                 line 1
     x  x  x  x           line 0
    pV- Vr-aḍ-aḍ
                          Cycle II
                          Weak Shift
       (x) x              line 1
     x  x  x  x           line 0
    pV -Vr aḍ-aḍ

    [prráḍḍ]
```

Recall that we motivated underlying initial accent in /calax̆/ by noting that when no affixes are present to receive the stress, stress falls on the initial vowel: cálx̆ʷ. The unaffixed form of /pVraḍ/, however, is práḍ. If the analysis in (32) is correct, then Weak Shift must have applied to práḍ, but not to cálx̆ʷ. At this point, we have no explanation for this difference in the behavior of the unaffixed forms in (14)-(20), which do not undergo Weak Shift, and those in (21)-(28), which do.

2.3. Longer Forms. Weak roots with OC reduplication will shift stress to following grammatical suffixes which have no lexical accent, as in the transitive form below.

(33) clix̌ʷntén 'I accidentally laid a bunch of round things down.'
(calax̌ʷ [w] 'bunched' -nt transitive -en 1 sg. Subj.)

The -en cycle triggers Weak Shift, which moves the stress off of the stem and onto the affix. The only mystery here is why the reduplicative cluster x̌ʷx̌ʷ is simplified. Although strings of identical consonants are typically simplified or dissimilated in Spokane nonreduplicative morphology, this is generally not true of reduplication, as is illustrated by the sequence ll in (33).

2.4. Other Patterns. A few forms exist showing OC copying the second mora of CVCC roots, as in (33).

(34) yérǩʷǩʷ 'It got bowed by accident.'
(yerǩʷ [s] 'bowed')

This root also appears in a completely unique form showing a lexical suffix mora reduplicated to signal OC. This would be a typical pattern in Shuswap, where OC targets the stressed syllable (Van Eijk 1989).

(35) nyiryirǩʷúsšń 'His legs became bowed under a strain.'
//n-CVC-yerǩʷ-usšń// in, at-PL-bowed-leg-OC

3. Conclusion. Treating Spokane reduplication as single or double mora copying seems to account for all the data currently available. An attempt has been made to check all noncanonical root shapes. Establishing bimoraic weak roots handles OC reduplication and stress shift examples (14)-(28), and these data have further motivated the process of Weak Shift.

Some linguists might question the use of moraic structure in the description of a language where stress is morphologically based and there are no syllable weight distinctions. However, the pattern of OC reduplication in Spokane suggests that this prosodic unit has relevance even when it is not used as a stress/timing unit (Auer 1989).

FOOTNOTES

[1]The fieldwork done to support this paper was done with the help of the Sherwood-Moses Trust. We would also like to thank Susan Fitzgerald and Susan Doyle for contributions to this analysis.

[2]In certain cases, stress may fall on a reduplicated prefix.

[3]A small number of roots are variable, regularly acting either strong or weak. All roots may have the potential to be variable (Carlson 1990).

[4]A note on the condition on the rule in (7): Weak Shift applies cyclically, successively moving stress to the right on each cycle. It will only move a stress off a vowel in a stem formed on a weak root, however. Stem-forming morphemes include the reduplications, the -nt suffix of (4), the 'inchoative' -p, the 'middle' -m and a few others. Bates and Carlson (1989a) argue that these affixes, which appear closer to the root than any others, form with it a significant morphophonological domain in the lexical phonology of Spokane. Once other suffixes are added after the stem-forming

suffixes, Weak Shift will only apply while it is moving stress off a vowel which is within the stem. Later affixation of accentless morphemes will not affect stress placement. For example, the first stressable suffix after the weak root ťap 'shoot' receives the stress:

ťap-nt-es -> ťapntés 'He shot him.'
shoot-TRANS-3S

But an additional grammatical suffix fails to move stress any further to the right; stress falls on the first vowel to the right of the weak stem vowel, not on the final affix:

ťap-nt-si-es -> ťapncís 'He shot you.'
shoot-TRANS-2obj-3S

[5]Adjacent laryngeals protect unstressed vowels from deletion.

[6]This mora copying analysis requires that the second consonant in a CVCVC root be syllabified with the first vowel and not form the onset to the second vowel.

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