PREDICTING STRESS IN COLUMBIAN SALISH[1]

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0.1 In a paper on lexical suffixes in Columbian Salish (henceforth Cm), Kinkade (1973) describes the stress patterns found in words containing compound suffixes. He divides morphemes into three stem-classes--strong, variable, and weak--and makes generalizations as to whether the root, or a suffix, will be stressed in any given combination of morphemes.

In this paper, I attempt to go one step beyond Kinkade's (1973) work to provide more general rules which would predict Cm stress-assignment.

0.2 All full words in Cm have only one primary stress, but a small number of words has secondary stress as well. The most common stress pattern is represented in (1). It suggests that Cm stress is assigned at the right edge of a word.[2]

(1) a. may'3ncút — 'confess'
/may'-n -t -cut/
tell-con-trans-refl

b. nq'i?q'ay'ú?s — 'two-point buck'
/n -q'y'-q'ay'-u?s/
loc- ? -mid

c. snq'3lapás — 'toothache'
/s -n -q'il-apas/
abs-loc-sick-tooth

d. tk3c'c'áp — 'a pole hung up along shore'
/t -kc'-c' -ap/
loc-horizontal-lower end

e. ncilkstqín — 'five tipis put together'
/ncilkst -qin/
five -head

f. ?ay'k^{w}ə́st — 'morning'
/?ay'k^{w}-ə́st/
? -day

On the basis of such data, I propose that (at least one) stress rule of Cm be formulated as follows (see Prince 1983):[3]

(2) Columbian Stress Rule (CSR)

Assign a grid-mark to the rightmost entry of a word.

In the following analysis, I assume that (2) is the basic stress-rule of Cm, and I try to apply this rule systematically to explain the various stress-patterns found in the data. What follows illustrates the consequences of making such an assumption.

I deal first with primary stress-assignment in words inflected for the transitive, since this is the most obviously regular set of words in Cm. Later, I deal with epenthesis, and left-hand stress-assignment, with words containing lexical suffixes, and with secondary stress. As will shortly be seen, the analysis is not without its problems.

1. Transitive Words

1.1 Stress patterns. The stress patterns found within the Cm transitive system vary with the transitivizers added to the intransitive stem.[4] In most cases the rightmost vowel receives stress. In forms containing the transitivizers -ɬ-t-, -n-t-, or -n-stu-, for example, stress is on the rightmost syllable:

(3) a. kʷə́'3m'ntwás — '3sg goes past 3sg'
/k -ʷə́'m' -n -t -wa -s/
loc-go past-con-trans-obv-3

b. l3mɬcít — 'lpl steal from 2sg'
/lm -ɬ -t -si -t/
steal-redir-trans-2sg-1pl

c. c3kstúnn — 'lsg throw 3sg'
/ck -n -stu -Ø -n/
throw-cont-cause-3sg-1sg

d. c3kstwás — '3sg throw 3sg'
/ck -n -stu -wa -s/
throw-con-caus-obv-3sg

When these transitivizers occur with certain roots, however, stress is assigned to the roots:

(4) a. ʔác'ɣntus '3sg looks at 3sg'
/ʔác'ɣ -n -t -wa-s/
look at-con-trans-obv-3

b. kʷáɬct '1pl carry 2sg'
/kʷán -ɬ -t -si -t/
take-redir-trans-2sg-1pl/

c. cḥaḥím'a?sn '1sg dislike 3sg'
/c -ḥ-ḥim? -n -stu -Ø -n/
impf-dislike-con-caus-3sg-1sg

d. cḥaḥím'a?stus '3sg dislike 3sg'
/c -ḥ-ḥim? -n -stu -wa -s/
impf-dislike-con-caus-obv-3sg

In forms containing the transitivizers -min- or -xit-, stress does not fall on the rightmost syllable in the word, but falls instead on the suffix -min- or -xit-:[5]

(5) a. y3rmíntus '3sg push 3sg'
/yr -min -t -wa -s/
push-rel-trans-obv-3sg

b. y3rmístus '3sg cause push 3sg'
/yr -min-stu -wa -s/
push-rel-caus-obv-3sg

c. q'iy'xítus '3sg write about 3sg'
/q'y' -xit -wa -s/
write-redir-obv-3sg

As in (4) above, certain roots attract stress away from the suffixes:

(6) a. cqána?mntus '3sg hear'3sg'
/cqán? -min-t -wa -s/
hear- rel-trans-obv-3sg

b. ?acwákʷcnmstus '3sg tell about 3sg'
/?ac -wákʷ-cin -min -stu-wa -s/
impf-hide-mouth-rel-caus-obv-3sg

c. káɬxtus '3sg give'3sg'
/káɬ -xit -wa -s/
give-redir-obv-3sg

Finally, there are two transitivizers, -nún- and -túɬ-, which are always stressed, even when they occur in words containing roots such as wákʷ- (see (7f)) which take stress in words with

-min- or -xit- (-nún- and -túɬ- do not co-occur):

(7) a. x3snúntus '3sg lose 3sg'
/xs -nún -t -wa -s/
lose-succ-trans-obv-3sg

b. cx3snúnstus '3sg cause lose 3sg'
/c -xs -nún -stu -wa-s/
impf-lose-succ-caus-obv-3sg

c. y3rmnúnn '1sg push 3sg'
/yr -min-nún -t -Ø -n/
push-rel-succ-trans-3sg-1sg

d. laxqʷnúnn '1sg get away 3sg'
/laxqʷ -nún -t -Ø -n/
get away-succ-trans-3sg-1sg

e. c3kmntúɬn '1sg throw 3sg'
/ck -min -túɬ -t -Ø -n/
throw-rel-redir-trans-3sg-1sg

f. wakʷtúɬtus '3sg hide 3sg'
/wákʷ-túɬ -t -wa -s/
hide-redir-trans-obv-3sg

Assuming that (2) is the basic stress-rule for Cm, one finds that the following questions arise: 1)why do certain roots attract stress? 2)why are -nún- and -túɬ- stressed in all words in which they occur? and 3) how do -min- and -xit- differ from -nún- and -túɬ- and from -stu-?

1.2 Lexical stress. In the introduction I noted that Kinkade classifies morphemes as strong, variable, and weak. Strong morphemes, according to Kinkade, are basically stressed. In other words, they seem to attract stress, preventing regular application of the stress-rule (2). There are no surface characteristics which differentiate these apparently strong morphemes from the other types of morphemes. For example, while all strong roots contain full vowels, this property does not distinguish them:

(8) a. may'3ncút 'confess' variable root
/may'-n -t -cut/
tell-con-trans-refl

b. nq'?q'ay'ú?s 'two-point buck' variable root
/n -q'?-q'ay'-u?s/
loc- ? -middle

c. xʷiyxʷáykst 'burned hands' variable root
/xʷy-xʷay-akst/
burn pl -hand

Similarly, the strong suffixes -xíx-,-núN-, and -tú4- (see Kinkade 1973) are not distinguished in any obvious way from non-strong suffixes such as -ank 'stomach', -akst 'hand, arm', -apas 'tooth', -ic'a? 'side'. If anything, the latter suffixes seem to be heavier than those which attract stress.

If strength is indeed an idiosyncratic property of some morphemes (and especially of some roots), then it must be something which has to be learned. One way to indicate morphemic strength is to specify within the lexicon that some morphemes are lexically marked for stress. Schematically, lexical stress can be represented by assigning two grid-marks to the lexical representation of a morpheme (all non-strong morphemes containing vowels have only one grid-mark):

(9) x x
wak^{w}- 'hide' x x
k^{w}an- 'take' x
(cf., may'- 'tell')

Prince's definition of the End Rule (as exemplified in (2)) specifies that the grid-marks (or stress) assigned to the rightmost (or leftmost) entry be assigned at the highest level of grid-marking (see Prince 1983). In practice, this means that a morpheme which is lexically stressed (i.e., having two levels of grid-marks) has a higher entry than a morpheme which is not lexically stressed. The stress-rule (2) therefore assigns a grid-mark to the lexically stressed entry, even if it is not at the right edge of the word. The application of the stress-rule is illustrated in (10). (10a) has no lexically stressed morphemes. Since all the grid-marks are on the same level, stress is assigned at the right. In (10b), the lexically stressed morpheme receives another grid-mark, and, therefore, primary stress.

(10) a. /ck-n-stu-wa-s/ (see (3d))
x x
CSR(2) x
c3kstwás

b. /c-ƀ-ƀim'?-n-stu-wa-s/ (see(4d))
x x x
CSR(2) x
cƀaƀím'a?stus

-núN- and -tú4- are always stressed because they too are lexically stressed morphemes. Whenever they occur in the same word with a lexically stressed root they are assigned primary stress because their grid-markings are at the same level as, and also to the right of, the markings on the root:

(11) a. /c-xs-nun-stu-wa-s/ (see(7b))
x x x x
CSR(2) x
cx3snúnstus

b. /wak^{w}-tu4-t-wa-s/ (see(7f))
x x x
CSR(2) x
wak^{w}tú4tus

Prince's definition of the End Rule thus predicts correctly that in a sequence of two (or more) lexically stressed morphemes, the rightmost will be stressed.

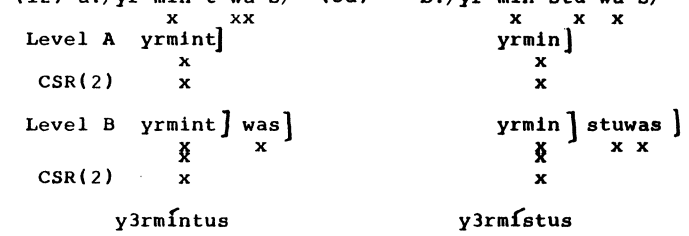
1.3 Levels. -min- and -xit- are not themselves lexically stressed,because, when occurring with lexically stressed roots, they do not receive primary stress (see (5)). In this sense they differ from -núN- and -tú4-. They are also unlike -stu- 'caus' and the object suffixes in that, in a word containing no lexically stressed morphemes, they take stress away from -stu- and the object-markers.

Cm is a language in which words obviously contain layers of derivation. Intransitive words, for example, serve as stems for transitive inflection; transitive stems are made intransitive by the addition of -cut 'reflexive'; and so on. This kind of layered word-formation can be represented by a level-ordered model of the lexicon in which morphological and phonological rules are

organized into discreet levels (see, for example, Kiparsky 1982, Halle and Mohanan 1985).

I suggest that the morphology and phonology of Cm are in fact ordered into levels. -min- and -xit-, along with other transitivizers, are ordered on an earlier level than -stu- and the object and subject morphemes. The stress-rule (2) is ordered on both levels. When -min- and -xit- are affixed on the appropriate level to an intransitive stem, their vowels end up being rightmost and are assigned stress. On the later level, when inflectional morphemes are added, -min- and -xit- have two grid-marks, and are therefore again stressed by the stress-rule applying then. (12) illustrates some derivations of words containing -min-. The two posited levels are tentatively called 'A' and 'B'.

(12) a./yr-min-t-wa-s/ (5a) b./yr-min-stu-wa-s/ (5b)

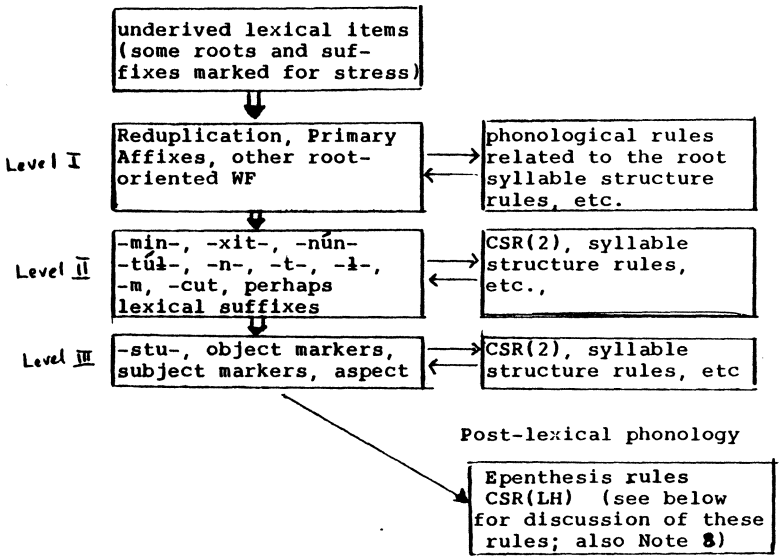


y3rmíntus y3rmístus

Since -stu- 'caus' follows the same pattern as the object morphemes, it is ordered on the later level.[6]

1.4 The model. In addition to the two phonological and morphological levels suggested above, Cm has an even earlier level--the root level--on which all root-oriented morphology and phonology take place. All three types of reduplication (C_1- 'diminutive', -C_2 'out of control', and $C_1V_1C_2$- 'distributive'; See Kinkade 1982a) are therefore ordered on this level, as are the primary affixes (-t 'characteristic', -p/-ʔ- 'inchoative', -ilx 'autonomous'). The stress-rule (2) does not apply on this level.[7] The proposed model of Cm is shown in (13):

(13) Morphology Phonology



It is beyond the scope of this paper to provide the phonological arguments for the model in (13). In addition, I have not included all the possible derivational morphemes of Cm in the levels. It is interesting to note that, although the ordering of the levels was initially motivated by stress, it does preserve both the syntax and the semantics of Cm morphology.

2. Epenthesis and Another Stress Rule

2.1 Epenthesis. There is a large group of words in Cm which have stress on the penultimate or antepenultimate syllable, and are therefore apparent counterexamples to the stress-rule. Some

of these words are found in (14). They are all intransitive forms, but their exact derivation is irrelevant at present:

(14) a. k -suw-p-íc'a? 'itchy body'
loc-itch-inch-body
b. k^{w}an-útiya? 'carry in hand'
take-around
c. s -n -x3r-áx̣3n 'shield'
abs-loc-cover-arm
d. s -n -k'3m -ík3n 'back'
abs-loc-surface of-back
e. cáka? 'older sister'
older sister
f. háw'iy-3m 'work,fix'
make -mid
g. cíq-3m 'dig'
dig-mid

In these forms, the vowels occurring to the right of the primary stress are [3] 's, or take their quality from the following consonant (e.g., [a] occurs before [ʔ], [i] before [y]). The presence of these vowels is entirely predictable, and can be stated in terms of rules of epenthesis and of feature-spreading.[8] The rules of epenthesis in Cm are rather late rules. If they are ordered after rules of stress, then the vowels cannot occur stressed in forms such as (14) because they are not present when stress is assigned. And, in fact, the underlying forms of (14) reveal that the stress-assignement is perfectly regular and as predicted by CSR(2):[9]

(15) a. /k-sw-p-ic'ʔ/
b. /k^{w}an-uty?/
c./s-n-xr-ax̣n/
d. /s-n-k'm-ikn/
e. /cak?/
f. /haw'y-m/
g. /ciq-m/

If epenthesis is ordered after stress-assignment, then it is possible to explain why certain morphemes are never stressed.

2.2 Left-hand stress. Words in which none of the morphemes contains underlying vowels do surface with primary stress. In these cases, as (16) shows, stress is assigned to the first (or leftmost) vowel:

(16)a. tk'ím3lqstx3n 'shin'
/t -k'm -lqst -xn/
loc-surface of-shin-leg
b. tíy'3lqs 'wheelbarrow'
/ty'-lqs/
ʔ -nose/point

Clearly, some stress-rule must be ordered after epenthesis has occurred, but this stress-rule cannot be (2) since (2) assigns stress to the right.

There are several other sets of data which show that Cm has a rule assigning left-hand stress. One set contains the $C_1V_1C_2$- reduplicated prefix. When $C_1V_1C_2$- 'distributive' prefixes occur in words containing lexical suffixes or transitive morphemes, stress is assigned to the rightmost vowel (following the regular stress-pattern):

(17) a. nt3m'taml'átk^{w} 'water bear'
/n -tm'taml'-atk^{w}/
loc- ʔ -water
b. stx̣uwx̣uwalásq't 'streaks in sky
/s -t -xw-xw-alasq't/ at night'
abs-loc- ʔ- ʔ
c. stq'iy'q'iy'á?st 'rock paintings'
/s -t -q'y'-q'y'-a?st/
abs-loc- write -stone

However, when $C_1V_1C_2$- reduplicated forms occur with no suffixes of any sort, stress is placed on the vowel of the reduplicated prefix:

(18) a. ʔasc'ílc'il 'trees'
/ʔas -c'l-c'l/
stat-stand tall
b. sc'úm'c'um' 'a boil'
/s -c'um'-c'um'/
abs- ʔ

c. nú$\dot{x}^w$-nu$\dot{x}^w$ 'wife'
/nu$\dot{x}^w$-nu$\dot{x}^w$/
wife

d. spáw'paw' 'lungs'
/s -paw'-paw'/
abs-breath

The second set of words consists of forms ending in primary affixes such as -t 'characteristic', or -ilx 'autonomous'. These have stress assigned on the leftmost non-prefix vowel (19a-d), unless they are followed by suffixes (19a'-c'):

(19) a. ɬáqlx 'he sat down'
/ɬaq-ilx/
sit-aut

b. kastk'íwlx3x^w 'he's going to climb'
/kas-t -k'iw-ilx-mix/
fut-loc-climb-aut-asp

c. q'á?q'a?t 'crowded'
/q'a?-q'a?-t/
crowd -char

d. ?acx^{w}á?'x^{w}aʔt 'alive'
/?ac x^{w}aʔ'x^{w}aʔ'-t/
stat-alive -char

a'. ɬqlxcnátk^w 'sit on river edge'
/ɬaq -ilx-cin -atk^w/
sit-aut-edge-water

b'. nk'3wlxánk 'climb bluff'
/n -k'iw-ilx-ank/
loc-climb-aut-belly

c'. snkixílxtn 'menstrual house'
/s -n -kix-ilx-tn/
abs-loc- ? -aut-instr

The forms in (18) and (19a-d) are all derived on Level I, the level on which stress-rule (2) does not apply. Since they contain no Level II or III affixes, they cannot have been assigned stress on those levels. Instead, they are fed directly into the component of the grammar on which the proposed second (left-hand) stress-rule applies, and they therefore receive stress by the same rule that applies to words formed on later levels, but which contain no underlying vowels. If the Level II or Level III affixes

are added onto Level I outputs, the resulting words receive stress as predicted by (2).

The second stress rule is formulated in (20b); rule (2) is reformulated in (20a):

(20) Columbian Stress Rule

a. CSR(RH) (Level II, Level II) (=(2))
Assign a grid-mark to the rightmost entry of the output of the WFR's on Level II or III.

b. CSR(LH) (Post-lexical)
Assign a grid-mark to the leftmost entry of the word.

Two points remain to be made. First, although I have suggested in (20) that CSR(LH) is post-lexical, there is no evidence that it must be post-lexical. The data only show that it and epenthesis are ordered after all Level III processes.

Second, prefixes in Cm do not receive primary stress. Yet in a form such as (18a), CSR(LH) would assign stress to the prefix vowel. It may be that all prefixes are extrametrical, and are therefore disregarded by the lefthand stress-rule. However, quite a number of $C_1V_1C_2$- reduplicated prefixes are actually stressed (see (18)), making them exceptions to extrametricality, which is itself an exceptional (somewhat ad hoc) mechanism requiring some kind of diacritic marking of the boundary between prefix(es) and root.

3. Lexical Suffixes

3.1 Root + lexical suffix. Words containing a root and a lexical suffix are stressed either on the root or on the suffix. The CSR(RH) would predict that the lexical suffix in such a form should always be stressed, except when the root is lexically stressed and the suffix is not. Certainly more than half of such forms seem to be stressed on the lexical suffix.

There may be some correlation, however, between the position

of stress in a word and its meaning. The examples in (21) and (22) show that a form stressed on the root can be more semantically cohesive, or lexicalized, than one stressed on the suffix. In the former stress pattern, the root meaning may modify the suffix meaning; in the latter the suffix may serve as an argument of the root, and have some thematic role such as locative, or theme (see Reichard 1939:§§ 651-698 for description of the stress-meaning correlation found in Coeur D'Alene):

(21) a. stúmkst 'thumb'
/s -tum -akst/
abs-mother-hand

b. ƛáƛ'ƛ'cn 'evening meal'
/ƛaƛ'-ƛ'- cin/
evening-food

c. stkʷúɬqn 'wig'
/s -t -kʷuɬ -qin/
abs-loc-borrow-hair

d. ʔackúss 'wrinkled face'
/ʔac-kus-us/
stat-wrinkle-face

e. naxʷúskʷ 'beer'
/na -xʷus -atkʷ/
loc-foam-water

(22) a. k'3c'xʷákst 'smash a finger' 10
/k'c'xʷ-akst/
? -hand/finger

b. x̌3lcínm 'ask for food'
/x̌lix-cin-m/
ask -food-mid

c. nc3kc3kqínn 'I hammered it'
/n -ck-ck-qin-n-t-Ø-n/
loc- hit -head-con-trans-3sg-1sg

d. mahahús 'sprain neck'
/mah-h-us/
sprain-head

e. nhampátkʷ 'fall into water'
/n -ham-p- atkʷ/
loc-fall-water

But there are counterexamples to this semantic generalization:

(23) a. spáwkst 'blister on hand'
/s -paw -akst/
abs- ? -hand

b. táwcn 'buy food'
/taw-cin/
buy-food

c. snp3qpíqs 'white of both eyes'
/s -n -pq-piq-us/ (cf. spqús 'white of
abs-loc-white-eye eye')

d. xʷík̓ʷc'aʔ 'scrape a rawhide'
/xʷik̓ʷ-ic'aʔ/
scrape-skin

e. nqátkʷ 'water stinks'
/nq-atkʷ/
stink?-water

More work needs to be done to determine the principles by which stress is assigned in intransitive forms containing lexical suffixes. At this point it seems that in general lexical suffixes are attached to a root at Level II, and are assigned stress regularly by the stress-rules. Perhaps in some cases when the root+lexical suffix is lexicalized, the suffix may be added on at Level I, the root level. If no further suffixes are added to such forms then they will be stressed by CSR(LH) (as in (21)).

3.2 Compound lexical suffixes. Compound lexical suffixes are almost always stressed on the final suffix:

(24) a. kɬmahahcnákst 'sprain wrist'
/kɬ-mah-h- cin-akst/
loc-sprain-edge-arm

b. np'iy'atkʷáɬ'qs 'wash clothes'
/n -p'y'-atkʷ-aɬ̓qs/
loc-squeeze-water-clothes

c. tx̌'3mɬc'aʔwíl 'side of canoe'
/t -k'3m- aɬc'ʔ-wil/
loc-surface of-side-canoe

The exceptions to this rule occur almost entirely in forms where the final suffix contains no underlying vowel; or in some forms (seemingly random) containing -ax̌n/-x̌n 'upper arm', -aya?/-ya? '?',

-qin/-qn 'head', -us/-s 'face,...':

(25) a. sk'3n'pq3núskst 'ring'
/s -k'an'-p-qin-us-akst/
abs-around?-top-head-finger

b. nl3q'^{w}áw'asq3n 'baldheaded'
/n -łq^{w} -aw'as-qin/
loc-bald?-middle-head

c. sc'am'áy'a?q3n 'skull'
/s -c'am' -ay'ʔ -qin/
abs- ? - ? -head

d. l3k'apúsx̌3n 'armband'
/lk'-ap -us -ax̌n/
around-lower-head-upper
end arm

A lexically stressed root does not attract stress away from final position in a word containing a compound lexical suffix:

(26) kłk^{w}3nc3náks3n 'grab by wrist'
/kł -k^{w}án -cin -akst-n -t -Ø -n/
loc-take-edge-arm-con-trans-3sg-1sg

-akst 'arm' is clearly not a strong suffix since in many other words it is unstressed (e.g., yapk^{w}anksn /yap-k^{w}an-akst-n-t-Ø-n/ 'grab s.o. passing by arm'). As far as I can see, the analysis given in this paper cannot account for the stress assignment exemplified in (26). It would predict instead that primary stress should occur on the lexically stressed root.

Intransitive stems containing one or more lexical suffixes retain their stress when they are inflected for transitive, except when followed by a strong suffix. In other words, they behave as if they were strong:

(27) a. ḥúykstmnc 's.o. is bothering me'
/ḥuy -akst-min-t-sa-s/
? -arm-rel-trans-1sg-3sg/

b. nq'a?akstúłcn 'I put it in your hand'
/n -q'?-akst-túł-si-n/
loc-? -hand-redir-2sg-1sg

c. sḥapáw'sqnms 'dog shakes s.t.
/s -ḥap -aw's-qin-min-t-Ø-s/
abs-shake-middle-head-rel-trans-3sg-3sg

The CSR's actually predict that primary stress will fall on the intransitive stems in such forms as (27). As mentioned above, what the rules do not predict correctly is the exact position of primary stress on the intransitive stems themselves.

4. Secondary Stress

4.1 Secondary stress. The final set of words which an analysis of Cm stress must account for consists of those forms containing secondary as well as primary stress. Only 111 words out of a corpus of about 3500 are marked for secondary stress, and not all of them fall into any discernible pattern.

Kinkade (p.c.) claims that many words have secondary stress on open syllables which are positioned immediately to the left of primary stress. The vowels assigned secondary stress in this environment are also lengthened:

(28) a. kì:hána? 'teenage girl'
b. kà:súk'^{w}t 'float down'
c. snà:láp't3n 'woodshed'
d. snq'3là:pás 'toothache'

It is unclear, however, whether the secondary stress is actually present, or whether the lengthening of the vowel is perceived as stress. Most likely, the latter is the case, since otherwise Cm secondary stress assignment would be quantity-sensitive, whereas the primary stress assignment clearly is quantity-insensitive. But, if secondary stress is present, the analysis presented in this paper may have to be completely revised.

There are some instances of secondary stress which do not occur in open syllables. The largest group of these is composed of words in which the root receives secondary stress, and the rightmost suffix containing an underlying vowel receives primary stress:

(29) a. nax^{w}ìrkstátk^{w}m 'reach into water'
/na - x^{w}ír -akst -átk^{w}-m/
loc-reach-hand-water-mid

b. k'ɬçòscínxn 'deer-hoof rattle'
/k'ɬ-ços-cin-xn/
loc- ? -edge-foot/leg

c. kɬmàhahcnákst 'sprained wrist'
/kɬ- mah-h- cin-akst/
loc-sprain-edge-arm

d. sw'3l'wìl'kscút 'talking/acting comic'
/s -w l'-wil'-akst-cut/
abs- ? -arm-refl

(30) shows examples from a second group of words with secondary stress in which two suffixes are stressed. Primary stress falls on the rightmost of the two:

(30) a. nxa?àmxcín 'Moses-Columbian language'
/n -xa? -mix -cin/
loc-here-people-language

b. nl3x^{w}àtk^{w}ápn 'boil an egg'
/n -lx^{w}-atk^{w} -ap -n-t- Ø -n/
loc-? -water-egg-con-trans-3sg-1sg

c. ni?k'3màn'kákst 'palm of hand'
/ni?-k'm -ank -akst/
loc-surface of-stomach-arm
belly

d. ks3k'^{w}tàkstútiya? 'using one hand'
/k -sk'^{w}t -akst-úty?/
loc-half-arm/hand-?

e. nk^{w}nàkstúɬn 'take away from'
/n -k^{w}án -akst-túɬ -t -Ø -n/
loc-take-arm-redir-trans-3sg-1sg

The third group consists of compound words. Compound words in Cm contain two roots, which are often joined by a morpheme -a- or -aɬ-. Several of the compounds contain two degrees of stress, but, while primary stress falls on the rightmost root or suffix, secondary stress may fall either on the left root, or on the joiner morpheme:

(31) a. kn hàw'yaɬ?áx^{w}in 'I made a net'
/kn haw'y-aɬ-?ax^{w}in/
I make -& -seine

b. p'ì?qaɬmɜ́lk 'he burnt his tongue'
/p'i?q-aɬ-mlk/
cook -&-tongue

c. t'3m'àɬpk^{w}út 'cut (strips of) leather'
/t'm' -aɬ-pk^{w}ut/
cut- & -skin,hide

d. nw'3lxàɣʎ'cín 'run a horse'
/naw'-ilx-a-ɣʎ'cin/
run-aut- &-horse

Compound words in which both stresses fall on root vowels can be explained in terms of the CSR's. It is unclear, however, why stress should fall on the joiner morpheme.

Some of the examples in (29) and (30) seem to be instances of secondary derivation (where a fully derived word has been fed back into the lexicon to serve as a stem for further derivation). (29a), for example, nax^{w}ìrkstátk^{w}m 'reach into water' was probably derived by affixing -atk^{w} 'water' onto the stem nax^{w}ìrkst 'reach'. Similarly, (30a), nxa?àmxcín 'Moses-Columbian language', was derived by affixing -cin 'language' onto nxa?ámx 'Moses-Columbia people'.

As it stands, however, the analysis presented in this paper does not account for the instances of secondary stress found in secondary derivations. It predicts, instead, that the stress pattern in (29a) and (30a) should be *nax^{w}ìrkstk^{w}m and *nxa?ámxcn respectively (this would follow the pattern found in such forms as (27)). Clearly, then, some modification of the analysis is required.

5. Conclusion

In this paper, I have proposed an analysis of Columbian Salish stress which requires two very simple stress rules, and two basic assumptions: that stress may be lexical; and, that Columbian morphology and phonology are level-ordered. This analysis accounts for stress in a large portion of the data, but is not without its problems. It does not, for example, adequately account for

stress assignment to intransitive stems containing one lexical suffix, and it does not account at all for compound lexical suffixes. It also predicts the wrong stress-pattern in secondary derivation. In spite of these problems, however, I have shown that Columbian stress is not entirely unpredictable, and I am convinced that the solution to the problems is only a matter of time and further analysis.

* * * * *

NOTES

[1] I am grateful to M. Dale Kinkade , Keren Rice, Pat Shaw, and Donca Steriade for comments and discussion; I am most especially grateful to Elizabeth Ritter, who worked on the analysis with me at M.I.T., and whose clearheadedness and insights were invaluable. All the data used for this paper were collected by M. Dale Kinkade (see references). While working on this topic I have been supported by a SSHRCC MA Scholarship (at U.of Toronto) and by a SSHRCC Doctoral Fellowship.

[2] The transcription system followed in this paper is that of Kinkade, modified only as required by the typewriter. Unless otherwise specified, the data are recorded in broad phonetic transcription. "/ /" indicates phonemic or underlying forms. Morphemes which are stressed in underlying forms "/ ´ /" are lexically stressed.

Consonants

							Uvulars		Pharyngeals		Glottals
Stops	p	t		c		k	k^w	q	q^w		
Affricates	p'	t'		c'	ƛ'	k'	k'^w	q'	q'^w		?
Fricatives				s	ɬ	x	x^w	χ	$χ^w$	ḥ	$ḥ^w$	h
Resonants	m	n	r	y	l		w			R	R^w	
	m'	n'	r'	y'	l'		w'			R'	R'^w	

Vowels i u
3
a

ƛ' = [tɬ']
ɬ =lateral (vls) fric.
c = [tʃ] ċ= [ts]
s = [ʃ] ṡ= [s]

C'=glottalized consonant
C^w=labialized consonant
V̱ =retracted vowel
ḻ =retracted (velarized)l

[3] The analysis of stress proposed here makes use of Prince's (1983) theory of the metric grid. As will be seen in the section on transitive inflection, the grid theory makes a correct prediction regarding stress-assignment. The stress-rule in (2) is a version of Prince's Righthand End Rule which assigns stress to the right end of a word.

[4] For a complete discussion of Cm transitive inflection see Kinkade (1982b). The basic form of a Cm transitive word is:

a. Intransitive Stem-transitivizer(s)-object-subject

There are eight transitivizers:

b. -n- 'control'
-nún- 'success'
-min- 'relational'
-t- 'simple transitive'
-stu- 'causative'
{-xit-, -tú-, -ɬ-} 'redirectives'

The object and subject suffixes are in c.:

c.

	Object suffixes non-caus	caus	Subject suffixes
1sg	-sa(1)-/-s(1)	-m-	-nn
2sg	-si- / -s-	-m	-x
3sg			-s
3	ø		
obv	-wa- /-u-		
1pl	-al- /-l-		-t
2pl	-ulm- /-lm-		-p
3pl			-s

[5] There are two examples containing both -min- and -xit-; in one -min- is stressed, in the other -xit-:

a. K'^{w}u?ɬmíxtn 'I used up s.t. belonging to s.o. else'
b. c3kmxítn 'I threw it for s.o. else'

These stress differences may perhaps be explained in terms of different derivations--in b. both -min- and -xit- are added on at the same level, while in a. -xit- is added at a later level.

[6] -stu- 'causative' takes -m- '1st/2nd sg obj' instead of -sa- '1st sg obj' or -si- '2nd sg obj'. Given such cooccurrence

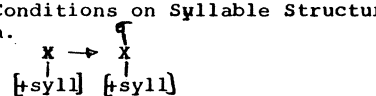
restrictions, it is perhaps not surprising that -stu- is found on the same level as the object morphemes.

[7] If stress were assigned at the root level, then the stress rules would always place stress on the root, rather than toward the right edge of the word.

[8] These rules of epenthesis and feature-spreading are linked to the syllable structure of Cm in that predictable vowels occur to break up consonant clusters into syllables. Several different rules of syllabification and epenthesis are required in Cm. Justification of these rules is rather a large topic, but I include here the preliminary version of an algorithm for syllabification, and the epenthesis rules which E. Ritter and I worked out (based on Hoard (1978)).

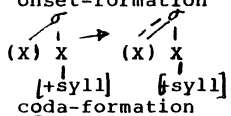
1) Conditions on Syllable Structure

a.

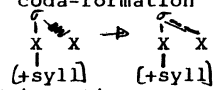


X=segment
X'=stray segment

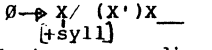
b. onset-formation



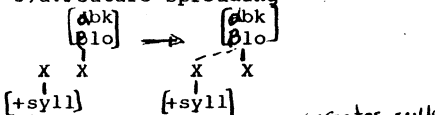
c. coda-formation



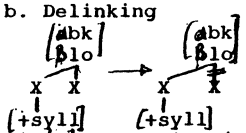
2) X-insertion



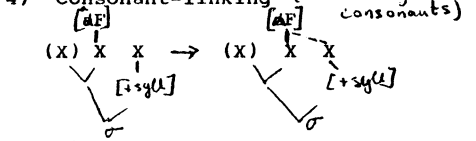
3)a.Feature-spreading



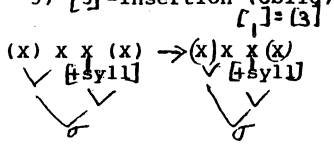
b. Delinking



4) Consonant-linking (creates syllabic consonants)



5) [ə]-insertion (obligatory)



[9] -útiya? must be a strong suffix since it takes stress from the strong root K^{w}an-. The lexical stress on -útiya? is on the first vowel since this is the only one present in underlying form.

[10] There are several forms in which an epenthetic root-vowel is stressed instead of the lexical suffix. In each case the stress assigned seems to reflect the meaning of the word:

a.	p'ə́k'^{w}ya?q3n bald-top-head	'bald-headed'
b.	k^{w}ə́ls red-face	'ruddy complexion'
c.	naq^{w}ə́ys loc-black-eye	'black eye'

* * * * *

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