XIIIth International Conference on Salish Languages

B E L L A C O O L A P H O N O L O G Y

H.F. Nater

Box 618, Bella Coola, B.C., V0T 1C0

Contents

Symbols used

C	T/$\check{R}$	T^{f}	fricative
K	velar/uvular	T^{p}	plosive
R	sonant	V	a/$\underset{\bullet}{R}^{y}$
$\underset{\bullet}{R}$	vocalic R	/.../	morphophonemic notation
$\check{R}$	consonantal R	[...]	phonetic transcription
R^{n}	nasal/liquid	≠	word border
R^{y}	glide	_	connects full words and clitics
T	obstruent	≐	telescoping

Chart of phonemes

	obstruents			sonants				vowel
	occlus.		fric.	nas./liq.		glides		
	plain	glott.		cons.	voc.	cons.	voc.	
labial	p	p̓		m	m̥	w	u	
dental	t	t̓						
alveolar	c	c̓	s	n	n̥			a
lateral		ƛ̓	ɬ	l	l̥			
palato-velar	k	k̓	x			y	i	
rounded velar	k°	k̓°	x°					
uvular	q	q̓	χ					
rounded uvular	q°	q̓°	χ°					
laryngal		ʔ	h					

0.0 The Bella Coola sound system comprises 34 phonemes: 23 obstruents (T), 10 sonants (R), and one vowel (a). The obstruents are subdivided into 16 occlusives (T^p) and 7 fricatives (T^f); the sonants fall into 6 nasals + liquids (R^n) and 4 glides (R^y). The occlusives oppose glottalic ($\dot{T}$) members to plain ones, except in the laryngal series, whereas a plain lateral occlusive is lacking. Both R^n and R^y oppose consonantal ($\check{R}$) to vocalic ($\underset{\cdot}{R}$) members.

0.1 Glottalic occlusives are pronounced with an accompanying closure of the glottis, thus giving an impression of a combination of plain plosive + glottal stop. They are in opposition to their plain counterparts: s̓kma 'comb' vs. skma 'moose', p̓ɬt 'warm' vs. pɬt 'thick', t̓as 'wren' vs. tas 'to poke somebody', c̓ɬ 'to shade off' vs. cɬ 'to break, bust'.

0.2 The lateral glottalic affricate ƛ̓ sounds like a quick combination of 't' and 'l', as in 'greatly'. It is opposed to the sequences t + l, t + ɬ, t̓ + l, and t̓ + ɬ: ƛ̓k° 'to pick up a small object' vs. tlk° 'to swallow' and tɬ_k° 'he was strong', ƛ̓i 'fast' vs. t̓li 'dog salmon' and ʔa-t̓ɬi-c 'I painted it'.

The lateral fricative ɬ unites the fricative, voiceless character of s with the lateral nature of l and ƛ̓; it is also found in other languages, such as Welsh, where it is rendered as 'll' (Llewellyn).

0.3 Palato-velars equal [k′] and [x′] in 'cube' and German 'ich'.

0.4 Unrounded uvulars are pronounced considerably further back than the palato-velars and are in direct opposition to the latter, cf. sqma 'chest' vs. skma 'moose', q̓is 'stink currant' vs. k̓is- 'without, lacking', sx̌ 'to scrape' vs. sx 'bad'. As to their place of articulation, they correspond with Arabic q and 'ch' in Scottish 'Loch'.

0.5 Rounded velars and uvulars are formed with simultaneous rounding of the lips, which is released shortly after the K° involved, except before u (see 2.1). The rounded velars are articulated further back than the palato-velars, which makes it harder to distinguish them from rounded uvulars, but there can be no doubt concerning their being opposed to each other: k°s 'rough' vs. q°s-m 'to sweat', k̓°p 'straight' vs. q̓°p 'empty', x°l 'to pull' vs. x̌°l- 'short'. K° contrasts with unrounded K: k°ƛ̓is 'he put it down' vs. kƛ̓iis 'it is short', q̓°p 'empty' vs. q̓p 'blunt', sx̌°iɬ 'conceited' vs. x̌iɬ 'often'.

0.6 Plain occlusives have aspirated allophones before C and #; velar and uvular plain occlusives assume in that position an affricative character,

while before T^f aspiration is arbitrary: [ʔæt^h] 'herring eggs', [q$^{\check{x}}$læ] 'water', [p(^{h})ɬt^h] 'thick', [t(^{h})x$'$ə̣t^s] 'I'll cut it' - ʔat, qla, pɬt, txic.

One observes close transition in ts = [t^s] (see 1.2.1), while tɬ may sound either [t^{h}ɬ], [tɬ], or [ɬ$^{\underline{t}}$]; kx, k$^\circ$x$^\circ$, qx̌, q$^\circ$x̌$^\circ$ are always [k$^{x\prime}$:], [k$^{x\circ}$:], [q$^{\check{x}}$:], [q$^{\check{x}\circ}$:] (cf. 4.2.0).

Before V's and Ṛ's, plain occlusives are unaspirated and voiceless, intervocalically (-sonantally) they can have voiced allophones: [pəlst^h] 'fish scale', [k$'$ɪlk$'$ɪl] 'herring', [qə̣nx̌] 'shoe' - plst, klkl, qinx̌; [k$'$ə̣dæ] 'little finger', [ʔəmdəm] 'sea urchins' - kita, ʔmtm.

Intervocalically also fricatives can occasionally have a voiced timbre: [sə̬γ$'$æ] 'hand' - suxa.

k$^\circ$ and q$^\circ$ are always slightly affricative: [k$^{x\circ}$ænæt^h] 'to cry, weep', [k$^{x\circ}$təmt^s] 'husband', [q$^{\check{x}\circ}$als] 'fir needle', [q$^{\check{x}\circ}$t^h] 'crooked' - k$^\circ$anat, k$^\circ$tmc, q$^\circ$als, q$^\circ$t.

0.7 The vowel a, the vocalic glides i and u, and the automatic schwa preceding Ṛ^n (see 3.1) have a wide range of pronunciation, depending on the context in which they occur:

i varies from [ɪ] before uvulars, [ɪ$'$], [ɛ$'$] between uvulars, [ə̣$'$] before $R^C_{\not\ell}$, [i] in palato-velar surrounding to [ə̣̆] in other positions: [ʔɪx̌$^\circ$] 'far' - ʔix̌$^\circ$, [pɪq$'$] 'wide, flat' - piq$'$; [qɛ$'$q$^{\check{x}}$tə̣$'$] 'little' - qiqtii, [nə̬sx̌ɪ$'$q$'$] 'Nooseseck Bay' - nusx̌iq$'$; [pæpə̣$'$nk$'$ə̣̆] 'little snake' - papinki, [sə̣$'$m] 'rope made of cedar limbs' - sim; [ʔæsik$^{x\prime}$] 'middle finger' - ʔasik, [plik$'$ɪm] 'to capsize' - plikm; [q$'$ə̣̆s] 'stink currant' - q$'$is, [pə̣̆t$'^s$] 'pale, whitish' - pic$'$.

a is pronounced [ɑ] in inter-uvular position, [ʌ] before rounded velars, [a·] before $R^{C}_{/}$, [æ] in other positions: [$q^{\check{x}\circ}$ɑ$\check{x}^{\circ}$] 'raven' - q°a$\check{x}$°, [qɑ$q^{\check{x}}$tæɬp^{h}] 'ninebark' - qaqtaɬp; [k^{x}·lʌx°] 'muskrat' - klax°, [tʌ$k^{x\circ}$s] 'willow grouse' - tak°s; [ma·n] 'father' - man, [ya·w] 'hi!' - yaw; [x·næs] 'woman, wife' - xnas, [ʔæ$q^{\check{x}}$s] 'halibut hook' - ʔaqs.

u sounds [ɔ] in inter-uvular position, [o̱·], [ɔ·] before $R^{C}_{/}$, [ŭ] in rounded velar surrounding, [ŏ̱] in other sequences: [q̓°ɔ$\check{x}$] 'to call' - q̓°u$\check{x}$, [$q^{\check{x}\circ}$ɔ$\check{x}$] 'to cover' - q°u$\check{x}$; [ʔo̱·l$\check{x}$], [ʔɔ·l$\check{x}$] 'to steal' - ʔul$\check{x}$, [tɔ·ms] 'breast' - tums; [k°ŭ$k^{x\circ}$p$\breve{e}$] 'grandfather' - k°uk°pi, [mŭ$k^{x\circ}$] 'red' - muk°; [so̱l$\breve{o}$$t^{h}$] 'sea, inlet' - sulut, [mŏ̱q̓°ɬæ] 'louse' - muq̓°ɬa.

In the numerals, the vowel under the accent is always slightly dragged: [sma·w] 'one', [ɬno̱·s] 'two', [ʔæsmo̱·s] 'three', [mo̱·s] 'four', [t̓^{s}e̱·x°] 'five' - smaw, ɬnus, ʔasmus, mus, c̓ix°.

0.8 A striking characteristic of the Bella Coola language is that in almost any given context T can occupy the same position as R̥ and V (exceptions are enumerated in 9.0). Many words consist solely of obstruents: c̓x̌ɬ 'true', ɬx̌°t 'to go through a hole', stp 'mole, freckle', p̓x̌°ɬt 'bunchberry', t̓k° 'to bleed', kɬ 'to fall', etc.

T-clusters of extreme length can be found at word borders: ʔaalac̓amkcuts k°c̓ sk̓xis ta_x̌msta_tx̌ 'then he told them that he had seen the man'; ta_sʔastx°ɬc sx̌slxaɬs wa_ʔaɬwlaɬ_c 'when I was inside, the rain started to pour heavily'.

1.1 The vocalic glides i and u are classed as sonants (and not as vowels), because they are largely in complementary distribution with y and w: they are related to $\check{R}^{y}$ as $R̥^{n}$ is to $\check{R}^{n}$ (see 3.2.0, 5.2).

Also, in view of the phonetic structure of Bella Coola (see 0.8), one cannot make an absolute distinction between 'vowels' on the one hand and 'consonants' on the other.

1.2.0 The alveolar affricate c is granted the status of a single phoneme, because it has a glottalic counterpart. Moreover, it occurs as frequently in the lexicon as any other phoneme. The pair c/c' takes part in the alternation VT'/V'T (see 6.1), a feature that supports the monophonemic interpretation of c.

1.2.1 Phonetically, c and t + s are not opposed. In all events, this is the case, when, in the latter sequence, t and s are separated by a morpheme boundary. They are, however, distinguished in my morphophonemic orthography: I write /c/, if [t^{s}] can morphologically not be split up in t + s: [nǒsǒlę'x't^{s}tæ] 'lunchbox' must be interpreted as /nus-suliixc-ta/ (for '-' see 4.2.1): sulixc 'provisions for a trip', nus-...-ta 'container, storing room'.

On the other hand we have [nǒs?ę̆pæt^{s}ɔ't^{s}tæ] 'larder, refrigerator' = /nus-?ipacuut-sta/, cf. ?ipacut 'to store food away', nus-...-sta allomorph of nus-...-ta. Here, [t^{s}] is a result of suffixation; wherever morphological evidence shows that c = /ts/, I write - in the morphophonemic notation - /ts/.

When, however, t and s belong to one and the same morpheme, this combination is distinct from /c/: it then sounds [t^{h}s], with aspiration of the t (cf. 0.6). In my notes only one example of this type was found, viz. nutastsiik 'musketgun', which contains tas 'to poke' and nu-...-iik 'half, middle'. For the reduplication-type compare k°pa+p+i diminutive form of k°pa+ 'liver'.

1.3 ʔ and h occur only pre-vocalically and pre-sonantally (cf. 7.0). They are classed as obstruents (not as sonants) for two reasons: (a) they have no vocalic counterpart (a can in this respect not be taken into consideration, because h does not alternate with a, and ha is an admissible sequence, while wu is not and yi only rarely (see 5.5)); (b) h is much rarer than ʔ, while for R : Ṛ the opposite holds.

In fact, h is rather defective - it is found in only a few words: ʔyanahu (diminutive ʔyanahwii) 'turnips', wahu 'a name', haʔu 'caterpillar', hact 'hey!', hawhaw 'a mythical bird with a long beak', hawyat 'a geographical name', huuqᵒat 'lullaby'.

2.1 Before u, only rounded velars and uvulars are found and are therefore, in that position, not distinguished from their unrounded counterparts. In the context Kᵒu labialization is not released as before other phonemes or a word border.

2.2 If a morpheme-boundary can be established, I write, in the morphonological transcription, /Kᵒ-u/ or /K̊-u/, depending on whether rounding is inherent or caused by the affixed element. Thus: mukᵒusm 'to paint one's (-m) face (-us) red (mukᵒ)' - /mukᵒ-us-m/, but: ɬq̓ᵒus 'to slap (ɬq̓) someone in the face (-us)' - ɬq̓̊-us.

In the case of acquired rounding K-clusters are affected as a whole - see 8.3.2.

2.3 It would be a misconception to think of Kᵒ as a sequence K + w, since (a) labialized K's are as frequent in the lexicon as the unrounded ones; (b) in my notes two items occur, where K + w is distinct from Kᵒ, viz. waxwaxcya 'great-grandchildren', and xwa (= xa) 'plural article,

relative case';

(c) K° never alternates with K(°)u as does Cw/Cu in general (e.g.: ʔapswic 'I'll blow it' vs. ʔapsutx̌ 'blow it!', qaw 'to store away' vs. ʔaq̓°u (with inverted q̓) 'to emprison');

(d) in one type of reduplication, where T̓R → ʔṚT̓R, it is not the alleged w that is reduplicated (as in e.g. ʔupwii diminutive of pwi 'halibut'), but the next-following R: nuʔnq̓°nayalakt 'hair under the arm' (cf. q̓°na 'pubic hair', nu-...-alakt 'armpit'), in the same way as ʔnknci diminutive of knc 'whale'.

3.1 Sonants are, with regard to their occurrence in consonantal, c.q. vocalic position, distinguished in nasals + liquids (R^n) on the one hand and glides (R^y) on the other (cf. 3.2.2.1, 3.2.4).

The pronunciation of i and u is explained in 0.7. For the different nature of $\dot{R}^y$ see also 4.3.0.

$\dot{R}^n$ is articulated with a preceding murmur vowel, with the quality of (and henceforth labelled as) a schwa, the phonetic actualization of which is determined by the flanking C's. The allophonic variants of this schwa can be schematized as follows:

	-m	-n	-l
palato-velar	ĭ/^{y}ə (a)	ĭ/^{y}ə (b)	ĭ/^{y}ə (c)
K°	ŭ (d)	ə (e)	ə (f)
dental/alv.	ă/ə (g)	ă/ə (h)	ă/ə (i)
other C's	ə (k)	ə (l)	ə/$\dot{R}$ (m)

(a) [p^{h}k̓ˊĭm], [p^{h}k̓^{y}əm] 'mosquito' - pk̓m, [xˊĭm] 'to break' - xm;

(b) [p^{h}ɬt^{h}kˊĭn], [pɬt^{h}k^{y}ən] 'bark of bitter cherry tree' - pɬtkn,

[t(ʰ)x'ĭnx'nę̆] 'owl' - txnxni;

(c) [k'ĭltę̆'ɬ], [kʸəltę̆'ɬ] 'Cascade Inlet' - kltiiɬ, [sk̓'ĭl], [sk̓ʸəl] 'cold' - sk̓l;

(d) [kˣ°ŭmɬ] 'firewood' - k°mɬ, [tʰk̓°ŭm] 'to dig cloverroots' - tk̓°m, [q̓°x̌°ŭmtę̆mŏ̯tʰ] 'automobile' - q̓°x̌°mtimut;

(e) [kˣ°ənt^{s}æɬæ] 'type of canoe' - k°ncaɬa, [ʔæɬk̓°ənta'm] 'God' - ʔaɬk̓°ntam, [ʔę̆ɬq̓°ənɬtę̆mŏ̯tʰ] 'to laugh' - ʔiɬq̓°nɬtimut;

(f) [t̓kˣ°əlx̌s] 'to have a bleeding nose' - t̓k°lx̌s, [ʔę̆k̓°əlstʰ] 'rockslide' - ʔik̓°lst, [t̓qx̌°əl] 'to weave, braid' - t̓q°l;

(g) [tămkˣ°æ], [təmkˣ°æ] 'prepared salmon eggs' - tmk°a, [sămt^{h}], [səmt^{h}] 'mountain' - smt;

(h) [t̓ănx̌°], [t̓ənx̌°] 'head' - t̓nx̌°, [ʔænǫ̆t^{s}năm], [ʔænǫ̆t^{s}nəm] 'to remember, commemorate' - ʔanucm;

(i) [tălkˣ°], [təlkˣ°] 'to swallow' - tlk°, [t̓^{s}ăls], [t̓^{s}əls] 'to be mistaken' - c̓ls;

(k) [q̓°ŏ̯pəm] 'smoking' - q̓°upm, [x̌əmstæ] 'person' - x̌msta, [ʔɪx̌q̓əm] 'to walk' - ʔix̌q̓m;

(l) [nŏ̯pæpəntʰ] 'to boil' - nupapnt, [tʰqənkˣ'] 'under' - tqnk, [mənt̓^{s}] 'yellow, blond, hazel' - mnc̓;

(m) [pəlstʰ] 'scale of fish' - plst, [nŏ̯x̌əl], [nŏ̯x̌ɬ] 'Kimsquit' - nux̌l, [ɬəl], [ɬɬ] 'to clean' - ɬl, [wəl] 'to spill' - wl.

A special variant of schwa is demonstrated in 3.2.1.1 and 3.2.5.

A svarabhakti-vowel is occasionally heard between n-, l- and -x̌, -x̌°: [ʔɔ'lx̌], [ʔɔ'lᵊx̌] 'to steal' - ʔulx̌, [sənx̌], [sənᵊx̌] 'sun' - snx̌, [t̓ănx̌°], [t̓ănᵘx̌°] 'head' - t̓nx̌°.

3.2.0 Both $\underset{\cdot}{R}^{n}$ and $\underset{\cdot}{R}^{y}$ are in complementary distribution with their consonantal counterparts in many cases: vocality of $\underset{\cdot}{R}$ is predictable (within one morpheme) in the sequences $T\underset{\cdot}{R}^{T}_{/}$ (1), $\overset{T}{/}\check{R}\underset{\cdot}{R}^{T}_{/}$ ($T\underset{\cdot}{R}^{y}\check{R}^{nT}_{/}$) (2), $a\check{R}\underset{\cdot}{R}^{T}_{/}$ (3), $/\check{R}\underset{\cdot}{R}\underset{\cdot}{R}T$ ($/\check{R}\underset{\cdot}{R}^{y}\check{R}^{n}T$) (4), $/\check{R}_{1}\underset{\cdot}{R}_{2}\check{R}_{1}\underset{\cdot}{R}_{2}$ (5).

Geminate R's are pronounced 'long' (see 4.2) and are vocalic after C: [ʔæʔəm·æ] 'hooded merganser' - ʔaʔmma, [mənmən·tæ] 'ladder' - mnmmnta; consonantal after V: [yal·ək^{x}·] - yallak.

In $/R_{1}R_{2}\ldots$, R_{1} is always consonantal: [mənа] 'offspring' - mna.

3.2.1.0 $T\underset{\cdot}{R}^{T}_{/}$: ɬm 'to stand up', ʔapsu 'to blow'; sl̓q$^{\circ}$ 'to find', six 'blood'.

3.2.1.1 In the combination $T_{1}R^{n}{}_{1}T_{1}R^{n}{}_{1}$ (a reduplicative formation) the first R^{n} is mostly reduced to a schwa, which differs sometimes, due to contact with an adjoining obstruent, phonetically from the schwa discussed in 3.1: [təltəlk$^{x\circ}$], [tətəlk$^{x\circ}$] 'slippery', [x̆$^{\circ}$ənx̆$^{\circ}$nəm], [x̆$^{\circ}$ə̆x̆$^{\circ}$næm] 'hummingbird', [t(^{h})x·ĭnx·nə̆], [t(^{h})x·ĭx·nə̆] 'owl', [x·ĭx·na·sə̓·], [x·ĭnx·na·sə̓·] 'girl'.

This phenomenon is rendered as (R^{n}): t(l)tlk$^{\circ}$, x̆$^{\circ}$(n)x̆$^{\circ}$nm, tx(n)xni, x(n)xnaasii (see also 3.2.5).

3.2.2.0 $\overset{T}{/}\check{R}\underset{\cdot}{R}^{T}_{/}$: ml̓ 'to erase', wl̓ 'to spill', mu 'fishtrap'; mn̓c' 'blond, hazel, yellow', wn̓c' 'to kill', nup 'dress', wisx̆$^{\circ}$ 'yes indeed', kikyu 'to chew'; scm̓lx 'to scatter', smiks 'mussel', stwix 'Stuie'.

3.2.2.1 $T\underset{\cdot}{R}^{y}\check{R}^{nT}_{/}$: ʔilk 'Indian rice', t̓in 'clitoris', tums 'breast', sum 'pants' (cf. 3.2.4).

In some instances, where the sequence $R^{y}R^{n}$ is a result of suffixation, free variation was observed between [ʕ·R^{n}] and [ʕ̆wəR^{n}] (cf. 5.3):

[lǫ·lx´], [lə̆wəlx´] 'bark is getting (-lx) loose (lu-)', [ʔæplǫ·nk^{x}´], [ʔæplə̆wənk^{x}´] 'elevated (ʔaplu-) roots (-nk)'.

Doublets like these apparently point to an adaptation TuR̆^{n}T → TwR̥^{n}T in the making and reflect the preference in Bella Coola for rising diphthongs. They are, in my orthography, given in both forms: lulx/lul̥x and ʔaplunk/ʔapluṉk [1]).

3.2.3 aR̆R̥$^{T}_{\neq}$: ʔaycaym̥ 'boa kelp', sxanm̥ 'worn out', sxali 'jealous'; mawl̥x̌s 'twenty', ʔax̌anuɬ 'gooseberry', sʔayuɬ 'thunderbird'.

3.2.4 ≠R̆RR̥T: nm̥l̥xaɬ 'feet are getting numb', ml̥ic 'I'll erase it', wl̥ic 'I'll spill it' (cf. 3.3, (a)).

When R_2 is a glide and R_3 a nasal/liquid, we have ≠R̆RR̆T: miltx̌ 'erase it!', lumc 'I take the bark off the cedar', wintuɬs 'we're in war with them', yumc 'I'm shy' (cf. 3.2.2.1).

3.2.5 ≠R̆$_1$R$_2$R̆$_1$R$_2$: nm̥nm̥ak 'both hands', mm̥mm̥c 'children', lulusta 'mask', wl̥wl̥kacut 'to limp', yuyux° 'bracelet'. When R_2 is a R^{n}, the first R_2 is frequently reduced to schwa (cf. 3.2.1.1): [nəmnəmk´], [nə̆nəmk] 'animal', [mənmənt^{s}], [mə̆mənt^{s}] 'children', [wəlwəlk´æt^{s}ǫ̆t^{h}], [wə̆wəlk´æt^{s}ǫ̆t^{h}] 'to limp' - n(m)nmk, m(n)mnc, w(l)wlkacut.

3.3 In the sequence CRV the difference R̆/R̥ is neutralized: presence, c.q. absence of schwa stands in correlation with the C and R involved.

The following pattern is observed:

	-mV	-nV	-lV	-wV	-yV
R	+	+	+	+	+
T_1	±	±	±	±	±
T_2	-	-	-	-	

T_1 stands for p, $\dot{p}$, t, $\dot{t}$, c, $\dot{c}$, k, $\dot{k}$, k°, $\dot{k}^{\circ}$, q, $\dot{q}$, q°, $\dot{q}^{\circ}$ ('short' and glottalic stops); T_2 = c, s, ɬ, k, x, k°, x°, q, ǩ, q°, ǩ$^{\circ}$ (fricatives and affricates - k, k°, q, and q° assume an affricative character before a C or word border).

From the table above the following rules can be read:

(a) schwa appears obligatorily in the sequence *RRV: $m^{\ə}$na 'child', $m^{\ə}$lic 'I'll erase it', miank [mĭyank^{x}ˊ] 'wide canoe' (cf. 5.3), $w^{\ə}$lic 'I'll spill it', nuakila [nu̯wækˊe̯læ] 'a name' [1]);

(b) schwa is inserted frequently in the combination TyV: tp($^{\ĭ}$)yaaǎam 'to go across', t($^{\ĭ}$)yaaǎik 'flattish roof', c($^{\ĭ}$)yakm 'to reach for something', $\dot{c}$($^{\ĭ}$)yaaǎ$^{\circ}$ 'flicker (bird)', s($^{\ĭ}$)yu$\dot{p}$alx$^{\circ}$ 'point of land', $\dot{k}$($^{\ĭ}$)yuk 'to talk, discuss', k°uɬ($^{\ĭ}$)ya 'clean', kik($^{\ĭ}$)yu 'to chew', nuǎ($^{\ĭ}$)yals 'it's bright inside the house', nuq°($^{\ĭ}$)yuc 'to open a door', ʔi$^{\ʔ}$($^{\ĭ}$)yum 'to howl';

(c) in the sequence T_1RV (R ≠ y) a schwa is occasionally heard: p($^{\ə}$)laak 'one-armed', p($^{\ə}$)naaǎta 'dancer's apron', ʔip($^{\ŭ}$)wic 'I'll hide it', $\dot{p}$($^{\ŭ}$)wi 'halibut', st($^{\ŭ}$)wix 'Stuie', $\dot{t}$($^{\ə}$)miiǎ$^{\circ}$ 'tree-stump drifting in the water', $\dot{t}$($^{\ə}$)li 'dog salmon', $\dot{t}$($^{\ŭ}$)waaǎ 'spot at Kimsquit', $\dot{c}$($^{\ə}$)la 'basket', $\dot{c}$($^{\ŭ}$)wiiǎ$^{\circ}$ 'grey hair', $\dot{k}$($^{\ə}$)matk 'to stay overnight', $\dot{k}$($^{\ə}$)lat 'steelhead', ʔiǩ$\dot{q}$($^{\ə}$)maw 'they are walking', $\dot{q}$($^{\ə}$)laǎ 'fence', $\dot{k}^{\circ}$($^{\ə}$)la 'belly', $\dot{q}^{\circ}$($^{\ə}$)na 'pubic hair';

(d) in T_2RV (R ≠ y) schwa is never (or hardly ever) articulated: cna 'stinging nettle', c(l)cluksi 'young people', cwaakilak$^{\circ}$ 'a name', smiks 'mussel', slaǎ 'much', swa$\dot{k}$x 'a mountain at Kimsquit', ɬnus 'two', ɬlaaǎla 'to clean and dry berries', ɬwaas- 'two', kma 'to hurt, be sick', knum 'smoked salmon', qmqmii 'soft', qla 'water', k°muuc 'horn used in sisawk dance', k°naaǎsta 'box for storing food',

x°naɬ 'spring of water', q°li 'green, yellow', xmic 'I'll break it', xnas 'woman', xli 'penis', x̌ma 'to bite', x̌lamanta 'animal's den.'

In the above-mentioned items Ř/Ṛ will be written as consonantal R, except in (a), if R = R^y: miank, nuakila - since y/ẇ and i/u are distinguished throughout (see 3.5).

3.4.0 In the following contexts the consonantal/vocalic character of R cannot always be predicted: TRRV (1), clusters of more than two sonants, occurring word-medially or -finally (2).

3.4.1 TRRV: ʔiknuas 'fog' [1]) vs. k°lwas 'brother-in-law', ɬula 'ringfinger' vs. ʔaɬwlaɬ 'rain', tmyalx 'in the prime of life' vs. q°lials 'green wall' [1]), ʔaɬclnayxɬɬ 'a mountain at Tallio' vs. ɬlmaw 'they give a feast'.

Often the choice between ṚŘ and ŘṚ is morphologically determined: if there is a morpheme-boundary between R_1 and R_2, we usually see ṚŘ: nicmnix 'to revive someone' (nic- 'alive', -nix 'to cause to be'), tmyalx 'in the prime of life' (tm- 'just', ya 'good', -lx 'inchoative'), xmnalus 'to break (xm) something into pieces (-nalus)', while ŘṚ prevails, when both R's belong to one morpheme: ʔaɬwlaɬ 'rain' (wl 'to spill', -aɬ 'rainfall'), ʔaɬknmaakc 'my (-c) hands (-aak) are trembling (ʔaɬknm)', xɬmnalx 'to have (xɬ-) a child (mna)', q°lials 'green wall' (q°li 'green', -als 'inner surface, wall').

But to this apparent rule there are exceptions: nukmnaɬɬ 'to choke' (kma/kmn- 'to get stuck', -aɬɬ 'throat'), ʔatmnaak 'to have a paralyzed hand' (ʔatma/ʔatmn- 'dead', -aak 'hand'), skmnulmxta 'rake' (skma/skmn- 'comb', -ulmx 'earth, soil', -ta 'implement'). Note, that these irregular items derive from stems subject to a change a → n (see 8.2).

3.4.2 Clusters of more than two sonants: ƛ̓iliwa 'fast worker' vs. talyua 'is it Tallio?' [1]), sm̥n̥m̥n̥m̥uuc 'mute' (sm- 'entirely, all the way', n̥m̥n̥m̥- 'lacking', -uuc 'mouth, speech') vs. sm̥n̥m̥n̥caw '(the fact) that (s-) they are (-aw) children (m̥n̥m̥n̥c)'.

3.5 It should now be clear that Ř and Ṛ are not in every position mutually exclusive and must be considered phonemically distinct: I will therefore not treat <u>all</u> possible cases of (un-)predictability of Ṛ/Ř in detail.

In my orthography, $\check{R}^{y}$ and $\dot{R}^{y}$ are distinguished throughout [1]), whereas vocality of $\dot{R}^{n}$ will be indicated only where unpredictable, e.g. I write smt 'mountain', k̓°lwas 'brother-in-law', tmyalx 'in the prime of life', but nicm̥nix 'to revive someone', xɬm̥alx 'to have a child', sk̓m̥nulmxta 'rake'.

4.1 Doubled, i.e. juxtaposed identical occlusives never contract, but are released separately, as in e.g. ʔixʔak°k°a 'to go shopping', ti_k°tmcc 'my husband', ʔaƛ̓̓anuɬp 'gooseberry plant', ʔaq̓°q̓°alx̌yayx 'hair gets entangled in something'.

4.2.0 In clusters of homophonous $T^{p} + T^{f}$, $T^{f} + T^{f}$, and R + R, the first member is not released separately, but closely connected with the following phoneme, resulting in a long affricate, fricative, or sonant (for t + s see 1.2.1): kxa 'to strike a match', k°x°ayx 'it fits', qx̌yu 'no good, damned', k̓xcs 'he saw me'; ci_xnass 'his wife' vs. ci_xnas 'a woman', -aɬɬ 'throat' vs. -aɬ 'foot', ʔassik 'backbone' vs. ʔasik 'middle finger', sissi 'uncle' vs. sisi 'a nickname', ʔax̌x̌a 'exclamation of disgust: yack!', ʔax̌x̌°ut 'to cough'; t(l)tllk° 'pill' vs. t(l)tlk° 'slippery', m(n)mnnta

'ladder' vs. m(n)mnta 'road', ʔuyyu 'a name', s(m)smmti diminutive form of smt 'mountain'.

The automatic schwa before doubled sonants sounds more open and longer than the one occurring before a single sonant: [tătæ'lk$^{x\circ}$], [mæmæ'ntæ], [səsæ'mtę̆].

4.2.1 Telescoping of $T^f_1T^f_1$ and R_1R_1: should affixation result in a geminate R- or T^f-cluster, then this sequence is usually reduced to single R, resp. T^f: nu-lx̌sm 'to clean (-l) one's (-m) nose (nu-...-lx̌s), kanusxm 'bad (sx) taste (kanus-...-m)', nusʔimx 'preoccupied with (nus-...-mx) sex (ʔim 'to copulate')', ʔanusuuǔi 'having lost one's younger sibling' (ʔanus- 'not having', suuǔi 'younger sibling').

Telescoping is in the morphophonemic notation marked as ^: /nu-l^lx̌s-m/, /kanus^sx-m/, /nus-ʔim^mx/, /ʔanus^suuǔi/ (cf. 5.4).

4.2.2 In quite a few cases, however - as a rule when personal affixation is applied - $T^f_1T^f_1$ and R_1R_1 are retained: ʔax°sannu 'you are (-nu) an expert (ʔax°san)', ci_xmass 'his (-s) wife (xmas)', kannmax° 'to hurt (kan-) each other (-nmax°)'.

Note, that in ʔil̥x̌s 'to go around a point' (V ʔil 'to go in an arch', -lx̌s 'protruding') (a) the two l's do not telescope, while (b) the second l is vocalic: the sequence R_1R_1T = [R'T] is in itself possible, cf. t(l)tllk° 'pill'. This example constitutes a hapax.

4.3.0 At this point we must again make a distinction between R^n and R^y, as the latter - when 'long' - are marked not only by their longer duration in relation to the short V's, but also by a higher degree of openness: aa = [a'], ii = [ę'], uu = [o']. Compare, in this respect, the special

variant of schwa discussed in 4.2.0. Furthermore, the doubled V's are remarkably stable in comparison with the single V's in that they show little allophony.

The opposition V/V· is phonologically relevant, as shown by the following examples: puǔ 'to poke' vs. puuǔ 'mouldy', ta̍ǔ° 'plural demonstrative' vs. taaǔ° 'to lick', qaǔ 'rabbit' vs. qaaǔ 'salmonberry', ciǔ 'new, fresh' vs. ciiǔ 'to dig', ʔiǔ° 'far' vs. ʔiiǔ° 'to burn', yulakm 'to stir soapberries' vs. yulaakm 'to rub one's hands'.

4.3.1 Another feature that sets V· rather apart from R^{n}· is that, before T or ⁄, V· may alternatively be pronounced as V̆ + ʔ, but because V·RV and VʔRV must be sharply distinguished (see 6.2.1), we are compelled to regard V· as doubled V, an analysis which is also descriptively more convenient: thus, long V is put on a par with R^{n}·.

The necessity of this analysis can further be substantiated by an item like [ʔe̍ste̍·yælo̍s] 'to want to drink tea', which could not be written *ʔisti·ʔalus, since this would read [ʔe̍ste̍ʔælo̍s], cf. [se̍ʔæq̍°um] 'name of a month' = si·ʔaq̍°m. *ʔisti·ʔyalus would phonetically be represented as [ʔe̍ste̍̍yælo̍s] (see 6.2.1). I write ʔistiialus [1]) (ʔis- 'to consume', tii 'tea', -alus 'desiderative').

4.3.2 Before $R^{C}_{⁄}$ the opposition V/V· is neutralized. Thus one may hear [mæn] or [ma·n] 'father', though the latter pronunciation is favoured. To be precise, V is articulated more open (and slightly longer) in this position.

When – on the phonetic level – a syllabic break or ⁄ comes after RC, the V is preferably, but not compulsorily, pronounced short: [ya·n-t^{s}an⁄] 'house made of driftwood' vs. [yænt^{s}] 'driftwood', [pæpe̍·n-k·e̍] diminutive

of [pæpẹ̆nk^{x}ʼ] 'snake'.

Further proof of this neutralization is provided by the example [ta̲ˑmnæt^{s}] 'my son' vs. [tæ̲maˑnt^{s}] 'my father'. We write: yancanɫ, yanc; papinki, papink; ta_mnac, ta_manc [2]).

4.3.3 In rapid speech V's exhibit a strong tendency to merge, when separated by a glottal stop, thus yielding a long V, according to a shift V_1ʔV_2 → V_2ˑ: [ʔælaˑt^{s}] 'here' - ʔala_ʔac [2]), [naˑsɔˑstæ] 'front door' - nuʔasuusta, [ʔænẹˑɫmaˑnkʼẹˑm] 'someone stood in front of him' - ʔanuʔiɫmankim, [nẹˑpẹˑ] 'narrow' - nuʔipii.

4.3.4 In summary, phonemically long V's are (a) idiosyncratic (see 4.3.0); (b) caused by certain morphological processes: x(n)xnaasii 'girl' from xnas 'woman', where we observe (regular) V-lengthening before T^{f} (cf. k(l)klaax°ii diminutive form of klax° 'muskrat'); (c) optional or ideolectic: mask- or maask- 'how much?'; (d) in certain suffixes in complementary distribution with short V, depending on the root with which they are combined: pi'q°uuɫ 'flat (pi'q) rock (-uuɫ)' vs. sk'°x°uɫ 'black (sk'x) rock (-uɫ)'; (e) a result of deglottalization (see 6.1, 6.2.1, (d)).

5.0 When, due to grammatical processes, two V's come into contact, one observes the following modifications: telescoping (1); Ṛ → Ř (2); Ṛ → $Ṛ_1Ř_1$, a → ay (3).

5.1 Telescoping: i̲ ̲+̲ ̲i̲ ̲→̲ ̲i̲, u̲ ̲+̲ ̲u̲ ̲→̲ ̲u̲/̲w̲:

ƛ'i 'fast' + nu-...-ik 'mind, brains' → nuƛ'ik 'smart',

q'lu 'to stick one's finger into something' + -uɫaq'°s 'eye' + -m 'medium' → q'luɫaq'°sm 'to ... into one's eye', q'awc 'to store (q'aw) food (-uc)'.

5.2 $\underset{\cdot}{R} \rightarrow \check{R}$: i + a → ya, i + u → yu; u + a → wa, u + i → wi; a + i → ay:

ti 'steady' + -aɬ 'foot' → tyaɬ 'one's feet are firmly on the ground',
q°i 'to open' + nu-...-uc 'door' → nuq°yuc 'to open a door';
ƛ'u 'grey' + -aq'°sanɬ 'color of clothes' → ƛ'waq'°sanɬ 'grey clothes',
ƛ'u 'grey' + -iix° 'head, hair' → ƛ'wiix° 'grey hair';
nu-kma 'to hurt inside' + -iklx̌sak 'fingertip' → nukmayklx̌sak 'fingertip hurts'. Cf. 3.3.

5.3 $\underset{\cdot}{R} \rightarrow \underset{\cdot}{R}_1\check{R}_1$: i + a → ia, i + u → iu; u + a → ua, u + i → ui (phonetically -ĭyæ-, -ĭyo̯-; -o̯wæ-, -o̯wę̆-: after an R, V_1 is shortened [1]) and connected by a homorganic glide with V_2: cf. 3.3); a → ay:

mi 'wide' + nu-...-als 'room' → numials 'big room',
q°li 'green' + -us 'face' → q°lius 'pale, sick-looking';
ʔaɬinu 'you are there' + -a 'question-marker' → ʔaɬinua 'are you there?',
kikyu 'to chew' + -ic 'I ... it' → kikyuic 'I'll chew it';
kma 'to ache' + -alus 'chest' → kmayalus 'to have a cold',
tutwa 'to beg' + -uc 'food' → tutwayucm 'to beg for food'.

5.4 The junctural y in -aya- must, in order to keep this combination apart from -aa-, be indicated; it will in the morphophonemic notation be written above the morpheme-separating signal (if any): /kma$\overset{y}{+}$alus/.

For the benefit of uniformity, also in -ayi- and -ayi- (see 5.5), this y, though automatic, will be written: /tutwa$\overset{y}{+}$uc-m/.

Telescoping (cf. 4.2.1) is symbolized as $\hat{+}$: /ƛ'lu$\hat{+}$uɬaq'°s-m/, /ƛ'aw$\hat{+}$uc/, /nu-ƛ'i$\hat{+}$ik/.

5.5 The sequence yi was found only in final position in some diminutive formations: walaasyayi from walasya 'lynx', kaakpayi from kapay 'humpback salmon', qpaapayi from qpa 'egg', ʔaaccayi from ʔacaya 'fox'.

6.0 $\dot{C}$ cannot be regarded as a sequence C + ?, because (a) $\dot{T}$ is as frequent in the lexicon as plain T; (b) $\dot{T}$ can be reduplicated as a whole (?a$\dot{\lambda}\dot{\lambda}$anuɬp 'gooseberry plant', from ?a$\dot{\lambda}$anuɬ 'gooseberry'), while $T_1T_2T_1T_2$-reduplications are unknown in Bella Coola; (c) $\dot{R}$ = ? + R in most cases (see 6.2.1); (d) $\dot{\lambda}$ would have to be seen as a hypothetical $^{\ddagger}\lambda$ + ?.

6.1 In some stems and suffixes $V\dot{T}$ alternates with V'T (cf. 6.2.1, (d)): tix-tiiq-ta 'yarn, thread' vs. ti$\dot{q}$ 'to sew, mend', six-siiq° 'airplane' vs. s(i)$\dot{q}$° 'to fly', ɬuuk-/ɬu$\dot{k}$- 'repulsive', nus-x°uuk-sta 'bath-tub' vs. x°u$\dot{k}$ 'to bathe', -aaq°s/-a$\dot{q}$°s 'eye', -liic/-li$\dot{c}$ 'skin, bark'.

6.2 Phonetically glottalic sonants appear in two surroundings: $\dot{R}^{V}_{R}$ (1) and $\dot{R}\check{R}V$ (2).

6.2.1 $\dot{R}^{V}_{R}$: closure of the glottis precedes R and is released synchronically with it. Four types of occurrence can be distinguished:

(a) glottalization is optional in e.g. ?a$\dot{ɬ}$napic/?aɬnapic 'I know it', ?a$\dot{m}$atalaaǎt/?amatalaaǎt 'parent';

(b) glottalization is obligatory in e.g. ?a$\dot{ɬ}$nayx 'to accompany', $\dot{l}$ac 'sea cucumber', $\dot{y}$animut 'to observe chastity' (vs. yanimut 'to brag');

(c) $\dot{R}^{V}_{R}$ is in complementary distribution with $^{?}\dot{R}^{C}_{/}$, cf. ?as$\dot{m}$llx̌s 'uptilted nose' (?as?m̥ 'erect', -llx̌s 'nose');

(d) $V\dot{R}$ is in free variation with V'R: pu$\dot{y}$aas/puuyaas 'Indian tea', plki$\dot{w}$a/plkiiwa 'kind of box', ɬa$\dot{l}$ay/laalay 'a name', ɬa$\dot{n}$a/ɬaana 'she' (cf. 6.1).

The variation $V\dot{R}$/V'R is not always permitted, cf. $\dot{c}$u$\dot{c}$uulit 'to make a dental click', $\dot{c}$aamas 'Victoria', qaali 'a name', taala 'money', where V'R cannot be replaced freely by $V\dot{R}$.

From (c) it follows that R̓V should be conceived as ʔRV. Where this (pre-) glottalization is arbitrary, I write ʔ in parentheses: ʔaɬ(ʔ)napic, ʔa(ʔ)matalaaɫ̌t. The doublets in (d) are uniformly spelled with ʔR: puʔyaas, plkiʔwa, laʔlay, ɬaʔna - one only has to remember the rule that Vʔ can alternatively be pronounced Vˑ.

The phenomenon discussed in (d) can be linked with the ones described in 4.3.1 and 6.1 and suggests a shift V̓C → VʔC → VˑC (or the other way around!), that is still in progress.

6.2.2 The monophonemic status of R̓ seems to be attested in only a very few items, where R̓ is found in pre-Ř position and cannot be equalled with ʔ + R, viz. s̓llapa [sə̓llæpæ] 'a geographical name', c̓llik [t^{s}ə̓llik^{x}ʷ] 'coyote', say̓walus 'a name', ɫ̌aw̓li 'big mussel', ʔuy̓yu 'a name', nan̓ni diminutive form of nan 'grizzly bear'.

In each of these items glottalization is optional. Writing e.g. *s̓ʔllapa would imply a phonetic representation [sʔəlˑæpæ], cf. ʔaʔmma [ʔæʔəmˑæ] 'hooded merganser'.

These R̓'s differ phonetically from the ones discussed in 6.2.1 in that the glottal closure sets in <u>simultaneously with</u> the first R and is released <u>immediately after</u> it. This peculiarity leads us to interpret R̓Ř as a sequence RʔR, here R(ʔ)R: sl(ʔ)lapa, cl(ʔ)lik, say(ʔ)walus, ɫ̌aw(ʔ)li, ʔuy(ʔ)yu, nan(ʔ)ni.

7.0 ʔ appears before R and V only (beside the free variation- cases mentioned in 4.3.1) and is, in the contexts ≠ʔV and ≠ʔR̥, automatically present (in structural terms: in Bella Coola only C's can occur word-initially), but is written in all instances, because most roots preserve the glottal stop when provided with a prefix, cf. ʔaɬʔatma 'dead' from

ʔatma 'to die', sʔmtsta 'chair' from ʔmt 'to sit'.

Furthermore, ʔ can, as other obstruents, be inverted: nusiʔmx plural form of nusʔimx 'preoccupied with sex', cf. ʔuqx̌ 'to call, invite' vs. q°ux̌ 'to call', ʔiknuas 'fog' vs. s-kinwas 'cloud'.

7.1 Some roots drop the ʔ: sulixc 'provisions for a trip', cf. ʔulix 'to choose', -c petrified zero-shape of -uc 'food'; sax̌a 'canoe' vs. ʔax̌a 'to build a canoe'; sacista 'fishing rod' vs. ʔaci 'to fish with a rod' (-sta 'implement'); slq 'brains' vs. ʔlq 'to think'; sim 'rope made of red cedar limbs' vs. ʔim 'to wind, tie'. The prefix s- is a nominalizer.

Also in quick speech ʔ may disappear (cf. 4.3.3).

8.0 In morphological processes the following alternations are observed: a/∅, ṯ/∅ (1), a/n (2), K°/K (3), q/x̌ (4), ɬ/l (5).

8.1.1 a/∅: mntx° 'to dip up' vs. ʔus-mntax°-uuc 'to skim off', ʔimlk 'man' vs. ʔimlaak°ɬ 'male animal', lu-/law 'loose', ʔaciwlt 'pregnant' vs. ʔaciwa 'belly' (-lt 'offspring'), tk° 'to bleed' vs. tak° 'sanitary towel'.

8.1.2 ŋ/∅: nu-sqnx̌nc-ta 'bird's appendix' vs. sqc 'sand' (nus-...-ta 'container/storage', here telescoped nu-...-ta), ʔiɬ-q°nɬ-timut 'to be laughing' vs. q°ɬ 'to laugh'.

8.1.3 i/∅: ʔix-pix-ɬp 'crabapple tree' vs. px 'crabapple', ʔa-x̌c-m 'to lie down' vs. s-x̌ic-ta 'bed'.

8.2 a/n: in many words, where a is found in final position, this a is replaced by n, when a suffixal derivation is formed: ʔiix̌sa 'medicine' → nu-ʔiix̌sn-uc-ta 'poison', caax̌a 'to chase away' → ʔax̌° caax̌n-aynix-ic

'I cannot get rid of him', ćik°a 'clam' → ćik°n-als 'cup', ćuutk°n-i diminutive form of ćuka 'mink' (for k°/k see 8.3).

This change can occur only when the suffix involved has a V as its first phoneme, for otherwise a is retained: caaǎa-tic 'I chase him/them away'.

8.3.1 K immediately following u varies with K° in other surroundings (usually as a result of reduplication): tutk°mik 'to sprain one's back (-ik)' vs. tuk 'to stretch, sprain', ćuutk°ni diminutive of ćuka 'mink', susq°ii = suuǐi 'younger sibling'.

8.3.2 Although clusters of unrounded and rounded K's are possible (s?ixk°x° 'bushtail rat', q°aaǎq°ni 'youngest in family'), uvular and palato-velar clusters are labialized entirely, when followed by a u-initiating suffix: sk°x°us 'negro', lit. 'black (skx) face (-us)' = /skx°-us/; k°x°usis 'he looked (kx) at his face (-us)' = /kx°-us-is/; q°ǎ°uusnm 'to caut a face in stone' (qǎ 'to carve', -uus 'face') = /qǎ°-uus-nm/.

8.4 q/ǎ: in a couple of words, q is in free variation with ǎ: ǎik°u = qik°u 'dragonfly', ǎca/qca 'pussy willow', ?ulǎliwa/?ulqliwa 'crazy'; in others, q is within one root in complementary distribution with ǎ, i.e. different allomorphs of the root are found before different suffixes: ciiǎ-ak 'to clear land' vs. ciiq-nk 'to dig roots', nu-yalǎ-m-tu- 'to put objects in a circle' vs. nu-yalq-iił 'hoop', qiq(i)nqii diminutive form of qinǎ 'shoe'.

In some suffixes q (q°) alternates with ǎ (ǎ°): -aaq or -aaǎ 'leg', -iiq° or -iiǎ° 'head'.

8.5 ɬ/l: this variance was noticed in some enclitical elements, such as ɬu/lu 'still, yet' and alu/aɬu 'to try to'. The choice between the two allomorphs is regulated by the phoneme directly preceding: ɬ is found after R and V, l after T: ʔaɬinu_ɬu 'you're still there' vs. ʔaɬic_lu 'I'm still there', puχ̓aw_aɬu 'they tried to come' vs. puχ̓s_alu 'he tried to come'.

9.0 In spite of the almost unlimited phonetic tolerance in Bella Coola, the following restrictions are in force:
(a) ʔ, h, and k show defective distribution (see 1.3, 2.1, and 7.0);
(b) the sequences $T^{p}ʔ$, Th, $T_1\dot{T}_1$, $\dot{T}_1T_1$, $\dot{T}_1\dot{T}_2$, $\not{\dot{R}}^{V}$, $\not{C}_1C_1$, $\not{K}^{\circ}K$, and $\not{K}K^{\circ}$ are, within the limits of one morpheme, not permitted, while others, such as -xx-, -q̓°x-, -kχ̓-, etc. were not recorded [3]);
(c) R-clustering undergoes certain limitations (see 9.1).

9.1 Morpheme-initially the clusters ym, yn, and yl are not tolerated, while ⁄nl, ⁄lm, and ⁄ln were not recorded [3]).

Geminate R-clusters are found neither in initial nor in final position. The sequences yl̥ and wm are in no case tolerated and word-medially reduced to resp. l and m, if suffixation would yield such combinations: tay 'to hit' + -lχ̓s 'nose' + -ayx 'passive' → talχ̓sayx 'to get hit on the nose", cay 'to stop, finish' + -lx 'inchoative' + -ak 'hand, work' → calxakm 'to give up, change one's mind'; k°uɬ- 'sex' + V̄kaw 'to brace, support' + -mut → k°uɬkamut 'to pay a prostitute', q̓aw 'to bury, store away' + -mut → q̓amut 'to put away, bury'.

Double -yy- was recorded in only one item, viz. ʔuyyu 'a name' (also ʔuyʔyu, cf. 6.2.2).

The doubled vowel aa is found only in medial position, with the exception of: ʔaalacii 'to tell', ʔaaχn 'an omen', ʔaaχɬ 'upstream area', ʔaaχqa 'to urinate'.

Also doubled u occurs only word-medially - the only exception is the enclitic tuu 'really'.

10.0 Stress is not phonemically significant and to a large extent subject to variation: yáki or yakí 'mountain goat', máci or mací 'cured salmon eggs'. In sonant- and V-less words stress is, of course, totally absent.

10.1 In certain environments there is, however, little variety concerning the place of stress:

(a) it usually falls on the last V in the position -T/: k°uɬík 'roof', tamás 'cockle', ta_χmstá_tx [2]) 'the man';

(b) if a word contains a vocalic sonant or one following a V, the stress is, in general, attracted by the V, c.q. automatic schwa immediately preceding that R: maǎ°atálaqa 'dipper (bird)', ɬmkmáni 'weasel', yulʔíta 'spinning wool instrument';

(c) if a word contains two or more R's following a V, the stress will be fixed on the V before the last sonant but one: nuʔayawálsmaw 'they cleaned the house', χmstáliwa 'self-supporting', q°úmsxiwa 'whiteman';

(d) long V's tend to attract stress: ɬááǎaɬta 'shoulderblade', sq°ááǎq°a 'bullhead', q°úúǎ°úúǎ 'swan';

(e) in the surrounding $\overset{V}{\underset{R}{}}T^fT^pV/$ it is the V or R directly preceding T^f that is stressed: slúxta 'crosspiece', χlústa 'curtain', χʔísta 'person';

(f) the final i (ii) in diminutive formations is always accented.

N O T E S

[1]) The transcription of some items discussed in this report calls for comment. It should be emphasized that writing q°lials 'green wall' is not merely a matter of arbitrary choice. Let us consider three possible spellings, which can be summed up as follows:

(a)	ʔyknwas	q°lyals	kykywyc	ʔaɬynwa	nwakyla	lwlx
(b)	ʔiknuwas	q°liyals	kikyuwic	ʔaɬinuwa	nuwakila	luwlx
(c)	ʔiknuas	q°lials	kikyuic	ʔaɬinua	nuakila	lulx

(a) entails a hierarchy of vocality w > y > R^n, which does not hold true in every case (see 3.4.1);

choosing (b) implies the disadvantages that (1) we use redundant symbols, while (2) the combination -iya- becomes somewhat ambiguous, cf. wa_siyas [wæsə̆yæs] 'the reason why he's good', where ə̆ is not narrowed to ɪ̆ (5.3);

notation (c) can be applied consistently and was therefore considered most feasible.

[2]) I have considered the items of the type full word + enclitic, preclitic + full word justifiable examples, because clitics behave phonetically like part of a word (suffixes) - they have in common with affixes, that (a) they play a decisive role in determining stress, (b) they influence, wherever possible, adjoining phonemes, and (c) they may have a V as initial phoneme.

In other respects clitical elements differ from affixes (semantic features, morphological and syntactic behaviour), but that is, within the scope of this paper, irrelevant.

[3]) This does by no means imply that such sequences are not permitted; in fact, additional data may prove that these combinations are possible, and may even reduce the number of limitations enumerated in 9.

At any rate, phonotactic restrictions do not seem to apply to compound words, cf. ti_ʔatt 'the one who (ti_...-t) painted (ʔat) it'.