

## Inverted Roots in Salish

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0. One of the more striking features of the Pan-Salish lexicon is the relatively large number of apparent cases of root inversion, *ie* pairs of cognate roots where the order of the consonants is reversed.<sup>1</sup> So, for example, a C<sup>1</sup>VC<sup>2</sup> pattern with a given meaning will have a counterpart in a C<sup>2</sup>VC<sup>1</sup> pattern with the same or similar meaning in another language, or even within the same language. Thus we find BC  $\chi^w$ ay ‘thaw’ alongside HI ya $\chi^w$  ‘thaw’. Similarly we find in CA the following items:  $\chi^w$ at ‘dart’ and  $\chi^w$ it ‘hurry at’ alongside  $\dagger$ a $\chi^w$  ‘rush’ and  $\dagger$ e $\chi^w$  ‘move with weight and speed’.<sup>2</sup>

While I have had little difficulty in amassing a considerable list of examples of root inversion in Salish, I had a great deal of difficulty finding even a few plausible examples in other language families with CVC roots whose morphological structures and histories I am sufficiently familiar with to allow me to assess the reasonableness of a potential inverted root pairing. One such family is Tibeto-Burman, in particular the TB languages of Nepal. Hale (1973) is a comparative dictionary of approximately 4000 entries for each of twelve Tibeto-Burman languages of Nepal [along with Indo-European Nepali]. Looking through Hale (1973) and searching for cognate forms in my own dictionary of Chantyal [Tibeto-Burman: Tamangic] (Noonan *et al* to appear), I was able to find only two plausible cases of root inversion.<sup>3</sup> A search through my comparative Western Nilotic database of approximately 900 entries yielded no examples. Something unusual seems to be going on in Salish.

In this paper I have two objectives. First, I would like to establish that the phenomenon of root inversion is indeed sufficiently common in Salish to merit the attention of Salishists and typologists. To this end, I have collected a set of one hundred putative cognate sets which illustrate the inverted root phenomenon: these are presented in §1. Second, I will discuss in §2 several hypotheses which could be put forth to explain the existence of inverted roots in Salish. I will conclude that none of these hypotheses provides a fully satisfactory account of the phenomenon in Salish.

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<sup>1</sup> I would like to thank Dale Kinkade and an anonymous reviewer for comments that much improved this paper. Needless to say, responsibility for any remaining faults lies with me.

<sup>2</sup> The abbreviations used in this paper are: BC [Bella Coola], CA [Coeur d’Alene], Ch [Upper Chehalis], Ck [Chilliwack], Cl [Clallam], Cm [Columbian], CS [Coast Salish], Cv [Colville], Cw [Cowichan], Cx [Comox], Cz [Cowlitz], ESh [Eastern Shuswap], Fl [Flathead], HI [Halkomelem], IS [Interior Salish], Ka [Kalispel], LCh [Lower Chehalis], Ld [Lushootseed], Li [Lillooet], Lm [Lummi], Ms [Musqueam], No [Nooksack], Ok [Okanagan], Pe [Pentlatch], PS [Proto-Salish], Qn [Quinault], San [Saanich], Se [Seshelt], Sg [Songish], Sh [Shuswap], Si [Siletz], Sm [Samish], So [Sooke], Sp [Spokane], Sq [Squamish], StS [Straits Salish], Th [Thompson], Ti [Tillamook], Tw [Twana], We [Wenachee]. The forms labeled We [all from Krueger 1967] are, in fact, Cm; they are listed separately from other Cm forms because of Krueger’s non-standard transcriptional practices.

<sup>3</sup> These are Gurung puh-, Tamang ‘puhp-, Kham pu- Thakali uhp-, Sunwar ‘hup- ‘ripen’, and Tamang Tihk, Magar khāT ‘match [intr]’. Note that in these transcriptions, <h> word initially and immediately following a consonant represents aspiration, but elsewhere it represents a murmured tone.

1. Below are 100 cognate sets containing inverted root pairs. Glosses are the same as the group heading unless otherwise noted. 'Id' refers to the group heading. The notation (sic) next to an entry indicates that an apparently deviant form is not a mistranscription on my part, but rather is transcribed here as it was in the source document. The strings of consonants in boldface type [C...C], representing the sequences of the relevant consonants, are for convenience given as Proto-Salish reconstructions since this is the simplest way of characterizing sets of forms which are the product of phonological processes unique to each language. This is done without any associated claims that all the inverted root pairs can be traced back to Proto-Salish.

1. *all*

Sq	$\text{ʔiʔ}\chi^w$	'all, every, be all gone'
Sh	$\chi^wey$	'all, be exhausted, perish (pl.)'

2. *bad*

	$\chi...s$	
Sg, Ch, LCh	$\chi\acute{e}s$	
Cz	$\chi\acute{e}\check{s}$	
	$s...X$	
BC	sx (sic)	

3. *bend, wood*

	$l...p'$	
Sh	$lép'$	'bend branch down'
Th	$láp'$	'bend something over'
Cm	$láp'$	'bend'
	$sláp'$	'stick'
Ok, Cv	$slíp'$	'wood'
CA	$líp'$	'wood'
Sq	$láp'$	'warped, skewed'
Cz	yap'a-	'bend down (a branch)'
	$p'...l$	
Ld	$p'alq$	'turned out of shape; bent out of line, shape, position'
CA	palq' (sic)	'be curved'

4. *blind*

	$\text{ʔ}^w/\chi^w...t$	
Sh	$\text{ʔ}^we\text{t}$	'glitter, blind'
Cx	$\chi^wa\text{t}$	'shiny'
	$t...ʔ^w/\chi^w$	
Ti	$t\acute{e}\chi$	'blind'

The Ti form may, in fact, be rounded [Dale Kinkade (pc)].

5. *boil* (v)

	<b>p...l</b>	
Ld	pəlx <sup>w</sup>	(from Snyder; Hess does not list this form)
Sh	x-pl-ém	'put rocks in the sweathouse'
CA	mal'	'id (tr), scald'
	mel'	'id (intr)'

	<b>l...p</b>
Ch	lapém

For the m/p alternation see 69 *skunk*.

6. *bone, brain*

	<b>c'...m 'bone'</b>		
Cw, Ms	sç'amʔ		
	sç'áməq <sup>w</sup>	'skull'	
Ck	sça·m		
	sçá·màq <sup>w</sup>	'skull'	
Cm	şc'ám'		
	c'əm'qənálx <sup>w</sup>	'brain'	
CA	sc'am		
Ka, Sp	sc'om		
Cv	sc'im		
We	sc'am		
	sc'əmqanálx	'brain'	
Sg	sc'amʔ		
Sq	c'amʔčn	'bracelet'	
Fl	sc'om		
	scəmqín (sic)	'brain'	
Cl, No	sc'um		
	sc'aʔmúʔən	'fish spine'	
Sh	sc'em	'fish bone'	
	s-c'm-qin	'brain'	
Ld	sc'əbqíd	'brain'	[*m → b]
Ti	c'aʔwéwh	'fish spine'	[*m → w]
Lm, So	sc'əmóʔən	'fish spine'	
San, Sg	sc'əmáʔən	'fish spine'	
	<b>m...c' 'brain'</b>		
Cw, Ms	sməç'qən		
Ck	sməç'qəl		
Sq	sməc'álqn		
No	məc'qín		
Lm	sməç'qən		

On the connection between the 'bone' and 'brain' glosses, Kuipers (1970) notes Greek *krānion* 'cranium' and OHG *hirni* 'brain'. The evidence of a/u ablaut and pharyngealized vowels in Cm and Cv (Mattina 1979) points to a PS pharyngeal in this root, or at least a pharyngeal in PIS.

7. *break*

	<b>m...ɣʷ/ɣʷ/ɣ'</b>	
Cv, Spmaɣʷ		
Cm	maɣʷ	
CA	meɣʷ	'smash, ruin'
Th	maɣ'	
Ok	mɣáʔ	
ka	máʔu, maw	'burst, break off, break loose, take out'
	<b>ɣ...m</b>	
BC	χm	
Cm	ħamp	'fall off' (?)

8. *break, open*

	<b>q'...w</b>	
Cv	q'aw	'crack'
Cm	q'aw'	'split'
CA	q'ew'	'break stiff object'
Ka	q'aʔú	'break'
Ti	quul	'crack'
Sh	q'iw	'break'
	<b>w...q'</b>	
Sq	wiq'	'open (about container)'
Sh	wiq'	'undo, wreak'
CA	gʷaq'	'spread apart as to part hair, remove layers'
Ld	gʷəq'	'open'
Se	wəq't	'open'
Ch	waq't	'open'

9. *cataract*

	<b>χʷ...qʷ...l</b>
Sh	c-χqʷl-us
	<b>qʷ...l...χʷ</b>
Sq	s-qʷəlχʷ

10. *cloud*

	<b>q...ʃ'</b>	
Tw	sqaʃ'	
Sq	s-qaʃ'	'clouds'

Ld, Ch      s-q'aλ' (sic)  
                  λ'...q  
 Sh            sλ'iq̄t            'id, sky'  
 The glottalization of /q'/ in Ld is unexplained. Cf. 73 *smoke*.

11. *cold*

two similar root; both attest inversion.

	<b>χ...ʔ</b>		
Ti	xaaʔ (Edel)		
	χeʔəʔ		
Ld	χəʔ	'hurt, sick'	[Semantically, cfSp c'er 'cold' and CA c'ar 'hurt, ill, ache'.]
Sq	χʔan	'epidemic'	
Li	χəʔ		
	<b>ʔ...χ</b>		
Th	ʔaχi		
	<b>χ...yλ'</b>		
Cw, Ms	χayʔλ'		
Ck	χɛ·yλ'		
No	χəyλ'		
	<b>λ'...yχ</b>		
Cz	λix (sic)		
Ch	λ'is̄		
Ld	λ'aʔ		

The Ld lack of /y/ is a problem. Cz and Ch forms attest the sporadic fronting of uvulars in these languages.

12. *comb*

	<b>w...x</b>		
Cm, Cz	wəx		
Ch	wəš	'pull'	
CA	g <sup>w</sup> eš		
	g <sup>w</sup> iš	'weir'	
Ka	uš		
Sh	wx-qin-m		
	<b>x...w</b>		
Sh	xiw	'harrow'	

13. *cry*

	<b>χ/χ<sup>w</sup>...m</b>
Cw, Ms	χé·m
Ck	χè·m

Sq	χəh-m, χam	
Cl	χ <sup>w</sup> úŋ	[*m → ŋ]
Lm, So	χ <sup>w</sup> óŋ	
San, Sg	χ <sup>w</sup> áŋ	
BC	x <sup>w</sup> um (sic)	
	<b>m...χ</b>	
Ti	waχ	[*m → w]

Dale Kinkade (pc) notes that in a draft dictionary of Ti, Lawrence Thompson recorded waχ<sup>w</sup>.

#### 14. *cut*

	<b>ɬ...k'</b>	
Sq, Ld	ɬiç'	
Ck	ɬí-c'	
Ms, Cw, Sg	ɬic'	
Ch	ɬáç'-ɬ	'hurt'
CA	ɬeç'	'string breaks'
Sh	ɬk'ʔep	'broken (rope), dead'
	<b>k'...ɬ</b>	
Ld	ç'...ɬ	'rip a gash'
Cv	kɬíc'ək	'trim (e.g. a tree)'

Via the l/ɬ correspondence [Noonan (ms)], these forms are likely cognate with IS \*k'ir, \*k'ər: Ok k'r 'cut', Cv k'ar, k'ir 'cut', Ka č'ál 'cut', Li k'əl'-q-én 'cut with scissors', Cm k'ər 'id', CA č'ár 'id', Th k'ələ, k'il 'cut strips of skin', k'el 'id, cut anything with shears'.

#### 15. *descend*

	<b>t'...x<sup>w</sup></b>	
Sq	t'ix <sup>w</sup>	
Ck	t'ax <sup>w</sup>	go downriver'
	<b>x<sup>w</sup>...t'</b>	
Ld	x <sup>w</sup> it'	'fall, drop from a height'
Tw	x <sup>w</sup> t'-	'go down'

#### 16. *descend*

Cl	x <sup>w</sup> iy	'go down'
Sh	yux <sup>w</sup>	

#### 17. *die, rotten*

	<b>q'...y</b>	'die'
Sq	q' <sup>w</sup> uy	'id, be paralyzed'
Cm, Ms	q'áy	
Ck	q'á-y	

Sg	q <sup>w</sup> áy		
Se	q <sup>w</sup> óy		
	q <sup>w</sup> oyəwəs	'be tired'	
	y...q <sup>w</sup>	'rotten'	
Sh	yʔuq <sup>w</sup>		
Sq	p'ayq <sup>w</sup>	'rotten wood'	
CA	doq <sup>w</sup>	'wood is rotten'	[*y → d]
Tw	yóq <sup>w</sup>	'rot'	
ESh	yq <sup>w</sup> iy	'decayed wood'	
Ld	yóq <sup>w</sup> ayʔ	'rotten stick'	[Hess doesn't list this form.]
Li	zoq <sup>w</sup>	'die'	[This form unexpectedly lacks glottalization on the /q <sup>w</sup> /.]

18. *dig*

	t'...k <sup>w</sup>		
Sq	t'ak <sup>w</sup>		
BC	tk <sup>w</sup> m	'dig clover roots'	
	k <sup>w</sup> ...t'		
Sh	k <sup>w</sup> t'-em	'dig wild potatoes'	
CA	k <sup>w</sup> et'	'expose, be evident, plain'	

Ca may not belong in this set as evidenced by CA k<sup>w</sup>it' 'take off clothes' and Cm k<sup>w</sup>əʔ 'take out of', k<sup>w</sup>iʔ 'take apart, take off'.

19. *dig*

	χ...c		
Sp, Ka	χec	'dig roots'	
Ld	χəc	'pull out, extract; s-χac 'prick, stick'	
	c...χ		
BC	ciiχ		

20. *dirty*

	c'...q <sup>w</sup>		
Cl	c'əq <sup>w</sup>		
Sq	c'iq'	'mud, clay'	
Cw, Ms	ç'aq <sup>w</sup> əm	'rotten'	
Ck	ça·q <sup>w</sup> əm	'rotten'	
Sh	c'iʔəq <sup>w</sup>	'rotten'	
Sg	c'aq <sup>w</sup> əŋ	'rotten'	
BC	c'u-c'q <sup>w</sup>	'sore'	
Ld	č'iq <sup>w</sup>	'id, rotten filthy'	
	q <sup>w</sup> ...c'		
Ch	q <sup>w</sup> íc'		
Ck	q <sup>w</sup> əç'	'defecate'	

21. *disappear, negative*

	<b>x<sup>w</sup>...y</b>	
Sh	x <sup>w</sup> ey	'disappear'
Li	x <sup>w</sup> az	'disappear'
	x <sup>w</sup> ʔaz'	'no(t)'
	x <sup>w</sup> ʔay-s	'refuse'
Ld	x <sup>w</sup> iʔ	'no(t)'
	<b>y...x<sup>w</sup></b>	
Tw	yəx <sup>w</sup>	'disappear'

22. *dissolve*

	<b>ɿ...m</b>	
Ca	ɿem(t)	'melt, dissolve, waste away'
Cm	ħəmp	'id, worn out'
Ka	aámt	'melt'
Cv	ɿamáp	'melt, wet'
Ok	ɿməp	
Sp	ɿam	'melt'
	<b>m...ɿ</b>	
Tw	baχ	'wear out'

23. *dive*

	<b>(ɿ<sup>w</sup>)ʔ...s</b>	
Th	n-ɿ <sup>w</sup> ʔus	'sink'
Li	n-ɿ <sup>w</sup> uʔs	'sink'
Sh	wʔus, ʔust	
Cm, CA, Ld	ʔus	
Ka, Sp, Cv	ʔust	
Ch	ʔísuʔ	
Tw	ʔosél	
	<b>s...χ<sup>w</sup></b>	
Sh	suχ <sup>w</sup>	'descend'

Note the unexpected correspondence of Li, Th ɿ<sup>w</sup> with Sh w and χ<sup>w</sup>, assuming that the latter is cognate (the former almost surely is).

24. *dry*

	<b>k'ayʔ</b>	
Sq	č'ayʔ-, č'iʔ	'dry out, wither'
	s-č'ayʔ	'dead tree'
Sh	sk'iʔ-élq <sup>w</sup>	'dry, dead tree'
Th	k'ʔey'	'die away, disappear'
	<b>k'ayʔ-x<sup>w</sup></b>	

Sq	č'i?x <sup>w</sup>	
	č'ix <sup>w</sup> an?	'id (tr)'
	č'ix <sup>w</sup> -í?	'get dry'
Cw, Ms	c'ew?x <sup>w</sup>	
Ck	c'ε·yx <sup>w</sup>	
Tw	č'iw?ǎχ (sic)	
ESh	k'əx (sic)	'dry meat (tr)'
	<b>x<sup>w</sup>ayk'</b>	
Sh	x <sup>w</sup> ík'-m	'dry fish (tr)'
	s-x <sup>w</sup> ík'	'dried salmon'
ESh	x <sup>w</sup> ík'	

It appears that the root \*k'ay? when suffixed with -x<sup>w</sup> formed the basis for a new inverted root \*x<sup>w</sup>ayk'.

### 25. *dry*

\*k'ay?, without the suffix -x<sup>w</sup>, appears to have its own inverted counterpart, though with a different ablaut grade, in Ti yuč' 'dry'.

### 26. *eyelash, eyebrow*

	<b>c...p...t</b>	
Sq	cíp-tn	'eyelashes'
Fl	cpǽ?	'eyebrow'
Ka	cpcpǽ	'eyebrow', cap 'blink'
Sh	cəpǽ-úy'e	'eyelash'
	<b>t...p...Ø, t...p...s</b>	
Cw, Ms	tǽp-tən	'eyebrow'
Ck	tǽp-təl	'eyebrow'
Sh	tǽps-úy'e	'eyelash', tǽps-m 'blink, wink'
No	tǽptən	'eyelid'

Kuipers 1974 is the source for all the Sh forms.

### 27. *fall*

	<b>k...t</b>	
BC	kǽ	'id, drop'
Sh	kiǽ, kǽ	'come off, come apart, be released'
	kǽ-ekst-m-n-s	'drop, let go of'
	<b>t...k</b>	
Cz	tǽk-iq	'fall over'

### 28. *fall*

Ld	bəč(a)	'fall from standing position, set down'
Cz	kám-ayq'	'fall out, tip over'

29. *fall*

Cw	wəʎ'əc'
Ms	wəc'əʎ'

30. *fat*

	<b>q<sup>w</sup>...c</b>	
Sq, CA, Ka,	q <sup>w</sup> uc	
Sp		
Ka	s-q <sup>w</sup> uct	'fat (n)'
Cm, Sh	q <sup>w</sup> uct	
Ti	q <sup>i</sup> uc	
	<b>c'...q</b>	
BC	s-c'q	'animal fat'

If cognate, the BC form is unique in inverting the point of articulation but leaving the glottalization intact. The loss of labialization reflects a frequently observed phenomenon: cf BC q'χ 'carve' Ch q<sup>w</sup>əχ<sup>w</sup> 'cut', Sk q<sup>w</sup>əχ<sup>w</sup> 'butcher', Sh q<sup>w</sup>iχ<sup>w</sup> 'fell tree'.

31. *fat, grease*

	<b>χ<sup>w</sup>...s</b>	
Se, Sq	s-χ <sup>w</sup> əs	'fat'
Ld	s-χ <sup>w</sup> əs	'grease, animal fat'
Ck	χ <sup>w</sup> əs-təl	'animal fat, lump of grease, suet'
BC	χs	'fat, be fat'
	χ <sup>w</sup> s	'oil something'
	<b>s...χ<sup>w</sup></b>	
Ld	səχ <sup>w</sup>	'grease, fat'

The /x<sup>w</sup>/ in Ld is unexplained.

32. *fight*

	<b>t...y/ɣ</b>	
CA	tiy'-eq <sup>w</sup> (-t)	
Ka	tiyáq <sup>w</sup> t	'fight with blows'
Sh	t'ɣi?-ns	'compete'
Sq	tíw?iɪ-n	'defend, protect'
	tiy?-wiɪ	'be protected'
	<b>y...t</b>	
Ti	yət-il	'compete'
Ck	?əyá-təl	

Sh /t'/ may be secondary, especially if the \*y (or \*ɣ) was glottalized. Sh and Ok /ɣ/ regularly corresponds to /y/ (and its reflexes) elsewhere: Ti liy 'beat', Cm líy 'stab, poke, sting', CA léj 'stab, poke, sting', Sh lɣ-em 'put/stick into', Ok lɣmen 'insect stings'.

33. *go*

	y...ʔ	
Lm	yeʔ	
Cl	hiyáʔ	'id, depart'
	ʔ...y	
Ck	ʔê·y	

34. *go up*

Sh	t'eχ	'go upwards, upstream'
Cv	χíʕ'	'climb, go up'

These forms may possibly be connected with 36 *grow, tall*.

35. *go with, go behind*

	ʔ...w	
Sq	ʔawʔt	'be behind, coming after, future'
Ch	ʔaw	'behind'
BC	ʔawt	'follow'
Sh	ʔewit	'the last, behind'
CA	ʔíg <sup>w</sup>	'set out for'
Cm	ʔáwt	'go with'
Ka	eʔut	'follow, go behind'
	w...ʔ	
Ld	g <sup>w</sup> ah, g <sup>w</sup> a	'accompany'

36. *grow, tall*

	ʕ'...χ	
Ld	ʕ'áχ <sup>w</sup>	'grow' [labialization unexplained.]
Sh	t'eχ	'tall'
Cv	ʕ'aχ	'grow'
	χ...ʕ'	
Sq	χaʕ'-us-tn	'ridgepole' [= tall + wooden structure + implement]
Cv	xʕ'aʕ' (sic)	'he grew'

The Cv forms are the most curious. Mattina (1973) gives ʕ'əχáp 'he grew' (p31), which supposes √ʕ'aχ, and xʕ'aʕ' 'he grew', which supposes √xaʕ'. In the latter, the velar, as opposed to the expected uvular, is unexplained. The analysis of the Sq form is my own; Ms sχəʕ'wíltən 'beam' casts some doubt on this analysis. These forms may possibly be connected with 34 *go up*.

37. *growl*

	ʕ...y-n
Sq	χíʔnm
Ch	χá·y

Cm	ħíy-m	
Sh	ɣn-em	
Ld	χid-ib	
Th	ɣaz-ón	(*y → z)
	<b>y...ɣ-n</b>	
Li	záɣ-ən	(*y → z)

38. *hard*

	<b>ɣ'...ɣʷ</b>
Sq, Hl, Ch	ɣ'óχʷ
Sg, BC	ɣ'aχʷ
Sh	t'ɣʷ
Li	ɣ'ɣʷ
Th	ɣ'uɣʷ
	<b>ɣʷ...ɣ'</b>
Ld	χaɣ'

The lack of labialization in Ld is unexplained.

39. *hunt*

	<b>ɣ'...k'</b>	
Sq	ɣ'ič'	'stalk'
Sh	t'ək-xiʔ-st-s	'follow close behind someone'
	<b>k'...ɣ'</b>	
Sq	č'əhɣ'	'hunt'

40. *hurt*

	<b>m...kʷ</b>	
Sq	maʔkʷɬ	'get hurt, be hurt'
Ld	baʔkʷɬ	'get hurt'
Ck	mé·kʷɬ	'get hurt, be hurt'
	<b>kʷ...m</b>	
BC	kma	'hurt'

41. *kick*

	<b>l...m</b>
Cx	yəmən
Cw	ləméʔt
	<b>m...l</b>
Sh	mlx

Ld balqʷəyíʔqʷəb 'somersault' is probably to be linked with Ld bəlkʷ 'return', Tw asbuluqʷ 'round', Cm məlkʷ 'round, cylindrical', CA melkʷ/milkʷ 'round, whole, entire' rather than with the above.

42. *know*

	<b>q'...l</b>	
Ck	sʔə-q'əl-l-əx <sup>w</sup>	
Cw, Ms	ʔəq'ələx <sup>w</sup>	
Tw	k'á·l	
Ld	q'al [in x <sup>w</sup> i? g <sup>w</sup> ədsəsq'álbid 'I don't believe it]	
	<b>l...q'</b>	
BC	lq'	'think of'
	ʔas-lq'-c	'I know'
Ld	ləq'aʔ	'be correct'

The forms might be cognate with the IS root √qal, as in Sh qlmux<sup>w</sup> 'Indian, human being', Ka sqélix<sup>w</sup> 'Indian'.

43. *laugh*

	<b>n...y</b>	
Ms	náy	
Ck	lay	[*n → l]
Cl, Sg	náč	[*y → č]
	<b>y...n</b>	
Cw	yán	

44. *leak*

	<b>ʃ...w</b>	
CA	ʃaw	'id, drop, drip'
Cv	ʃ'aw'	'droop'
Ka	au	'id, drop'
Sp	ʔâw	
	<b>w...ʃ<sup>w</sup></b>	
Ld	g <sup>w</sup> iχ <sup>w</sup>	

The labialization might be secondary — it should be noted that Snyder gives Ld g<sup>w</sup>éχ with an unlabialized final.

45. *lie down*

	<b>χ...c</b>	
Sq	χic	'id, prostrate'
Cw, Ms	éχəθ	
Ck	é·χəθ	
Tw	a·χíc	
Se	ʔáχec	
Cx	ʔáχιθ	'be lying down'
BC	ʔa-χc-m	
	s-χic-ta	'bed'
No	ʔáχic	



Sq	yaχ <sup>w</sup>	
Se, HL	yaχ <sup>w</sup>	'thaw'
Ld	jaχ <sup>w</sup> (a)	'id, thaw'
Cx	ǰaχ <sup>w</sup>	'thaw'
Cl	čaχ <sup>w</sup>	
Tw	ʔyaχ	
Ch	yǎχ <sup>w</sup>	
Li	zaχ <sup>w</sup>	
	χ...ʔ	
BC	χ <sup>w</sup> ay	'thaw'

Kuipers (1982) connects Sh liŋ<sup>w</sup>, ʔʔeŋ<sup>w</sup> with these forms.

49. *mountain*

	<b>m...q<sup>ʷ</sup></b>	
ka	esəmoq <sup>ʷ</sup>	
	moq <sup>ʷ</sup>	
Fl	esamoq <sup>ʷ</sup>	
	<b>q<sup>ʷ</sup>...m</b>	
Th	squm	(Haeberlin 1918)
Sh	q <sup>ʷ</sup> m	'higher ground'
	t-q <sup>ʷ</sup> əmut	'climb, be on top'

50. *new*

	<b>χ...c'</b>	
Ld, Ch	χic'	'raw (meat)'
Tw	χec'	'raw'
Sq	χc'ayʔ	'unfinished canoe hull'
Cw	χəç'éyʔ	'unfinished canoe hull'
	<b>c...χ</b>	
BC	ciχ	'new fresh'

The Sq and Cw forms are perhaps to be segmented χəc'-ayʔ, meaning 'new/raw thing'. The lack of glottalization in BC is unexplained.

51. *new*

	<b>χ...w</b>	
Cw, Ms	χéwʔs	
Ck	χé·ws	
Sq	χáwʔs	'id, fresh'
Sg	χáwʔəs	
Ld	χáw's	'id, fresh'
Sh	c-χiw	'raw, uncooked'
CA, Cm, Cv	χíw'	'raw, uncooked'
	<b>w...χ</b>	

CA	g <sup>w</sup> aχ	'young'
Cm	wəχt-alt	'child, baby'

52. *owl*

	<b>x<sup>w</sup>...p</b>	
Sh	s-x <sup>w</sup> up-x <sup>w</sup> əp	'screech owl'
Ld	x <sup>w</sup> upšəd	'saw-whet owl'
	<b>p...x<sup>w</sup></b>	
We	pox <sup>w</sup> pox <sup>w</sup>	'burrowing owl'
Cm	puχ <sup>w</sup> púχ <sup>w</sup>	'burrowing owl'

It is interesting that inversion occurred in a root that is likely of onomatopoeic origin.

53. *pitch*

	<b>t'...c'</b>	
Cv, Cm	t'ic'	
We	t'ič'	'id, gum'
Cm	t'ic'	'id, rubber'
CA	t'ic'	'gum
	<b>c'...t'</b>	
Sh	cit'	(*c' → c via glottal dissimilation)
Th	c'iλ'	(*t' → λ')

Inversion of this root in Sh must predate glottal dissimilation.

54. *point, seven*

	<b>t...k'</b>	
Sq	t'ak' <sup>w</sup> -us	'point, indicate'
	t'ak' <sup>w</sup> -us-áč	'seven'
Tw	t'k' <sup>w</sup> -ós	'seven'
Ti	tč' <sup>l</sup> -us	'seven'
Si	tč' <sup>l</sup> ols	'seven'
Ld	ʔu-tč' <sup>l</sup> -ádiʔ	'point with finger'
	<b>k'...t</b>	
Ld	č'ət	'point'

The glottalization of t in Sq and Tw is unexplained, but the labialization of k' in these languages is secondary, the result of the following -us suffix. Ti may also evidence inversion in kat 'show' (Edel p18). This form supposes, if cognate, a faulty recording or deglottalization. If \*k' → k'<sup>w</sup> in this form before inversion — thereby protecting k from palatalization — the subsequent loss of labialization is expected.

55. *pull out*

**c..k'<sup>w</sup>**

BC	ck <sup>w</sup>	
Hl	θək <sup>w</sup>	
Sq	ck <sup>w</sup> acut	'run (lit. 'pull oneself')
	<b>k<sup>w</sup>...c</b>	
Sq	k <sup>w</sup> əc	

The non-inverted form of this root is widely attested with k<sup>w</sup> with the sense of 'pull': Sh ck<sup>w</sup>, CA cek<sup>w</sup>, Ka ck<sup>w</sup>, Cm cək<sup>w</sup>. Kuipers (1970, p59) offers an explanation for the absence of glottalization.

#### 56. *pull out*

	<b>c'...w</b>	
Cm	c'u <sup>w</sup> 'q	'pull out a nail'
CA	c'a <sup>w</sup> 'q	'pull out a solid object'
Ka	c'oʔóq	'come off, break off'
	coóq (sic)	'pull out'
Sp	co·q (sic)	
Sq	c'uʔ-n	
	c'uʔ-qs	'come out'
	<b>w...c'</b>	
Cv	wíc'	
CA	g <sup>w</sup> ic'	'pick out with stick'
Sh	wec'	

#### 57. *pus, boil*

	<b>m...c'</b>	'pus'
Sq	mác'uʔ	
Hl	máç'əʔ	
Cm, Sh	məc'uʔt	
Ca	mác'uʔt	
Cl	ɲəc'ʔt	
Me	məc'áʔt	
Ld	bəc'úlb	
Tw	bəc'óʔ	
Cv	mc'ʕaʔt	
Sp	mc'óʔt	
	<b>c'...m</b>	
Cm	sc'um'c'um'	'boil (n)'
CA	sc'óm'-c'óm-ʔt	'boil (n)'
Sh	s-x-c'm'ʔ-os	'matter in eye'

Both the Cv form and the ablaut point to a pharyngeal in the protoform, though the position of the pharyngeal is unclear. The PS form might be \*mʕac'.

58. *rapid movement*

	<b>χ<sup>w</sup>...ɬ</b>	
CA	χ <sup>w</sup> aɬ	'dart'
	χ <sup>w</sup> iɬ	'hurry at'
Ti	cχ <sup>w</sup> əɬ	'quickly'
Ka	χ <sup>w</sup> éléčst (sic)	'hurry doing something'
Sh	x <sup>w</sup> ʔal (sic)	'be in a hurry'
	<b>ɬ...χ<sup>w</sup></b>	
CA	ɬaχ <sup>w</sup>	'rush'
	ɬeχ <sup>w</sup>	'move with weight and speed'
Cm	ɬəχ <sup>w</sup> p'	'leave rapidly'

59. *red*

	<b>k<sup>w</sup>...m</b>
Sq	k <sup>w</sup> ím
Cw, Ms	k <sup>w</sup> ím
Ck	k <sup>w</sup> i·m
	<b>m...k<sup>w</sup></b>
BC	muk <sup>w</sup>

The Ps form might be \*k<sup>w</sup>i+m. This would accord with the IS forms, which would then be analyzed as \*k<sup>w</sup>i+l: Ka, Fl, Sp, Cv k<sup>w</sup>íl, Cm, CA k<sup>w</sup>ól. Ti kal also attests \*k<sup>w</sup>əl. Ld unexpectedly has k<sup>w</sup>iλ'.

60. *rib*

	<b>q'/k'...ɬ</b>
We	sq'aɬp
Cm	ck'aɬp
BC	ck'ɬp
Cv	cqiɬp
Cz	sk'átp (sic)
	<b>ɬ...q'</b>
Sh	ɬeq'ɬ, ɬəq-ɬeq'ɬ

Kinkade (1975, p18) regards ck' as the root in the Cm form, its meaning unknown, and -aɬp as the lexical suffix meaning 'tree, plant', though he concedes the latter to be a problem semantically. The We initial s is a mis-recording, though the Cz initial s is not [Kinkade (pc)]; the q' and q in We and Cv (the latter is from Boas and Haeberlin (1927)) are likely also mis-recordings: Mattina 1987 gives ck'iɬp.

61. *rotten*

	<b>q<sup>w</sup>...y</b>	
Cw, Ms	pq <sup>w</sup> ay?	'rotten wood'
Ck	pq <sup>w</sup> ay	'rotten wood'

	<b>y...q<sup>w</sup></b>	
Ck	yaq <sup>w</sup>	'rotten fish'
Sq	p'əyq <sup>w</sup>	'rotten wood'

There are a number of problems with this correspondence. First, the relation

of Ck pq<sup>w</sup>ay and yaq<sup>w</sup> supposes either the existence of a prefix p-, for which there is no evidence, or the deletion of p. Second, there is the glottalization on the Sq form and its lack in Hl, though since Ck yaq<sup>w</sup> seems fairly certainly to attest the widely attested root \*yuq<sup>w</sup>/yəq<sup>w</sup> (Sh s-y?uq<sup>w</sup> 'rotten wood', CA doq<sup>w</sup> 'wood is rotten', Tw yoq<sup>w</sup> 'rot', Ld yoq<sup>w</sup>ay? 'rotten stick' (from Snyder: Hess does not record this form), ESh yəq<sup>w</sup>iy 'decayed tree') and since Ck a derives from either \*a or \*u, the lack of glottalization on Hl q<sup>w</sup> does not rule out a correspondence with the Sq form, given that it, too, contains \*yuq<sup>w</sup>. Third, pq<sup>w</sup>ay? and pq<sup>w</sup>ay may contain the lexical suffix -ay? 'bush, tree', supposing therefore a root p...q<sup>w</sup>, though in this connection it can be said that an inversion which would fortuitously produce a sequence

resembling this lexical suffix might be retained.

#### 62. sand

	<b>p...q<sup>w</sup></b>	
Cw	pq <sup>w</sup> əcən	
Sg, Cl	pq <sup>w</sup> əcən?	
	<b>q<sup>w</sup>...p</b>	
Sq	q <sup>w</sup> píčn	
Ka	sq'e-pe (ʔene?)	
Cv	s-q'apínax <sup>w</sup>	

The Ka and Cv forms may not be cognate.

#### 63. see

	<b>l...m</b>	
Ld	lab	
Tw	ʔlab, laʔb	
Cw	lem	
	<b>m...l</b>	
Sh	mel'	'catch a glimpse'

#### 64. see

	<b>χ...ʔ</b>	
Tw	χéʔ	
Sq	χíʔ	'appear suddenly'
	<b>ʔ...χ</b>	
Ch	ʔaχ, ʔəχ	

65. *selfish*

	<b>q'/q...χ</b>	
CA	q'eχ	'frugal, grudging'
Sh	q'iχ	'strong, hard, tough, solid, difficult'
Ld	dx <sup>w</sup> -qəqáχa?	
	<b>χ...q</b>	
Sh	χəq-χeq-t	

66. *sell, buy*

	<b>x<sup>w</sup>...y...m</b>	
Sq	x <sup>w</sup> uyum	'sell'
Ld	x <sup>w</sup> uyub	'sell'
Tw	x <sup>w</sup> oyób	'sell'
	<b>m...y...x<sup>w</sup></b>	
Ti	wayəx	'buy' (*m → w)

67. *shake*

	<b>y...k<sup>w</sup></b>	
Se	yík <sup>w</sup> -ns-əm	'nod the head'
Ld	jak <sup>w</sup> (a)	'id, rock, wag'
	<b>k<sup>w</sup>...y</b>	
Sg	k <sup>w</sup> iyəχ	
Sq	k <sup>w</sup> əy	'behave strangely, irregularly, energetically'

Problems here include the failure of Sg \*y to become č and the relation of Ck

k<sup>w</sup>əl 'shake' to this set. Ld j definitely points to \*y.

68. *sing*

	<b>k<sup>w</sup>...n</b>	
Sp	k <sup>w</sup> ən	
Ka	ʔex <sup>w</sup> kun	'produce sounds, sing, chirp'
	nkuné	'song'
Ca	k <sup>w</sup> in	
Ti	sək <sup>w</sup> ón	'song'
Cw	sk <sup>w</sup> ənáθən	'shaman's song'
	<b>n...k<sup>w</sup></b>	
Sh	nk <sup>w</sup> w-ełx <sup>w</sup> -m	'sing root digging song'

69. *skunk*

	<b>c'...p</b>
Ck	sç'ápəq
Sh	sc'ípəq

	<b>p...c'</b>
Cw, Ms	spəpəç'ínʔ
Sq	sməc'ínʔ

The Sq form has m in place of expected p. Several other instances of m for expected p can be found in Salish cognate sets, e.g. PS \*piŋ-q 'white': Cv paŋ, Cm páh, but Sh meŋ. Cf also 5 *boil* (v), This root may be related to 80 *squeeze*.

70. *slow*

Sh	yuw	'delay, slow down'
Sq	ʔuyumʔ	(= wy-umʔ ?)

71. *small, grandchild*

	<b>c...m</b>	'small'
Sq	ʔəcím	'id, little; a little'
CA	ci-cím'	
Ka	cim	
	sccəmél't	'children'
Sh	cim	
	s-cm-elt	'children of one family'
Cm	ccəm'ál't	
We	sččəmél't	'children'
	<b>(?i-)m...c</b>	'grandchild'
Sq	ʔíməc	
Sh	ʔimc	
Cm	ʔaʔím'caʔ	
Cw, Ms	ʔíməθ	
Ck	ʔí·məθ	
Ch	ʔím(a)c	
Ld	ʔibac	
Tw	ʔébəc	

The proposed relation between the two forms is plausible if \*ʔiməc can be analyzed as \*ʔi-məc. If the segmentation proves to be different, *ie* if the form is reconstructable as \*ʔim-əc instead, then of course the relationship between the forms vanishes. Evidence that the latter is correct comes from Sq ʔimʔ 'boy', though this form, too, might be variously analyzed, possibly as \*ʔi-m(na)ʔ, the prefix ʔi- affixed to a truncated form of the commonly attested \*mn-aʔ 'child', found throughout CS (including Ti) and BC.

72. *smile*

	<b>ʔʷ...t'</b>	
CA	ʔʷit'	'break into a smile'
	ʔʷet'-s	

Ti	χ <sup>w</sup> ac' t'...ɣ <sup>w</sup>	'be merry' (*t'+s → c' ?)
Ok	t'ɣ <sup>w</sup> um'	

73. *smoke*

	λ'..q <sup>w</sup>	
Sq	λ'iq <sup>w</sup> m	
Cw	λ'eyəq'əm?	
	q <sup>w</sup> ...λ'	
Sh	q <sup>w</sup> ut'	(*λ' → t'; *q <sup>w</sup> → q <sup>w</sup> via glottal dissimilation)
	Cf 10 <i>cloud</i> .	

74. *smoke*

	p...q <sup>w</sup>	
Ld	paq <sup>w</sup> , pəq <sup>w</sup>	'smoke a fire'
Cx	pəq'	
No	púq <sup>w</sup> əm	'foam'
	q <sup>w</sup> ...p	
BC	q <sup>w</sup> up	
	Sq, Cl pək <sup>w</sup> , Cw pek <sup>w</sup>	'smoke' are doubtless related.

75. *snare*

	l...w	
Sh	lew	'prey, catch, snare'
CA	lig <sup>w</sup>	'id, catch in trap'
	w...l	
Sh	wel	'catch fish'
Ld	g <sup>w</sup> əlál	'kill, injure (said of important people)'

76. *snot*

	n...s	
Sp	nɔs	
Cv	s-nɣas	
Ka	nos	'be snotty'
	sənos	
CA	s-nos	
Se	nəs-t	'blow one's nose with the hand'
Sh	sχnis	
	s...n	
Ld	sísəd	'blow nose'
Sh	san-sn	'matter, pus'

As Kuipers (1982) suggests, these are likely connected with forms with the n...s order meaning 'fat, oil' and 'wet': Sp, Ka, Fl, CA nás 'wet'; Ch, Li nús

'damp'; Ms, Cw snás 'fat', Ck slás 'fat', Ck slás 'fat', Sq s-nəs-qn 'hair-oil', Sg nás 'fat'.

77. *snot*

	<b>p...t(-iχ<sup>w</sup>)</b>	
Ka, Sp	pitax <sup>w</sup>	
Cm, Cv, Sh	ptiχ <sup>w</sup>	
	<b>t...p(-iχ<sup>w</sup>)</b>	
CA	təpeχ <sup>w</sup>	
	s-tépaχ <sup>w</sup>	'saliva'

This correspondence is complicated by the existence of forms without t: Sq pəχ<sup>w</sup>-n 'spit at' and possibly Sg čχ<sup>w</sup>éřsa, Cl čχ<sup>w</sup>ářc where PS \*p → StS č, a regular correspondence. Ch təχ<sup>w</sup> illustrates a p-less form. Given the essentially sound imitative character of the word, these relationships are perhaps not too surprising. (Kuipers 1970, p56 notes a similar phenomenon in Indo-European.)

78. *snow*

	<b>m...q</b>	
Ld	báqu?	
Lm, Cl	řáqə?	
Sq	máqa?	
Cw, Ms	méqe	
Ck	mèqe	
Li	máqe?	
	<b>q...m</b>	
Se	qomay	
Cx	q <sup>w</sup> úm'əy	
Ld	təq <sup>w</sup> úbə?	'any snow covered mountain'

Ld attests both forms. These are probably related to the Interior Salish forms

for snow in \*mak<sup>w</sup>, eg CA mik<sup>w</sup> and \*məχ<sup>w</sup>, eg Ka mχup, CA maχ<sup>w</sup> 'cover with snow'

79. *spring salmon*

	<b>(kə-)s...w'</b>	
Sh	kə-késəw'	
Cm	kásu?	(Krueger 1967 writes ř for /s/)
	<b>(kə-)w'...s</b>	
Sq	k <sup>w</sup> uřs	

80. *squeeze*

**p'...c'**

Sq	p'ic'	'id, trapped'
Sh	pic'	
Hl	p'iç'	
Ld	p'ic'	'wring it out'
CA	p'ic'	'id, push'
	<b>c'...p'</b>	
Sq	c'ip'-us-m	'shut the eyes'
Sh	x-cəp-cip'-s-m	'squeeze one's eyes shut, shut the eyes tightly'
CA	c'ip'	'pinch fine'
Ka	c'ip (sic)	'pinch'
Ld	c'ip'l	'close eyes'

Kuipers (1970, p57) suggests that \*p'ic' derives from PS \*p'əyh-c (or -c'), forms like Cm p'iy' 'squeeze, pinch' attesting the root without the -c/c' suffix (cf 81 *squeeze*). Cv p'ʕac' 'shoot out, squirt' points to an original pharyngeal,

as does its inverted counterpart c'ʕap's 'wink'.

#### 81. *squeeze*

	<b>p'...y'</b>	
Cm	p'iy'	'id, pinch'
CA	p'iy	
	<b>y'...p'</b>	
Sg	č'ip'	(*y' → č)

#### 82. *steal*

	<b>q...n</b>	
Sq	qan?	
Ld	qada	
Cl	qan?	
Sg	qen?	
	<b>n...q/q<sup>w</sup>/q<sup>ʷ</sup></b>	
Fl	naq	
Ka	naq <sup>w</sup>	
OK, Cv,		
CA, Li	naq <sup>ʷ</sup>	
Sh	nq <sup>ʷ</sup>	

The labialization and glottalization of q in IS is a problem, but the correspondence seems secure, nonetheless.

#### 83. *steam*

	<b>q'...r</b>	
Ld	q'əls	'cook by steaming on hot rocks'
Cm	q'əls	'cook in a pit'

Sh	s-q'ilyə	'steam house'
	q'lst-em	'steam cook'
Li, Th	n-q'ólzetn	'steam house'
Sq	q'əlyə	'(take a) steam bath'
ESh	χəq'əlst mín'	'food steamer'
Cx	q'óljetən	'steam house'
	<b>r...q'</b>	
Ka	sə-láq'ist	'sweatbath lodge'
CA	liq'	'bake'

Kuipers would posit \*l̥ (retracted l) in place of r.

#### 84. *steelhead salmon*

	<b>q...w'..χ</b>
Sq	sqiwʔχ
Cx	qiʔwχ
Ld	qiw'χ
Ms	qεʔwχ
Ck	qéwəχ
	<b>χ...w'..q</b>
Cw	sχawq'əm

It seems that the glottalization in the Cw form resulted from the juxtaposition of w' and q.

#### 85. *stick in, choke*

	<b>q'...ʔ</b>	
Cm	q'aʔ	'stick in, push in'
CA	q'iʔ	'stick to, wedge into'
Ka	q'eʔ	'put, stick'
Sh	q'eʔ	'stick into'
	q'ʔ-epse	'choke'
Sq	q'əhʔ	'get caught, remain stuck (ab something thrown)'
	<b>ʔ...q'</b>	
Ld	ʔu-ʔaq'-g <sup>w</sup> iʔ	'choke'
Ck	ʔéq'-əʔ	'choke on something solid'
Sq	ʔáq'aʔ	'choke'

The Ld form shows the semantic connection between the two sets. Hess does not gloss ʔaq', but the component parts would add up to 'choke' if ʔaq' meant 'stuck, stick into'; perfective + stuck + narrow passage. Note also the Sh forms.

#### 86. *stone*

	<b>χ...l</b>	
Cw, Ms	s-χíləs	'bluff'

Ck	s-χί·ləs	
Se	χəy'áls	
	<b>l...χ</b>	
Sq	s-yəχás	'large rock' (*l → y)

87. *suck*

	<b>s...t'</b>	
Sh	sut'	
Ld	sut'	'draw in'
	<b>t'...s</b>	
Sh	t'us-m	'suck marrow from bone'
CA	t'us	'marrow'

88. *suck*

	<b>t'um</b>	
Cm	t'um'	'suck through pipe'
	st'úməm	'breast, milk'
CA	t'um'	'mouth in a sucking position; smirk'
Ka	t'əm	
Sp	t'am	
ESh	λ'um	
Sh	t'um	'id (of leeches); eat sχ <sup>w</sup> usm or other foamy food'
	t'msk <sup>w</sup> eʔít	'leech'
We	st'uməm	'teats'
BC	tums	'breast'
Ld	t'əbx <sup>w</sup> uk	'buzzing and biting of a fly' ?
Cv	t'ʕam	
	<b>m...t'</b>	
Tw	but', but'úb	
	ʔəs-t'ə-but'	'suckled'

Note again the connection between a/u ablaut and the presence of a pharyngeal in Cv.

89. *support*

	<b>t'...k</b>	
Sh	t'ək	'prop up, support'
Sq	t'č-ač	'walking stick'
	<b>k...t'</b>	
Sh	ket'	'lift up'

90. *swallow, full from eating*

	<b>q'...m</b>	'swallow'
Sq, Sh	q'əm	

CA	q'em	
Ka	q'am	
Sp	q'im	
	<b>m...q'</b>	
Ms, Ck	məq'	'swallow'
Sg	ŋəq'	'swallow'
Ld	bəq'	'swallow, put in mouth'
Sq	məq'	'full from eating'
Sh	məq'	'eat one's fill'
ESh	məq'	'full'
Ka	mq'-enč	'full';
Cw	məq'	'get full (person)'

Forms glossed 'swallow' attest root inversion; forms glossed 'full' etc. attest only one variant.

91. *take out, ladle*

	<b>x...t'</b>	
Sq	šat'-an	'ladle'
	šat'-tn	'a ladle'
Li	xéλ'en'	'take something out of something'
	<b>t'...x</b>	
Li	λ'əxímən	'spoon'
Sh	t'ex-	'take food out of a container'
	sə-t'x-ímn	'a ladle'

92. *tear*

	<b>χ...p</b>	
Sh	χep	'chew, crunch, gnaw'
Sq	χəp'k <sup>tw</sup> -an?	'chew up'
Ld	χəp'k <sup>tw</sup>	'chew something hard'
Cm	xəp (sic)	'chew meat from bone'
CA	šap	'tear meat from bone'
	χip	'gnaw to destroy'
	<b>p...χ</b>	
Se	pəχt	
Cl	čaχ	(*p → č)
Sg, Lm, So	čeχ	

This set of correspondences presents many difficulties, including a uvular/velar alternation (of the sort discussed by Kuipers 1981) and an unexplained glottalized p in Sq and Ld.

93. *throat, mouth, satiate*

**q...n**

Cm	qənu <sup>w</sup>	'throat'
Sq	qəna <sup>w</sup>	'throat'
	ʔəs-qəna <sup>w</sup>	'overeaten'
Qu	qənx <sup>w</sup>	'throat'
Ld	qədx <sup>w</sup>	'mouth'
Cz	qənx	'mouth'
Ch	qəñš	'mouth'
Cl	qəñ	'eat too much'
	<b>n...q</b>	
CA	naq	'be satiated with food'

94. *tie*

	<b>x<sup>w</sup>...y</b>	
Cl	x <sup>w</sup> ey	'tie, wrap'
Ch	sx <sup>w</sup> ayəq <sup>w</sup>	'joint'
	<b>y...x<sup>w</sup></b>	
Cl	yəx <sup>w</sup>	'untie, unwrap'

There are other instances of inverted roots as antonyms: cf 21 *disappear*.

95. *turn*

	<b>p'...l...k'</b>	
Cz, Cm, Cv	p'əl <sup>k</sup>	
Sh	pəl <sup>k</sup>	
CA	p'élč	
Ka, Ch	p'əlč'	
Sq	p'láč'	
BC	plik	
	<b>k'...l...p</b>	
Ld	č'əlp	'twist, turn, sprain'

Lack of glottalization in Ld is unexplained.

96. *water*

	<b>q<sup>w</sup>...ʔ</b>	
Ld	q <sup>w</sup> uʔ	
	q <sup>w</sup> úʔq <sup>w</sup> a	'drink'
Ck	qa·	
	qá·qa	'drink'
Cw, Ms	qaʔ	
	qáʔqaʔ	'drink'
Cl	q <sup>w</sup> úʔ	
Tw	q <sup>w</sup> óʔ	
Sq	q <sup>w</sup> u(ʔ)	
Ti	qæu	

Th	q <sup>w</sup> u?	
Ch	q <sup>w</sup> ó·?	'drink'
Sg	q <sup>w</sup> á?	
	q <sup>w</sup> á?q <sup>w</sup> ə?	'drink'
	ʔ...q <sup>w</sup>	
CA	ʔəq <sup>w</sup> -s	'drink'
Th	ʔuq <sup>w</sup> e?	'drink'

The lack of labialization in Hl is unexplained.

97. *wet*

	ʔ...t'	
Li, Cm	ʔət'	
Cv	ʔʔat'	
Sh	ʔat, lʔat'	
Sq	ʔit	'splash, sprinkle' ?
	t'...ʔ	
Ld	t'əlqáy	'soak'
Cl	t'əyəq	'soaking wet'
Sq	t'əl	'squirt' ?

If valid, this set illustrates the l/ʔ correspondence amply illustrated by Kuipers 1981. The Sq form t'əl is likely a borrowing.

98. *where*

	<b>k...n</b>	
Ok	kaʔkín	
Cv	kələkén	
Ka	čen'	
Ld	čad	
Qu	čaʔn	
	<b>n...k</b>	
Tw	dəčá·	
Ms	énəcəʔ	
Cw	nɪk <sup>w</sup> əʔénəcə	
Ck	ʔəlóce	(*n → l, *k → c)
Sq	ʔənča	
Li	nke?	

99. *wither*

Sh	ʔ <sup>w</sup> uy	'withered, tired'
Sh	yʔ <sup>w</sup> -úpye?	'have withered leaves'

The relation of these Sh forms to potential cognates in other languages is somewhat problematic. Th ʔ<sup>w</sup>ay't 'sleep' is probably cognate. The relation of

these forms to Cm, CA, Sp, Cv, ESh ʔayχ<sup>w</sup> 'tired', Ka ʔáíχ<sup>w</sup> 'tired' is a bit more difficult as these forms require ɣ<sup>w</sup> → χ<sup>w</sup> in languages that ordinarily preserve pharyngeals. There is, however, evidence for a gradual loss of pharyngeals in these languages: Cm həʔ 'gnaw (of animal)', h́íʔ 'chew, graze', Sh χʔ-ús-em 'eat of the deerhead', CA χet' 'gnaw, eat close, graze' (also Sq χiʔ 'chop, cut', Tw χəʔ 'bite', Ld χ<sup>w</sup>uʔ 'chew up', χəʔ 'bite'); Sh c'liɣ<sup>w</sup> 'scratch', Cm c'əɣ (sic) 'scratch', CA c'alχ<sup>w</sup> 'claw, dig claws in'.

100. *wood*

	<b>χ...P</b>	
Cx	χápay	'stick'
Ld	χpáyʔ	'stick' (from Hoard; not in Hess)
Sq	χp-ayʔ	'cedar'
	χáp-ayʔ-ay	'young cedar'
Cw	χpey	'red cedar'
	<b>P...χ</b>	
Ld	pəχayʔac	'log, dead tree'

2. Before discussing a set of possible explanations for the existence of inverted root pairs, I should make clear one assumption I'm making concerning inversion: the phenomenon of inversion does not seem to be a characteristic of a single language or of a single division within the family, but seems rather to involve the entire Salish group. Examples can be found in the lexicon of any well-described Salish language. From this we can infer that, if its origins lie in a *process* of some sort, the process either affects or has affected the entire family or goes back to Proto-Salish.

In this section, I will discuss a set of hypotheses which could be put forth to explain the data presented in §1. Most of these hypotheses will be rejected and none will be found to be wholly satisfactory. The explanations are presented more-or-less in increasing order of plausibility.

A. *The pairs of roots are only accidentally similar: they are not cognate.* The hypothesis that the pairs of roots presented in §1 are only fortuitously similar fails under the sheer weight of numbers. The existence of such a large number of pairs exemplifying a phenomenon not shared by many other language families can hardly be regarded as accidental.

B. *The inverted root pairs can be accounted for by some grammatical rule of metathesis.* A rule of grammatical metathesis has been claimed for at least one Salish language. Thompson & Thompson (1969, 1971) report such a rule in Cl, where aspectual pairs such as čšú.t 'throw' and čšú.t 'throwing' are produced by a regular, grammatically conditioned pro

cess of metathesis.<sup>4</sup> However, this metathesis in Cl, if indeed this is what it is,<sup>5</sup> is rather different from the sort of associated with inverted roots, since in Cl adjacent consonants and vowels are metathesized whereas with inverted roots pairs of consonants that are typically non-contiguous are affected. Another difference between the two sorts of metathesis is that in Cl the semantic consequences of metathesis are clear and easily stated, but with inverted roots there is no obvious semantic consequence of inversion. For many pairs, there seems to be no significant difference between the variants; where there is a difference, it does not appear to follow any regular pattern. It is possible, of course, that the semantic effect of inversion has simply been obscured by time, but one would expect some discernable pattern to survive and there appears to be none.

In addition to the considerations above, there is an additional piece of evidence which leads me to believe that inverted roots are not the product of a grammatical rule of metathesis. While there are a large number of inverted root pairs, there are not a *huge* number. In other words, there are too many examples for us to dismiss the phenomenon as being wholly the product of chance, yet there are too few examples for inversion to have been the product of a regular rule. If an inversion rule analogous to the metathesis rule in Cl were a feature of Proto-Salish and its offspring, the evidence for it should be more abundant than it is. And, as noted above, the semantic effect of the rule should be discernable since the time depth for Proto-Salish is not so great so as to completely obscure the effects of a regular morphological process.<sup>6</sup>

C. *Inverted root pairs are the product of a lexical composition process.* There is evidence that at least some Salish CVC roots were originally morphologically complex entities. For example, Ld has the roots  $\chi i q'$  'scratch, esp. to relieve an itch',  $\chi i p'$  'scratch (and leave a mark)', and  $\chi i b'$  'grab with pressure (as a hawk would do), claw' which appear to share the element  $|\chi i|$ . Many similar cases are reconstructable to Proto-Salish [see Noonan (ms)], involving either C<sup>1</sup> or C<sup>2</sup> as the semantically defining element. For example, an element  $*q^{w}a-$  [or  $*q^{w}\zeta a-$ ] referring to heat, cooking, or blackness is shared by a number of roots with different final consonants:  $*q^{w}a-s$  'burn',  $*q^{w}a-l$  'cook',  $*q^{w}a-s/l$  'warm',  $*q^{w}a-y$  'black'. Similarly, there are a number of roots which contain  $*l$  or  $*r$  as C<sup>2</sup> and refer to being or going in a circle, among which are  $*\chi\partial-l$  'roll',  $*\chi\partial-r$  'round',  $*q'\partial-l$  'round',  $*m\partial-l$  'round',  $*p'\partial-l$  'turn',  $*s\partial-r$  'turn',  $*y\partial-r$  'circular', and  $*t\partial-r$  'unwind, untie'. It is at least possible, therefore, that C<sup>1</sup>VC<sup>2</sup> and C<sup>2</sup>VC<sup>1</sup> pairs derive from different orders of semantically independent elements.

<sup>4</sup> Compare Demers (1974) on closely related Lm. Mattina (1973,p30ff) describes another consonant-vowel metathesis in Colville, though one that is purely morphologically conditioned and without semantic effect.

<sup>5</sup> Kinkade (pc) suggests that the Cl data are best explained as stress shift with subsequent vowel reduction. See, for example, Montler's (1986) analysis of a comparable situation in San.

<sup>6</sup>There are a few instances of antonyms which appear to evidence inversion: Ld bal 'disturb, distract' and Sh lem 'confort, console', Cm lám't 'happy, glad', CA límt 'glad, thankful, pleased', Ka lém't 'glad, grateful', Sp lem 'happy, glad'; Cl yəx<sup>w</sup> 'untie, unwrap' and Cl x<sup>w</sup>əy 'tie, wrap'; Ti wayəx 'buy' and  $*x^{w}uyum$  'sell' [66 in §1]; Ld λ'a 'go to' and Ld ?əλ' 'come'.

Not much is understood at this stage about this aspect of the Salish lexicon, but even so it is highly unlikely that lexical elements like those described above would be able to combine in variant orders so as to produce  $C^1VC^2$  and  $C^2VC^1$  pairs. Compounding and derivational processes are, in my experience, fairly strict as regards the order of the combining elements even in languages with pragmatically [as opposed to syntactically] driven word order. In modern Salish languages, derivational affixes always have a fixed relation to the root: the nominalizing |s| is always a prefix, the ‘lexical’ affixes are always suffixes, etc. It is, of course, possible that the combining order underwent a change sometime in the history of Common Salish and that inverted root pairs represent both the earlier and the later arrangements of the combining morphemes. However, this can only be a matter for speculation at this stage in our knowledge of the history of Salish languages.

There is an additional problem with this explanation: if the relevant CVC roots were decomposable into two historically independent components, then the vowel would pair with either the first or the last consonant, resulting in  $C^1V-C^2$  or  $C^1-VC^2$  structures. If the order of the morphemes were then reversed, we would expect  $C^2C^1V$  or  $VC^2C^1$ . In fact, neither sort of inversion is attested:  $C^1VC^2$  results simply in  $C^2VC^1$ .<sup>7</sup>

The argument just given applies only if lexical composition were a concatenative process. If Proto-Salish exhibited a non-concatenative morphology, one with a canonical root template like CVC, but with unordered consonants, we could account for the inverted root pairs. This hypothesis assumes that at some point the templatic nature of the language became frozen and the order of consonants became fixed, as it appears to be in all contemporary Salish languages. However, the rarity of this sort of non-concatenative root consonantism and the fact that no attested Salish language exhibits anything like this combine to make this hypothesis not very attractive, though they do not rule it out. More damaging is the observation that, if this non-concatenative morphology were a feature of Common Salish just before the breakup into the subgroupings [since root inversion is attested throughout the family], we would expect that root inversion pairs would be much more common than they are, unless the attested forms overwhelmingly conformed to some preferred linear arrangement, as determined, for example, by the sonority hierarchy. As discussed in (F) below, this does not appear to have been the case. Alternatively, we might suppose that this non-concatenative morphology was a feature of early common Salish, and had ceased to characterize the language for a considerable period before the breakup into subgroups. This could account for why there are many examples, but not a great many examples. However, it would not account for the fact that inversion is not a characteristic of the large set of derivational morphemes, for example the ‘lexical suffixes’. Since these forms are clearly grammaticalized versions of ordinary lexical items and constitute a fairly large set [Kuipers (1967) lists 135 lexical suffixes], we should expect to find some inverted pairs here too, but we don’t. Whatever the source of inversion is, it did not affect these forms.

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<sup>7</sup> Dale Kinkade has brought to my attention one such case: Cm q'aw'ísqn and Cz wiq'óstn, both meaning ‘axe’.

D. *Inversion is the product of a language game or of disguised speech.* Inversion has been reported in the linguistics literature for language games and disguised speech (McCarthy 1981). It is possible that language games or disguised speech is responsible for root inversion in Salish. Neither is known to have been a feature of any Salish language [Kinkade (pc)], however, so while we cannot rule out the possibility that these mechanisms were operative at some earlier period in the history of Salish languages, there is no direct evidence that they were.

E. *Inversion is the product of consonant symbolism or word taboo.* Numerous scholars have reported instances of consonant symbolism in the languages of western North America.<sup>8</sup> This consonant symbolism typically takes the form of the alteration of a consonant in predictable ways, as summarized in Nichols 1971; the semantic effect of this consonant symbolism is frequently diminutive or augmentative. To my knowledge, no one has described consonant inversion in this context. Since consonant inversion as a mode of affective alteration of roots is unattested and since the meanings of the Salish inverted root pairs do not provide evidence for this sort of affective alteration, we must conclude that consonant symbolism is not involved in root inversion.

Elmendorf (1951, 1970) has reported word taboo as a mechanism for lexical change in Salish languages. Word taboo applied to words resembling the adult name of a dead person. According to Elmendorf, the taboo words were not modified in any way to make them non-taboo, but rather were simply avoided altogether and a new word, composed of familiar elements, was substituted for the taboo item. Eventually, the taboo words could be used again if a bilateral kinsman assumed the name of the dead person. In any case, since modification of the taboo word [as opposed to substitution] has not been attested in Salish to my knowledge, this mechanism too cannot be invoked to explain root inversion.

F. *Inverted root pairs are the product of a phonologically conditioned process of metathesis.* This sort of metathesis process, one that is purely phonologically conditioned, is different in type from the morphologically conditioned sort discussed above under (B) since it would operate upon certain sequences of segments in response to their phonological properties, irrespective of their grammatical or semantic properties.

As for the mechanics of metathesis within the framework of Salish-style morphology, we could imagine metathesis occurring under either of two situations. First, it might affect adjacent consonants in zero-grade forms of roots. Once the metathesis takes place in the zero-grade form, speakers may reanalyze the root, taking the inverted order as basic, and thereafter use the inverted order in schwa- and full-grade forms.<sup>9</sup> Alternately, metathesis might operate long-distance on pairs of consonants separated by a vowel.

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<sup>8</sup>Gamble 1975, Haas 1970, Langdon 1971, Nichols 1971, Ultan 1971a.

<sup>9</sup>One complication that should be noted is that in a  $C^1C^2$ - $C^1C^2$  reduplication,  $C^2$  and  $C^1$  would be in contact and thus subject also to this sort of phonologically conditioned metathesis. I'll ignore this problem in this paper, but clearly the lack of evidence for metathesis under these conditions has to be explained if phonological metathesis is to be invoked as an explanation for inverted roots.

As demonstrated by Ultan (1971b), Webb (1974) and others, phonologically conditioned metathesis is largely a process which conforms syllables to more universally preferred patterns of sonority. If purely phonological metathesis is responsible for inverted roots in Salish, we should expect first that only some consonant combinations would be affected and not others, since only some combinations would violate the preferred patterns. Second, we would expect that, where the original order can be inferred, the new order should be the one most in conformity with sonority preferences.

The sonority hierarchy is a ranking of segments reflecting both the degree of openness of the vocal apparatus and the relative amount of energy expended during their production. The sonority hierarchy is usually taken to be as below<sup>10</sup>, with the more sonorous segments placed nearest the top.

- Vowels
  - low vowels
  - mid vowels
  - high vowels
- Glides
- Lateral liquids
- Rhotic liquids [taps & trills]
- Nasals
- Obstruents
  - fricatives
  - affricates
  - stops

Syllables are constructed so as to have a peak of sonority in the syllabic nucleus; the onset and coda are relatively non-sonorous. Further, according to this theory, the onset is preferentially less sonorous than the coda and metathesis may be triggered to ‘correct’ less-than-preferred arrangements. For example, throughout the recorded history of Irish there are numerous examples of word-internal /s/ metathesizing with a preceding stop: *creidsiúint* > *creistiúint* ‘believing’, *bocsa* > *bosca* ‘box’, *absalóid* > *asbalóid* ‘absolution’.<sup>11</sup> Since the stops are less sonorous than /s/, and thus better suited to be an syllabic onsets than /s/, metathesis occurs to place the stops in onset position.

While metathesis may occasionally be incorporated into the grammar as a regular phonological process, most cases of phonological metathesis are sporadic, affecting lexical items one at a time, if at all. Since regular consonantal metathesis rules do not seem to occur in Salish, it is reasonable to assume that if metathesis is involved in the production of inverted roots, it must have operated sporadically also, affecting the lexicon one word at a time. Therefore, we would not expect to find that every root that violated the preferred sonority patterns would be remodeled via metathesis, but rather that only a subset – and, no doubt, a very small subset – would be so remodeled.

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<sup>10</sup>See, for example, Selkirk 1982.

<sup>11</sup>See Ó Siadhail 1989, p101.

Nonetheless, we should expect to find patterns in the affected roots. If the sonority hierarchy is involved, we should expect that only those consonant pairs would be affected where there is a difference in sonority between C<sup>1</sup> and C<sup>2</sup>. Using the most restrictive interpretation of the sonority hierarchy, where even stops and affricates are interpreted as differing in sonority, we find that 13 of the 100 sets of cognates contain pairs of consonants which do not differ in sonority and, therefore, would not be predicted to undergo metathesis.<sup>12</sup> In order to help interpret this figure, I have examined the pairs of consonants in CVC roots reconstructed for Proto-Salish in Noonan (ms). Of 659 roots, 104, or 16%, contain pairs of consonants identical in sonority. This 16% figure and the 13% figure obtained from the inverted root sets do not appear to be significantly different, which would indicate that the consonants present in inverted roots are an ordinary cross section of consonants found in Salish languages. So it would seem that the sonority hierarchy does not predict which consonants will be involved in root inversion.<sup>13</sup>

Where there is a difference in sonority between the consonants and where the original order can be inferred, is the derived order more in conformity with syllabicity preferences than the original order? The ‘original order’ is, unfortunately, not easy to determine. I will assume for the purpose of answering this question that the original order is the most widely attested order. In many cases, it will not be possible to determine which order is original since the alternates are equally well [or badly] attested. In only 43 cases can some determination of the original order be made, even under this loose condition. In determining whether the new order is in conformity with syllabicity preferences, I will assume that the new order should have the *least* sonorous consonant first since this would result in the onset being less sonorous than the coda, assuming that the result is tautosyllabic.

In examining the corpus, we find that of the 43 relevant cases, 26, or 60%, *do not* conform to the predictions, having instead a consonant with higher sonority appearing

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<sup>12</sup>The following sets contain pairs of consonants identical in sonority: 2, 4, 11 [one of the two given there], 18, 23, 31, 54, 58, 62, 74, 77, 89, 95.

<sup>13</sup> Consonants are represented in inverted root pairs in roughly the same percentages that they are in roots reconstructed for Proto-Salish generally. The largest discrepancy is with the glides /y/ and /w/. Among the Proto-Salish roots in Noonan (ms), 22.3% [147] contain one of these glides. However, in §1, 30% of the examples contain a glide. Glides may thus be somewhat more likely than other segments to be involved in root inversion, though not strikingly so.

However, a number of the cognate sets given in §1 involve roots containing three consonants, not two, and the inversion consists of C<sup>1</sup> and C<sup>3</sup> leapfrogging over a middle consonant, C<sup>2</sup>. These roots mostly have /y/ as C<sup>2</sup> [sets 11b, 24, 37, 66, 73], although set 84 has /w/ and set 95 has /l/, as does set 9, though here the inversion is more complicated. It is surely no accident that glides function as C<sup>2</sup> in almost all these cases. Dale Kinkade has brought to my attention another cognate set which, like 11, involves inversion with and without a middle /y/: ‘snail, slug’ – **ʔ**...**q**’ BC ʔ’aq’an, Fl tlákan, Ti klak’A’n; **q**...**ʔ**’ Tw s-q’ʔ’ad, Th q’ʔ’en’íy; **ʔ**...**y**...**q**’ Pe ʔ’iyáq’al, Se ʔ’iyáq’an, Li ʔ’yáq’en’ ‘little snail’; **q**...**y**...**ʔ**’ Sq q’iyáʔ’an ‘snail’, Cw q’iyáʔ’an, Ck q’ayéʔ’iyə, San q’əyaʔ’əŋ, Sg q’eyátl’ʔn, Lm q’iyóʔ’əŋ, Sm q’əyáʔ’an ‘snail’, Cl q’ayuʔ’an ‘slug’, No q’əyæ’-ʔ’æn, Ld q’əyáʔ’əd.

first.<sup>14</sup> It would seem, therefore, that metathesis based on the sonority hierarchy is of no use in explaining the existence of inverted roots in Salish.<sup>15</sup>

G. *Reduplication is involved in the production of inverted root pairs.* Numerous patterns of reduplication have been attested for Salish, involving either complete or partial reduplication of the C<sup>1</sup>VC<sup>2</sup> root: complete reduplication means that the C<sup>1</sup>C<sup>2</sup> consonant frame is preserved, though the vowel may be absent in zero-grade forms; partial reduplication results in C<sup>1</sup> [with or without the vowel] or C<sup>2</sup> being reduplicated. So, ignoring vowels here, complete reduplication would yield C<sup>1</sup>C<sup>2</sup>-C<sup>1</sup>C<sup>2</sup>; partial reduplication would yield C<sup>1</sup>-C<sup>1</sup>C<sup>2</sup> or C<sup>1</sup>C<sup>2</sup>-C<sup>2</sup>. In neither case could reduplication alone account for inverted root pairs.

In order to invoke reduplication in this matter, one would have to suppose that a C<sup>1</sup>C<sup>2</sup>-C<sup>1</sup>C<sup>2</sup> reduplication could somehow yield C<sup>2</sup>-C<sup>1</sup> by some process of consonant deletion or root reanalysis *and* that, somehow, the vowel would be reinserted between the two Cs. This assumes quite a bit. Nonetheless, at least one of the necessary mechanisms has been proposed in the literature. Drachman (1969) provides evidence for a pair of consonant deletion rules which affect reduplicated roots in Tw. The first rule [p57] deletes [-grave] consonants before [+grave] consonants in reduplicated forms; the second rule [p58] deletes voiced consonants before voiceless consonants in the same forms. The rules are meant to account for reduplicated forms like the following:

	<i>unreduplicated</i>	<i>reduplicated</i>	<i>gloss</i>
<i>first rule</i>	s-táq	s-q-táq	'log jam'
	c'áq'pe(h)	q'-c'áq'pe(h)	'fir tree'
	s-ʔq' <sup>w</sup> áqs	s-q' <sup>w</sup> -ʔáq' <sup>w</sup> qs	'nostril'
	sáx <sup>w</sup> təd	x <sup>w</sup> -sáx <sup>w</sup> təd	'grease, fat'
<i>second rule</i>	bəqsəd	qə-bəqsəd	'nose'
	ʔas-bót'	ʔas-t'ə-bót'	'suckled'
	ʔasə-déč'	ʔəš-č'ə-déč'	'grazed, scratched'
	ʔas-ləχ	ʔəs-χə-lʔəχ	'lit, bright'

If such rules were at one time sufficiently general so as to affect a wider range of consonants [not all the examples in §1 could have been affected by the two rules as Drachman formulated them], then one of the required mechanisms would be in place.

There are many problems with an analysis of the origin of inverted roots involving rules of the sort Drachman formulated for Tw. First, there is the fact that rules like those in Tw are infrequently attested in modern Salish languages. Tw apart, I know of only two cases in Salish. Bagemihl (1991, p604f) discusses a lexically conditioned rule of initial consonant deletion in reduplicated forms in BC [eg c'usm 'evening' > ʔusc'usm 'dusk, early evening']; Kuipers (1974, p38) discusses an optional rule of lexically conditioned initial consonant deletion in reduplication following the prefixes /s-/ and /c-/

<sup>14</sup>The inverted root sets that conform to the prediction are: 3, 12, 14, 19, 20, 30, 33, 39, 40, 45, 48, 50, 52, 55, 57, 72, 76. Those that don't conform to the prediction are: 5, 6, 10, 13, 21, 22, 25, 27, 37, 38, 43, 44, 47, 51, 59, 60, 65, 66, 68, 83, 84, 86, 88, 93, 94, 100.

<sup>15</sup>Throughout this discussion, I have ignored the special problems posed by Salish and other Northwest Amerindian languages for characterizing the syllable. See Hoard (1978) and Bagemihl (1991).

[eg *kew* ‘far’ > *s-(k)əkew* ‘its being far’]. It is well to note that synchronically in all these cases the rule does not apply generally, but applies only to a restricted subset of all possible reduplicated forms. Second, if we assume that such rules operated in Proto-Salish or were common in the daughter languages at one point, we would expect to find lexical traces of the rules in the form of words with a  $C^2-C^1VC^2$  structure.<sup>16</sup> Such words, according to this hypothesis, would have formed the basis upon which the reanalysis to an inverted form would take place. But not all such words could have been reanalyzed as  $C^2VC^1$  since the reanalysis would not have been rule driven [and, therefore, been regular] but would have to apply item-by-item to the relevant set. Because reanalysis would only have been sporadic, these  $C^2-C^1VC^2$  words should be at least as common as inverted roots. The question is: are they?

A few such  $C^2-C^1VC^2$  words do occur, and, interestingly, often in cognate sets that have inverted root pairs: \**t'um*, \**mut'* ‘suck’ [88], beside Tw *but'* and *but'úb*; \**q<sup>w</sup>...y*, \**y...q<sup>w</sup>* ‘rotten’ [61], beside Ld *yoq<sup>w</sup>ay?* ‘rotten stick’ and ESh *yáq<sup>w</sup>iy* ‘decayed tree’; \**q'/k'ał* ‘rib’ [60], beside Sh *łeq'ł*; Sh *q<sup>w</sup>łs-ełp* ‘willow’ and Ch *néq<sup>w</sup>ł* ‘cottonwood’ beside Sq *q<sup>w</sup>nıq<sup>w</sup>-ay?* ‘cottonwood’ and Ld *q<sup>w</sup>ədı?q<sup>w</sup>-ac* ‘cottonwood’. My impression, however, is that these  $C^2-C^1VC^2$  words are not that common, especially if one removes from consideration Tw forms which may not be very old. Further research is necessary on this point, but it seems to me that the relative scarcity of  $C^2-C^1VC^2$  words weakens the case for reduplication-cum-deletion as a major source for inverted roots, though it may have contributed some members to the set.<sup>17</sup>

H. *Random metathesis of syllable onsets, one that is neither grammatically nor phonologically conditioned, has produced inverted roots.* Random exchanges of consonants in syllable onset positions occur and are well attested in the historical literature. For example, the studies of Irish dialects produced by the Institute for Advanced Studies provide many examples of this sort of thing, such as these from Ó Cuív (1944): *achmhásán* [axwə'sa:n] > *asachán* [asə'xa:n] ‘reproach’, *foráileamh* > *foláramh* ‘warning’. Such interchanges are essentially random, though some consonants, liquids especially, seem more prone to such interchanges than others. While this sort of random metathesis may indeed be responsible for the Salish inverted roots, it fails to explain why Salish is so prone to consonant inversion while other language families appear not to be since this sort of random metathesis ought to occur with equal frequency among the languages of the world, other things being equal. And if things are not equal, then what is special about Salish?

3. Of the eight purported explanations of the inverted root phenomenon, only the last two, reduplication-cum-deletion and random metathesis, seem plausible as causal factors. And of these two, only the reduplication-cum-deletion explanation relies on a special feature of Salish and so helps explain why Salish should exhibit this phenomenon to the degree that it does.

<sup>16</sup> Or  $VC^2-C^1VC^2$ , not  $C^2-C^1VC^2$ , in the case of BC and Sh as the rules are attested in these languages.

<sup>17</sup> One argument in favor of reduplication as a source, however, stems from the observation made in (C) that derivational morphemes do not exhibit inversion. The fact that they do not undergo reduplication either may not be coincidental.

It is worth noting that inverted roots are found in other Northwest language families. Powell (1975, p90-9) contains an extensive discussion of the phenomenon in Chimakuan. Interestingly, of the nine Chimakuan cognate sets evidencing inversion, five have clear [or clearish] cognates in Salish languages, the result of either common ancestry or borrowing:<sup>18</sup>

<i>Gloss</i>	<i>Chimakum</i>	<i>Quileute</i>	<i>Salish cognates</i>
'near, toward'	lač	yaʔl	
'shake'	laq <sup>w</sup>	q <sup>w</sup> oʔl	PS *q <sup>w</sup> əy 'dance'
'run'	lat	tilaʔw	Ld təláwil
'sleep'	maʔ, miʔ	ʔiʔb, baʔ	IS *maʔ 'rest' <sup>19</sup>
'smell, nose'	mas, sim	siʔb	PS *sum 'smell' <sup>20</sup>
'lift, heavy'	samʔ	bas	
'beyond'	qam, maq	baq	
'wash'	cax <sup>w</sup>	x <sup>w</sup> ac	PS *c'awʔ or *c'ʔaw <sup>21</sup>
'corner, cut'	q'acitáʔaʔat	q'atíʔcil	

Root inversion, then, may be a feature going back to some common ancestor. It may also be the result – and this is independent of any common ancestry they may share – of their common phonological and morphological typology. The families have similar inventories of segments, permit syllables which consist solely of consonants [Hoard (1978)], are agglutinative, make extensive use of reduplication, etc. While reduplication-cum-deletion and random metathesis are doubtless contributing factors, there is surely some other factor which derives from the shared typology of Salish and Chimakuan [and, no doubt, Wakashan] languages which has made inverted roots a conspicuous feature of these languages. It is my hope that further research will determine what that factor is.

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<sup>18</sup> Salishists as a group have rejected the various attempts [eg by Swadesh (1953a, 1953b) and Greenberg (1987)] to link genetically the Northwest language families.

<sup>19</sup>Some of the cognate forms contain references to 'lying' and 'being' flat, eg Sh meʔ 'rest', mʔeq 'collapsed, flattened out'; CA miʔ 'rest', meʔ 'persons lie'. So, it is at least possible that Sq ʔəmq<sup>w</sup>a 'flounder' [ie 'flat fish'] is cognate and contains an inverted form of the root.

<sup>20</sup>This root seems also to be found in Wakashan: Powell notes both Nootka and Kwakiutl mis 'smell'.

<sup>21</sup>Note Sq c'əx<sup>w</sup> 'wash'.

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