

## Some Notes on Proto-Salish Phonology\*

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**Abstract:** In this paper we look at the Proto-Salish sound system as it has emerged from recent research, and demonstrate that, in view of the rarity of certain phonemes or series of phonemes, as well as correlations between certain sets of phonemes, the Proto-Salish sound system may have evolved from a simpler one, as found in an earlier (Pre-Proto-Salish) stage. Sound symbolism would have been the main driving factor behind the creation of phonemes that were added to Pre-Proto-Salish as it morphed into Proto-Salish. We also show that Proto-Salish root doublets likely go back to single roots, with variants created through dissimilation.

**Keywords:** Salish, Proto-Salish, Pre-Proto-Salish, retracted phonemes, velar and uvular resonants, obstruent and resonant glottalization, sound symbolism

### 1 Introduction

Comparative-historical Salish linguistics (reconstruction of the phonology, morphology, syntax, lexicon and semantics of Proto-Salish (henceforth PS)) is the subject matter of a large number of studies, a good catalog and description of which, from Boas and Haeberlin (1927) to the late 1970s, is given in Thompson (1979). Of the comparative-historical Salish studies that have appeared since 1979, four deserve special mention for their depth and breadth of coverage: Kinkade's 1995 article on transmontane lexical borrowing in Salish, Kroeber's 1999 reconstruction of Salish syntax, Davis' 2000 reconstruction of PS subject inflection, and Kuipers' 2002 Salish Etymological Dictionary (henceforth SED).

In this paper we take SED as our point of departure for demonstrating that the system of PS phonemes given in SED, although clearly the input system for a large number of developments in individual branches and languages of the Salish family, itself probably results from a number of developments within PS out of an older Pre-Proto-Salish (PPS) system, and that as a result PPS would have had a simpler phonemic system than PS. We will also demonstrate that a number of developments within PS were most probably driven by sound symbolism. Thus, after a brief discussion of PS phonology and some major developments into Salish daughter languages (Section 2), and the role of sound symbolism in native North American languages (Section 3), we discuss five aspects of PS phonology as resulting from developments out of PPS: the status of PS retracted vowels and consonants (Section 4); the origin of the phonemes  $\gamma$   $\text{ʔ}$   $\text{ʕ}^w$  and their glottalized counterparts (Section 5); uvular-velar obstruent doublets (Section 6); the status and origin of glottalized resonants (Section 7); and the status of glottalized plosives (section 8). Conclusions are given in Section 9.<sup>1</sup>

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<sup>1</sup> For a scheme that implies shallower time depths, see Section 9, fn. 14.

## 2 Proto-Salish phonology and subsequent developments

On page x of SED, Kuipers presents the following table of PS phonemes:

<i>p</i>	<i>t</i>	<i>c</i>		<i>k</i>	<i>k<sup>w</sup></i>	<i>q</i>	<i>q<sup>w</sup></i>	
<i>p̣</i>	<i>ṭ</i>	<i>c̣</i>	<i>ḷ</i>	<i>ḳ</i>	<i>ḳ<sup>w</sup></i>	<i>q̣</i>	<i>q̣<sup>w</sup></i>	<i>ʔ</i>
		<i>s</i>	<i>ṭ</i>	<i>x</i>	<i>x<sup>w</sup></i>	<i>ḥ</i>	<i>ḥ<sup>w</sup></i>	<i>h</i>
<i>m</i>	<i>n</i>		<i>l</i>	<i>y</i>	<i>ɣ</i>	<i>ʕ</i>	<i>ʕ<sup>w</sup></i>	
<i>ṃ</i>	<i>ṇ</i>		<i>ḷ</i>	<i>ỵ</i>	<i>ɣ̣</i>	<i>ʕ̣</i>	<i>ʕ̣<sup>w</sup></i>	
				<i>i</i>	<i>ị</i>	<i>u</i>	<i>ụ</i>	
					<i>ə</i>	<i>ə̣</i>		
					<i>a</i>	<i>ạ</i>		

**Figure 1:** PS phoneme inventory

(Kuipers' table erroneously shows *q<sup>w</sup>* rather than *q̣<sup>w</sup>* under *q*, and *s* has here been aligned vertically with *c̣*, in which column it belongs) Some major developments out of the above system include (a) *\*ḳ \*ḳ<sup>w</sup> \*x̣ > c̣ c̣<sup>w</sup> ṣ* generally in Central Salish, Tsamosan, and Tillamook-Siletz, and in Spokane-Kalispel-Flathead and Coeur d'Alene with subsequent and idiosyncratic developments or retentions; (b) *\*ṭ \*ḷ̣* both *> ḷ̣* in Lillooet, Shuswap and Thompson, and *ṭ* in Coeur d'Alene;<sup>2</sup> (c) *\*ṃ \*ṇ > b d* in Lushootseed and Twana; (d) *\*p̣ \*p̣<sup>w</sup> \*ṃ > h h w* in Tillamook-Siletz.

For a full table and discussion of the various developments see SED:3–11. For developments that are of particular importance to our discussions in this paper see the various sections below.

There is no reason to question Kuipers' reconstruction of the system of PS phonemes, which should then be taken as the starting point for further developments in the individual branches and languages (as noted in our Section 1). Thompson's (1979:715–716) hypothesis that PS lacked labials and that *p̣ p̣<sup>w</sup> ṃ* developed out of PS *\*k<sup>w</sup> \*ḳ<sup>w</sup> \*ŋ<sup>w</sup>* is convincingly proven untenable by Kuipers (1981: 332–333, SED:10), on basis of the fact that (a) *ŋ<sup>w</sup>* is typologically a very rare phoneme, and (b) *k<sup>w</sup> ḳ<sup>w</sup>* still occur in Straits and cannot be explained as later borrowings from non-Straits languages (as Thompson claims), but go directly back to PS. Kuipers' observations should therefore be the last word on this matter.

## 3 Sound symbolism in native North American languages

Sound symbolism is a wide-spread phenomenon in the indigenous languages of western North America, as discussed in Nichols (1971). A detailed summary of Nichols' article falls outside the parameters of our discussion, but a few major points should be extracted from it. In the first place, although the article concentrates on diminutive sound symbolism (something we will return to in Section 6), it also mentions (p. 828) the use of special sound forms, "employed particularly in the northern coastal area [...] to suggest certain mythical characters and to represent their speech, or to refer to persons with certain physical or mental characteristics". Egedal (1992) addresses this latter function, viz., stylized characters' speech, for Thompson,

<sup>2</sup> In reduplicative formations, Shuswap *ḷ̣* deglottalizes into *ṭ*. See also Section 8 for plosive deglottalization.

with ample references to neighboring Salish and non-Salish languages, as we will see later in this paper.

In the second place, while sound symbolism sometimes replaces an existing phoneme with another existing phoneme within a certain language, it may also introduce special phonemes used only for the purpose of achieving a certain connotative effect. For example, in Nez Perce we have  $n > l$  in diminutive formations, as in *?ini-t* ‘house’ > *?ili-t* ‘doll house’,  $n$  and  $l$  already being independent phonemes in Nez Perce (Nichols 1971:843, after Haruo Aoki, p.c.). On the other hand, Nuu-chah-nulth (Nootka) changes  $s$  and  $ʃ$  (existing phonemes) to  $ʂ$  in words referring to small people and occasionally small birds, as in *hin-t-sil-we?in* ‘he comes, they say’ > *hin-t-ʂil-ʂis-we?in* ‘he, little man, comes, they say’, with  $ʂ$  limited to such formations, in this example also encompassing *-ʂis* (diminutive suffix) > *-ʂis* (Nichols 1971:845, after Sapir [1915] 1949:182).<sup>3</sup>

In the third place, speakers have a certain freedom when it comes to using special sound symbolic forms, and they may choose to avoid them depending on the occasion. For example, Sapir ([1915] 1949:184–185) mentions that Nuu-chah-nulth forms that refer to people with a certain physical defect are rather freely used when speaking about persons so afflicted, but are generally avoided when these persons are within earshot. Similarly, the complex rules that derive Cocopa baby talk from adult speech (Crawford 1970, 1978) are generally not used 100 percent of the time, and speakers have a certain liberty to pick and choose between the various rules. Thus, sound symbolic forms are to a larger or smaller extent excused from the neo-grammarians’ postulate of exceptionless sound changes.

Within Salish, sound symbolism accounts for four types of phonemic alternations, three of which, retraction, the origin of velar and uvular resonants, and velar-uvular obstruent doublets, overlap in a number of cases in that they may be applied to the same root, leading to a number of variants of the same root. These alternations are discussed in turn in Sections 4 through 6, with concluding observations in 6.1.

#### 4 Proto-Salish retracted phonemes

As is mentioned in Section 1, SED:x reconstructs four retracted PS vowels  $a \text{ } i \text{ } u \text{ } \text{ə}$  (broadly [a ε ɔ ʌ]) and preserved only in Interior Salish [IS]) paralleling non-retracted  $a \text{ } i \text{ } u \text{ } \text{ə}$  (broadly [ε e o ə]) with  $a \text{ } i \text{ } u \text{ } \text{ə}$  changing a following  $c \text{ } s$  or  $l$  to retracted  $ç \text{ } ʃ \text{ } ʎ$  ( $l$  shifting to  $r$  in Columbian, Okanagan, Colville, Spokane and Coeur d’Alene, as noted in SED:6 and detailed in 4.3 below). Thus, the presence of  $ç \text{ } ʃ$  (only in Lillooet and Thompson) and of  $ʎ$  (only in Lillooet, with glottalized counterpart  $ʎ̥$ ) would hinge on the presence of preceding  $a \text{ } i \text{ } u \text{ } \text{ə}$ . However,  $ç \text{ } ʃ \text{ } ʎ$  may also precede  $a \text{ } i \text{ } u \text{ } \text{ə}$ , as in Lillooet *çúl-ləx* ‘to stretch (*çul-*) oneself (*-ləx*) when reaching’, *ləʃ-p* ‘to cave in, get caved in’, *ʃtut* ‘cricket (Fountain dialect), *ʃniʔ* ‘smart, intelligent’. (Note the separation of  $ʃ$  from the retracted vowel in the last two examples.) In earlier studies, Kuipers (1973: passim, 1978:608) reconstructs only  $a \text{ } i \text{ } u \text{ } \text{ə}$  plus a retracting (“darkening”) feature, and this seems to have been the impetus for creating the retracted phonemes.<sup>4</sup> The advantages of a

<sup>3</sup> Nichols (1971:830, fn. 5) describes Nuu-chah-nulth  $ʂ$  as non-phonemic, as long as it, and similar developments in other languages, are limited to certain speech forms, such as those referring to small people in Nuu-chah-nulth. See also Section 4 for a further discussion of this issue.

<sup>4</sup> On p. 614 of Kuipers’ 1978 article, the “darkening” feature is rejected, but only because it is there seen as the pharyngealization of  $h \text{ } w$  into  $ʕ \text{ } ʕʷ$ . However, as we demonstrate in Section 5, pharyngealization is a different process from the type of velarization that gives rise to the retracted phonemes and that is better

retracting feature in PPS rather than the presence of retracted phonemes in that earliest stage of Salish phonology are threefold. First of all, it would give us a single suprasegmental feature in exchange for four retracted vowels as separate phonemes. In the second place, it would treat the retracted vowels and consonants equally, and in the third place, such spreading features are known from a number of languages, such as nasalization in Desano (Davenport and Hannahs 2010:150–151, 164–165) or tongue root position in Akan (Davenport and Hannahs 2002:165). In fact, retraction also spreads from roots to certain suffixes, as in Lillooet *qə!* ‘bad’ > *qə!-wíłx* ‘to get worse’ (-*wíłx* inchoative suffix) vs. *?áma* ‘good’ > *?ama-wíłx* ‘to get better’.

Furthermore, retraction seems to have an overlaid semantic function in that, as Van Eijk (1997:31) notes for Lillooet, many words with retraction “have a connotative value, either a negative one (negation, decay, unpleasantness) or a positive one (jocoseness, affection)”. Examples of a negative connotation given by Van Eijk include *qə!* ‘bad’ (vs. *?áma* ‘good’, see also above), *?áłšəm* ‘sick’ (vs. *?əłšəl* ‘strong, healthy’), plus several others, while we have a jocose connotation in the man’s (nick)names *šúšpa?* (cf. *súšpa?* ‘tail’) and *šəxám* (cf. *sxam* ‘foolish, irresponsible’). Kuipers (1981:332) also notes that “One still finds cases where a vowel alternation plain ~ retracted has a symbolic value, for example, Li *tək* ‘get deflated, go down (of dough)’ vs. *tək* ‘get pooped, conk out’” (plus further examples added by Kuipers). If certain phonemes are only used in a certain register (such as the one apparently associated with retraction) they are clearly secondary, and in that respect the retracted phonemes are new additions to the original PPS stock of phonemes, similar to the creation of *š* in certain Nuu-chah-nulth forms, as commented on in Section 3.<sup>5</sup>

The retracting feature hypothesis is certainly not expected to find universal approval. Thus, Henry Davis, in reply to a précis of this paper mentions that (i) vowels and consonants are not on equal footing when it comes to retraction, in that there are no retracted roots without retracted vowels, while roots with only retracted vowels do occur, such as Lillooet  $\sqrt{pəm}$  ‘fast’,  $\sqrt{tut}$  ‘to squish something;’ (ii) the floating feature hypothesis would (a) not account for parallel forms with full or partial retraction, such as Lillooet *pəmp-šút* ~ *pəmp-sút* ‘to go too fast, not able to stop’ (-*sút* ‘out of control’); (b) there are partially retracted roots, such as Lillooet *čəłs* ‘kingfisher’ (where one would expect *!\*čəłš*, with *!\** marking a non-existent form);<sup>6</sup> (c) retracted vowels in loan words retain the retraction in reduplicative formations, but the retraction does not spread to epenthetic schwas in such formations, as in Lillooet *pəyt* ‘to fight’ *pəypəpəyət* ‘to quarrel, argue, have an argument’.

We offer the following counter-arguments to the above objections: (i) generally in Salish one cannot have roots without vowels (for Bella Coola, with more than a hundred vowelless words being an exception, see Nater 1979:186–187), so the position of retracted consonants vs. retracted

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interpreted as a suprasegmental spreading feature, as explored in the main body of Section 4. Doak (1989) and Remnant (1990) also explore PS retraction in terms of a spreading feature, be it within theoretical frameworks that we are not employing in this paper.

<sup>5</sup> The creation of retracted phonemes in Salish goes one step further than the creation of *š* in Nuu-chah-nulth, in that in Salish the words with retracted phonemes are no longer automatically paralleled by forms with non-retracted phonemes, while Nuu-chah-nulth *š* implies parallel forms with *s* or *š*. Nichols (1971:836) claims that the creation of a phoneme *k'* (palatalized *k*) in Tillamook also results from *k'* being no longer automatically associated with diminutive forms.

<sup>6</sup> The word *čəłs* is actually not felicitous as a counter-example to our hypothesis, since *s* in this word is probably an old suffix, as suggested in Kuipers (1973:7), SED:30, and, as we mention in the main text, suffixes are not always affected by retraction.

vowels is not exceptional, and where *c s l* occur in a root they are in principle covered by the retracting feature as much as the vowels are; (ii) the incomplete retraction in a number of forms, such as those given under (ii-ab) is accounted for by the fact that, as we note in Section 3, sound symbolism is often casually applied, and speakers are more or less free as to what part of the word they apply a particular sound symbolic process; as for incomplete retraction in root-suffix combinations, one should also note Kuipers (1978:610): “in Shus[wap] the plain forms of the suffixes are forcing out the retracted ones, while in Kal[ispel] there are only remnants of the latter”, showing the original force of the retracting feature; as for (ii-c), the insertion of schwa is a late phonological rule that applies after other rules have gone through, so that epenthetic schwa falls outside an earlier process like retraction.<sup>7</sup>

In the remainder of this section we address three issues that are ancillary to retraction, viz., the effects of uvulars on preceding vowels (4.1), the effects of *z ʒ (ç)* in Lillooet and Thompson on preceding vowels (4.2), and the origin of Salish *r* (4.3).

#### 4.1 The effects of uvulars

Before uvulars, the opposition between *a i u ə* and *a i u ɤ* is generally neutralized into the phonetic variants that are those of *a i u ɤ*, be it with certain separate developments in individual IS languages, as detailed in SED:4. However, it is typically the variants of *a i u ə* that show up when the vowel is separated from the following uvular by an intervening consonant, as in Lillooet *súqʷəm* [šóqʷəm] ‘to skin big animals’ > *súsqʷəm* [šóšqʷəm] ‘to skin small animals’. (See Section 7 below for the glottalization of *m* in the second form.) By contrast, an intervening glottal stop *ʔ* does not prevent the influence of a uvular on a preceding vowel, as in Lillooet *√nuqʷ* [nɔqʷ] ‘warm (atmosphere)’ > [nɔʔqʷ] ‘to get warm’.

Although the auditory output of *a u i ə* before uvulars is identical to that of the retracted vowels, the articulatory mechanism is different in that retracted vowels represent a manner of articulation (retraction of the tongue root with accompanying tensing of the tongue muscles), while the uvulars present a place of articulation, which then has a general back-shifting effect on preceding vowels. Thus, as Kuipers (1978:608) points out, uvulars cannot be considered retracted variants of velars, and uvulars and retracted phonemes in fact tend to exclude each other. If the opposite of these conditions were true, forms like Lillooet *√ki!* ‘greatly distressed’ or *√qʷus* ‘to shoot’ should have been *!\*√qi!* and *!\*√qʷuʂ* respectively. The mutual exclusion of uvulars and retraction is not absolute, but is due to the relative rarity of retraction, and Lillooet *qə!* ‘bad’ is a rare case of a uvular and retraction appearing in one root.

The occasional replacement of a velar with a uvular before a (historically) retracted vowel in a number of languages (in particular Thompson), as detailed in SED:6–7, is a separate development that does not affect the general mutual exclusion of retraction and uvulars, and is probably due to the fact that the retracted vowels were associated with the back-shifted vowels that occur before uvulars, and that, as a form of acoustic assimilation, the velars preceding the retracted vowels themselves shifted to uvulars. This type of development would in a sense parallel the shift of [i(:)] and [e(:)] (both with a high F<sub>2</sub>) to respectively [ü(:)] and [ö(:)] (both with a low F<sub>2</sub>) before velarized [ɣ] (with a low F<sub>2</sub>) in some Austrian dialects, and to the shift of

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<sup>7</sup> Davis gives detailed comments on the lack of consistency of retraction in suffixes, and on epenthetic vs. underlying schwa. But rather than adding — as our debate continues — an ever-increasing footnote pertaining to these topics, we would prefer to discuss his views with him at the 55<sup>th</sup> ICSNL.

Romanian [k] (+compact) to [p] (-compact) before [t] (-compact), with [p] and [k] both being (+grave), shifts that can also be explained in acoustic rather than articulatory terms (Lass 1984:175–176 for Austrian, and Arlotto 1972:222–224 for Romanian; see Jakobson, Fant and Halle 1963 for discussion of [compact] etc.).

#### 4.2 The effects of $z \acute{z}$ ( $\acute{c}$ ) in Lillooet and Thompson

As is mentioned in SED:4, PS  $*y \acute{y}$  developed into  $z \acute{z}$  in Lillooet, and into  $z \acute{c}$  (via  $*\acute{z}$ , retained in sporadic cases) in Thompson. In Lillooet,  $y \acute{y}$  still occur as free or fixed variants before coronal consonants, e.g., *huž* ‘to be about to do something’ > *húž-łkan/húy-łkan* ‘I am about to do something’, as free variants in a few other cases, e.g., *zətp/yətp* ‘jelly-like’, in nursery talk, e.g. *yaxt* ‘long’ instead of regular *zaxt*, and as occasional retentions or borrowings, e.g., *yúnhana* ‘Carrier Indian’ (see Van Eijk 1997:7, and in particular endnote 11 on p. 254, for details).

In Thompson,  $y \acute{y}$  also occur, in most cases having developed out of PS  $*l \acute{l}$  (see SED:2 and cf. PS  $*la?$  ‘good – Thompson *yé* ‘good’, or Proto-Interior Salish (PIS)  $*ləy$  ‘to insert’ – Thompson *yəytés* ‘she inserts it’). There are probably also some occasional retentions of  $*y \acute{y}$  in Thompson, and in both Lillooet and Thompson, Owl (the Great Horned Owl), a bogeyman, may use  $y$  rather than  $z$ , in a scary imitation of children’s speech (see Van Eijk 1997:254 and Egesdal 1992:79 for details).

In the Mount Currie dialect (and probably also other southern [Lower] dialects) of Lillooet,  $u$  and  $u$ , and  $a$  and  $a$ , are neutralized into phonetic variants that are typical of  $u$  and  $a$  respectively, before  $z \acute{z}$ , and  $u a$  are written where the phonetic variants of those occur in the northern (Upper) dialects, e.g., *sk<sup>w</sup>úza?* ‘child, offspring:’ [šk<sup>w</sup>óze?] (northern), [šk<sup>w</sup>óze?] (southern), *xmaž* ‘fly (insect):’ [xmεž] (northern), [xmaž] (southern).<sup>8</sup> In Thompson, the [a] quality of  $a$  (written  $e$  in Thompson) is also usual before  $z \acute{z}$  (Thompson and Thompson 1992:17). Similarly,  $u$  seems to be [ɔ] (written  $o$  in Thompson) before  $z \acute{z}$ , although Thompson and Thompson (1992:19) are not specific on this point, but do provide  $\acute{c}ʔoz$  ‘get dark’.

#### 4.3 Salish $r$

One final aspect of retraction concerns Salish  $r$ , present only in Coeur d’Alene, Spokane, Columbian and Okanagan, and corresponding to  $l$  elsewhere (and to  $l$  in Lillooet) in historically retracted environments, as in Okanagan *k<sup>w</sup>ri?* (variant *k<sup>w</sup>ri?*) ‘yellow, gold, sorrel’ vs. Lillooet *k<sup>w</sup>li?* ‘green, yellow’. While Kinkade and Thompson (1972, 1974) reconstruct  $*r$  for PS (developing into  $l$  in the non- $r$  daughter languages), Kuipers (1973, 1981:324, SED:7 [fn. 5], SED:11, to which we refer the interested reader) argues convincingly against this hypothesis and proves that development of  $r$  out of  $*l$  provides us with a much more plausible explanation of the relation between  $r$  and  $l$  in the daughter languages.

### 5 The origin of $y \acute{y}$ $\acute{c}$

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<sup>8</sup> Shahin (2002:172) sets up underlying retracting  $z \acute{z}$  for the Lower dialect vs. non-retracting  $z \acute{z}$  in the Upper dialect to account for the retracting effect of  $z \acute{z}$  on  $a u$  in the Lower dialect, while Egesdal and Thompson (1993:100,103) set up retracting  $z \acute{z}$  for both dialects and hypothesize that in the Upper dialect they may be losing their retracting effect on a preceding vowel. We leave these views for what they are as they do not affect the surface status of  $z \acute{z}$  in Upper or Lower Lillooet, and do not bear on the general points we are making in this paper.

The velar and uvular (phonetically pharyngeal) resonants  $y$   $\text{ʃ}$   $\text{ʃ}^w$  and their glottalized counterparts stand apart from the other Salish phonemes by being very restricted (a) in general occurrence (SED lists only 24 PS roots, and 31 PIS roots, with any of these phonemes, and no suffixes with them), and (b) in comparative-historical distribution, in that they are limited to IS, while  $y$  is further limited to the three northern IS languages Lillooet, Shuswap and Thompson, and to northern Okanagan. In spite of their low numbers and limited distribution, these consonants also show a complex pattern of correspondences,  $y$  having reflexes with  $y$  and  $\text{ʃ}$ , and  $\text{ʃ}^w$  with  $w$ , in both Coast Salish (CS) and IS languages.  $\text{ʃ}$  and  $\text{ʃ}^w$  also shift to  $\check{x}$   $\check{x}^w$  respectively in a number of items in some CS languages (SED:3, with a list of cases in Kuipers 1981:324–325), and to  $\text{ʃ}/\text{h}$   $\text{ʃ}^w/\text{h}^w$  in Columbian (SED:3). There is also back borrowing of some forms with  $\check{x}$  or  $\check{x}^w$ , or perhaps independent shifts to  $\check{x}$   $\check{x}^w$ , in some IS languages, e.g., *\*ciʃ*<sup>w</sup> ‘to bleed’ > Spokane *ncx<sup>w</sup>um* ‘blood is gathered there, bloodclot’ (SED:26–27), which is an issue that will not concern us here.

While the shifts  $\text{ʃ}$   $\text{ʃ}^w$  to  $\check{x}$   $\check{x}^w$  (and to  $\text{h}$   $\text{h}^w$  in Columbian) post-date the PS stage, within PS the correspondences between  $y$ ,  $y$  and  $\text{ʃ}$ , and between  $w$  and  $\text{ʃ}^w$  raise the question whether  $y$   $\text{ʃ}$   $\text{ʃ}^w$  were originally part of the phonemic stock of PS and developed into  $y$  or  $w$  in a number of etyma, or whether they generally developed out of  $y$  and  $w$ , which have a much wider distribution and a much higher rate of occurrence throughout Salish, and  $y$   $\text{ʃ}$   $\text{ʃ}^w$  therefore were not part of the PS phoneme system in its earliest stage. Before we address this issue we list the PS and PIS items with  $y$   $\text{ʃ}$   $\text{ʃ}^w$  as provided in SED, with page numbers in that source after each item. We standardize the doublets as given by Kuipers, in that we separate the items by commas only (rather than a slash here, a comma there), and in  $y/\text{ʃ}$  doublets we consistently list the items with  $y$  first, while in  $\text{ʃ}^w/w$  doublets we first list the items with  $\text{ʃ}^w$ .

- $y$  (PS): *\*s-myaw* ‘a large feline or canine’ (70), *\*yap*, *\*ʃap* ‘to stand upright; tree’ (134);  
 $y$  (PIS): *\*ləy* ‘to insert’ (169), *\*say*, *saʃ* ‘to shake (off)’ (187), *\*yac* (only in reduplicated form) ‘sparrowhawk’ (201), *\*yəl* ‘strong, vigorous’ (201).  
 $\text{ʃ}$  (PS): *\*čəʃ-tin* ‘poison, rattlesnake’ (34), *\*qəʃ* ‘to stir, move’ (90), *\*yəʃ*, *\*ʔiʃ* ‘to grind, scratch, scrape’ (133), *\*ʃəl* ‘to lose (ability, object, contest)’ (134), *\*ʃi/al* ‘to cut (as hair)’ (134), *\*ʃis* ‘to shrink’ (134), *\*ʃəy*, *\*ʃi-n* ‘hot, angry, growl’ (134);  
 $\text{ʃ}$  (PIS): *\*paʃ* ‘faded, grey’ (178), *\*pəʃ* ‘to burn’ (179), *\*xəʃ* ‘breeze, draught’ (198), *\*yəʃ* I ‘to gather (esp. of people); many, all’ (200), *\*yəʃ* II ‘war spear’ (200), *\*ʃat* (only in reduplicated form) ‘unid. bird of prey’ (201), *\*ʃəc* ‘to tie, knot’ (201), *\*ʃələx<sup>w</sup>* ‘stiff, frozen’ (201), *\*ʃił* ‘to take a bite’ (201), *\*ʃiʃ<sup>w</sup>*, *\*ʃiw* ‘to pile up by throwing, dump’ (201, where Kuipers notes that there is also a  $\sqrt{*ʃay}$  in Lillooet *ʃázan*, Shuswap *ʃeym* ‘to pile up’), *\*ʃəx* I ‘to lace up’ (201), *\*ʃəx* II ‘to scratch’ (201, which also refers to PIS *\*ʃ<sup>w</sup>əx<sup>w</sup>*, *\*wəx<sup>w</sup>* ‘to lace up’).  
 $\text{ʃ}^w$  (PS): *\*ʔaʃ<sup>w</sup>*, *\*ʔaw* ‘to call, howl’ (23), *\*cay* ‘blood’, *\*ciʃ<sup>w</sup>* ‘to bleed’, *\*ci/aq<sup>w</sup>* ‘to bleed, red’ (26), *\*caʃ<sup>w</sup>*, *\*caw* ‘to reach for, stick out; fringe, stripe’ (27), *\*čaʃ<sup>w</sup>*, *\*čaw* ‘to wash, clean’ (35), *\*čuʃ<sup>w</sup>* ‘sore’ (35), *\*ləʃ<sup>w</sup>*, *\*ləw* ‘to come off (as skin, bark)’ (53), *\*liʃ<sup>w</sup>* ‘loose, free’ (55), *\*li/aʃ<sup>w</sup>* (CS *\*yač<sup>w</sup>*) ‘to melt, thaw, open up (of ice)’ (56) *\*łəʃ<sup>w</sup>* ‘hard (substance)’ (65), *\*pəʃ<sup>w</sup>*, *pəw* ‘to prod, knock, drum’ (78), *\*səʃ<sup>w</sup>*, *\*səw* ‘to flow; wetness, dew’ (102), *\*ʃ<sup>w</sup>əl*, *\*wəl* ‘to burn, shiny, bright’ (114), *\*ʃ<sup>w</sup>al* ‘to become weak, tired, faint, sleep’ (135), *\*ʃ<sup>w</sup>ətq<sup>w</sup>*, *\*wətq<sup>w</sup>* ‘to boil, cook’ (135), *\*ʃ<sup>w</sup>əy* ‘to play, joke, make fun, laugh’ (135);  
 $\text{ʃ}^w$  (PIS): *\*cəʃ<sup>w</sup>* ‘stripe’ (NIS), ‘fringe’ (SIS) (161), *\*čələʃ<sup>w</sup>* ‘to scratch, claw’ (162, which also notes that none of the SIS forms show a regular reflex) *\*k<sup>w</sup>əw*, *\*q<sup>w</sup>əʃ<sup>w</sup>*, *\*q<sup>w</sup>əʃ<sup>w</sup>* ‘to slide,

crawl’ (168), \**kʷɬʷəy*, \**qʷɬʷəy* ‘small’ (169), \**ləɬʷ* ‘to rumble’ (170), \**laɬʷ* ‘to plunge’ (170), \**maɬʷ*, \**maɬ* ‘to break, smash’ (175), \**qʷaɬʷ*, \**qʷaw*, \**qʷaɬ* ‘silly, crazy, drunk’ (184), \**səɬʷ*, \**səɬ* ‘to drain, strain’ (a liquid)’ (187, cf. \**səɬʷ*, \**səw* ‘to flow; wetness, dew’ under PS), \**tiɬʷaʔ* (only in reduplicated form) ‘mint’ (189: “PIS status doubtful”), \**(s-)xʷəɬʷ(-al-mxʷ)* ‘fox’ (199), \**yəɬʷ* ‘strong, intensive, violent’ (200), \**ɬiɬʷ*, \**ɬiw* ‘to pile up by throwing, dump’ (201), \**ɬʷisx̣*, \**wisx̣* ‘robin’ (202), \**ɬʷəx̣ʷ*, \**wəx̣ʷ* ‘to lace up’ (202).

These data, and further information provided in SED, call for a few initial comments. In the first place, the delabialization *ɬʷ > ɬ* seen in \**maɬʷ*, \**maɬ* ‘to break, smash’ (175), \**qʷaɬʷ*, \**qʷaw*, \**qʷaɬ* ‘silly, crazy, drunk’ (184), \**səɬʷ*, \**səɬ* ‘to drain, strain’ (a liquid)’ (187) is not uncommon for Salish velars, as mentioned in SED:7, although here it occurs with uvulars. In the second place, a number of roots have etymological connections not explicitly noted by Kuipers. Paralleling \**ʔaɬʷ*, \**ʔaw* ‘to call, howl’ (23), SED:113 lists \**waʔ* ‘to cry, holler’ which is in all appearances a metathesized form of \**ʔaw* (and to which we should add Lillooet *wəʔáw* ‘to shout’). The roots \**ləɬʷ*, \**ləw* ‘to come off (as skin, bark)’ (53) and \**liɬʷ* ‘loose, free’ (55) clearly go back to the same etymon, as is indicated by the fact that Bella Coola *law* ‘loose’ is listed under both entries. Next to \**wəɬ-an(k)* ‘stomach’ (SED:193), we need to list \**ɬʷəɬ-an(k)*, which is mentioned in SED:202, under \**ɬʷəx̣ʷ*, \**wəx̣ʷ* ‘to lace up’, and supported by a number of etyma, e.g., Lillooet *ɬʷəlin* ‘stomach, belly’. The root \**cuɬʷ* ‘sore’ (35) has reflexes with *w* in Twana and Upper Chehalis, so this item should have been listed as a doublet as well. Similarly, \**s-waʔ* (mostly reduplicated) ‘cougar’ (SED:113) has the reflex *sɬʷaɬʷaʔ* in Columbian, so this should also be listed as a doublet.

Although SED does not list any *ɣ/y* doublets, SED:3 notes that \**ɣ* developed into *ʒ* (palatal affricate) in Coeur d’Alene, but into *y* in Columbian, Colville, Kalispel and Spokane (and Flathead, not mentioned in SED:3), and that the etymologies are limited to IS. There are indeed three cases where *y* is paralleled by *ɣ* in at least one language, viz., (a) \**s-myaw* ‘a large feline or canine’ (70), which has *y* in Lillooet, Shuswap and Thompson, where it means ‘lynx’, but *ɣ* in Columbian, Colville and Spokane (these last two languages not mentioned under this item), Coeur d’Alene (instead of expected *ʒ*), where it means ‘coyote’, in Flathead (‘cougar’), and in three CS languages, viz., Samish (‘fox’), Nooksack (not mentioned by Kuipers, but see Kinkade 1991:236) and Lushootseed (‘coyote’);<sup>9</sup> (b) \**yap*, \**ɬap* ‘to stand upright; tree’ (134), which has *y* in Lillooet, Thompson and Shuswap, but *ɣ* in northern Okanagan *cyip* ‘tree’ vs. *y* in *snyipwɬ* ‘mast’ (-*wɬ* ‘container, conveyance, boat’, Mattina 1987:226) and *y* in Colville, while the CS languages listed have *x̣ < \*ɬ*; (c) \**ləɣ* ‘to insert’ (169), which has *ɣ* in Lillooet, Thompson and Shuswap, but *y* in Columbian, and *ʒ* in Coeur d’Alene.

Of the reflexes of \**s-myaw*, \**yap* ~ \**ɬap*, and \**ləɣ*, only Coeur d’Alene calls for a comment in that, as noted above, it does not have expected *ʒ* but *y* in its reflex (*smiyíw*) of \**s-myaw*. If somehow \**y* were the PS ancestor phoneme here, one would have expected *d* in the Coeur d’Alene form, that being the regular reflex of PS \**y* in that language (SED:3). However, SED:3 also mentions frequent *y* besides *d* in Coeur d’Alene, but that would also point back to PS \**y* as the ancestor phoneme. (Alternatively, the Coeur d’Alene form could be an old loan from Columbian *smiyáw*, with regular \**a > i* before non-uvulars, SED:4.)

<sup>9</sup> Colville also has *snkɬip*, Mattina 1987:303), paralleling etyma in Lillooet, Shuswap and Thompson and perhaps northern Okanagan.



Since *\*s-myaw* is the only SED item with *y* that has reflexes in CS other than Bella Coola, the status of *y* as a PPS phoneme seems very weak, and Kinkade (1995:39) notes in fact that both the form, *s-miyáw*, and the meaning ‘coyote’, were borrowed into Lushootseed from Columbian and then into Nooksack and Samish. On the other hand, Pentlatch has *s-meyáw* ‘beaver’ (Kinkade 1995:39), and Bella Coola has *kasmiw* ‘golden eagle’ (from *kas-\***smiyiw* ‘hunter of (*kas-*) \*dog-sized furry mammal’ (Nater 2020)). Bella Coola also has *yalli* ‘strong swimmer’ (*\*yall-i* ‘strong little (*-i*) one’), *ya.yaliwa* ‘brave’ (*\*yal-(li)wa*), and *yalit* ‘(to be a) brave’ (Shuswap *ylyalt* ‘strong, brave’) (Nater 2020), as reflexes of *\*yəl* ‘strong, vigorous’. This gives us two *\*y ~ \*y* sets, but that still leaves open the question as to whether *y* is PPS, or whether it developed out of *\*y*.

With regard to the latter issue, the geographical distribution of *y* and *y* forms is largely inconclusive, in that, as concerns *\*s-myaw* and *\*yəl*, the distance of Pentlatch and Bella Coola from the other *y* languages argues for *y* being the original phoneme, while, with regard to *\*ləy*, the separation between the *y* languages (Lillooet, Shuswap and Thompson) and Coeur d’Alene (with *ǰ < \*y*) argues for *y* being original.

Be all of that as it may, the point may also be moot, because at the PPS stage we are addressing here, the languages were obviously in much closer contact, without the geographical separations that now apply to them. On the other hand, the far greater distances between Bella Coola, Pentlatch, and the southern IS languages with *y* does suggest *\*y* as the original phoneme of the *y/y* set, and we may have to reconstruct PS *\*smyaw* and *\*yəl*, *\*yal* (vs. PIS forms with *\*y*). Furthermore, note again that *y y* have within Salish been conserved only in the northern IS languages (Shuswap, Lillooet, Thompson), while *z z* are limited to Lillooet and Thompson. Now, northern IS languages are (were) spoken by people who have (had) been in frequent contact with Athabaskan groups: Shuswap with Carrier and Chilcotin, Lillooet with Chilcotin, and Thompson presumably with Nicola. Hence, we should seriously consider the possibility that *y y* were maintained in northern IS under Athabaskan influence and that *z z* evolved for the same reason.<sup>10</sup> (See King 1979 for *y* and *z* in Chilcotin, and cf. Cook 1987 for pharyngealization in Salish and Athabaskan.)

Finally, the extreme paucity of *\*y*, with only six PS etyma, of which only two are attested for CS, gives pause to think. By contrast *\*h* is also very limited, to only 9 PS etyma (including two *h/y* doublets and one *h/w/x<sup>w</sup>* triplet), but all of those are attested for both IS and CS.

The question as to whether the velar and uvular resonants are PPS or developed out of other resonants seems more clear with regard to *ʕ* and *ʕ<sup>w</sup>*, because we have more examples of these than for *y*, including a number of examples of where these phonemes are attested for both IS and CS. A particularly illustrative case is *\*ʕ<sup>w</sup>əl*, *\*wəl* ‘to burn, shiny, bright;’ *\*wəlim* ‘iron, metal’ (114), where only one form (*\*ʕ<sup>w</sup>əl*, *\*wəl* or *\*wəl*, the last one in, for example, Lillooet *s-wəl-m-ínk* ‘gun’ [northern dialect], *-ínk* ‘gun’ < PS *\*-ínak* ‘weapon for shooting’, SED:213) can be original. Since a change *\*wəl > \*ʕ<sup>w</sup>əl* or *\*ʕ<sup>w</sup>əl > wəl* would each require a double shift (either eliminating retraction and adding uvularization in the first change, or the reverse in the second), it is more plausible to accept *\*wəl* as the original form, with either retraction (as covered in Section 4 above) or uvularization, in the latter case probably marking some form of augmentative, as discussed in Section 6.1.

We have a similar situation in *yəl* ‘strong, vigorous’ (201), where some daughter languages show retraction, e.g. Shuswap *ylyalt* ‘strong, brave’, while Lillooet has *ʕəlʕəl* ‘strong’, with

<sup>10</sup> In this respect, compare Tahltan, whose entire uvular series was copied from Tlingit (Nater 2018).

uvularization, and Thompson has neither in *ɣəlyəlt* (in addition to the variants *ʕelyəlt*, *ʕəlyəlt*, *ʕəlyəlt*). The underlying form here is most probably \**ɣəl*, with either retraction or uvularization in a number of daughter languages.

The fact that in the above cases we have parallel forms with either retraction or uvularization proves that these are different processes, although Kuipers considers retracted vowels as the syllabic variants of uvular resonants (SED:6 and 10–11, 1978:613, in the latter case to explain the absence of uvular resonants in suffixes), and also interprets *i* as vocalic *ɣ* (SED:11), in the latter case also quoting a Shuswap speaker’s comment that Shuswap *i* “has a *ɣ* in it”.<sup>11</sup> However, as we have seen in 4.1 above, although the acoustic effect of uvulars on neighboring vowels is very similar or identical to that of retraction, the articulatory mechanisms of retracted phonemes and uvulars are very different. In particular, uvular resonants are lax, while retracted phonemes are tense, at least in Lillooet which seems to have the most extensive retraction pattern of the IS languages. Where we have a combination of a retracted vowel and the uvularization of a resonant, as in Thompson *ʕəlyəlt* above, this probably results from the same type of acoustic assimilation that gives rise to a velar to uvular obstruent shift before a retracted vowel, as mentioned in 4.2.

A remaining problem concerns the precise position of *ʕ* with regard to *ɣ* and *ʕʷ* on the one hand, and *y* and *w* on the other. While there is a clear (though meagerly attested) correlation between *y* and *ɣ*, and (more generously attested) between *w* and *ʕʷ*, we would expect there also to be a correlation between *h* and *ʕ*, but SED gives no such examples.<sup>12</sup> Considering the fact that we have a correlation between PS \**h* and \**y* in \**hil*, \**ɣəl*, \**yul*, \**həyl* ‘to roll, turn over, round’ (SED:35, 130), it is possible that a number of cases of *ʕ* go back to \**h* (> \**y* > \**ɣ*), but that is at this point highly speculative. If we keep this possibility open, however, and combine it with the well-documented alternations *a/h*, *i/y*, *u/w* in Salish, with the presence of velar and uvular resonants, and with the acoustic association of the latter set and retraction, we arrive at the following set of alternations, in which the horizontal pairs show the vocalic vs. consonantal alternants, and the vertical pairs the non-retracted vs. retracted or velarized/uvularized alternants:

<i>a / h</i>	<i>i / y</i>	<i>u / w</i>
<i>ɑ / ʕ</i>	<i>ɨ / ɣ</i>	<i>ʊ / ʕʷ</i>

**Figure 2:** Salish vocalic vs. consonantal and plain vs. retracted

For final observations on the retracted vs. velarized/uvularized phonemes see 6.1.

## 6 Uvular-velar obstruent doublets

The opposition between uvular and velar obstruents is hard-wired into Salish phonology, as evinced by the following PS examples (taken from SED): \**qəm* ‘to swallow’ vs. \**kəm* ‘to grab a handful; squeeze, bite, \**qʷəl* ‘to boil (food), cook’ vs. \**kʷəl* ‘warm’ (see Section 6 for the doubtful status of PS glottalized resonants), \**qʷal*/\**qʷay* ‘to scorch,(burn to) ashes, black; roast,

<sup>11</sup> The astuteness of the Shuswap speaker’s comment is underscored by the fact that both *i* and *ɣ* are very rare in Shuswap and in the other languages where they do occur.

<sup>12</sup> A correspondence *ʕ* ~ ? (= *h*) seems more promising, as suggested by Shuswap *pəpi?se* ‘snake’ (Kuipers 1974:145) and Lillooet *pə?piʕa* ‘frog’ (Van Eijk 2013:34), although more research is needed in this area.

ripe(n), berry’ vs. \**k<sup>w</sup>al* ‘stomach, belly’, \**ǰil*, \**ʔaǰil* ‘thus, like, similar’ vs. \**xil* ‘to bite, gnaw, chop, cut’, \**ǰəm* I ‘heavy (\**ǰilam* ‘weigh down, grab to hold’), \**ǰəm* II ‘bite’ vs. \**xəm* ‘both sides’, \**ǰaw* ‘dry’ vs. \**xaw* ‘to grow’.

On the other hand, Kuipers (1981:325–326, SED:passim) contain a number of doublets where one language has a uvular in the same form where another has a velar, including uvular-velar resonant doublets which we discuss in Section 5. In the present section we concentrate on velar-uvular obstruent doublets, and some examples given by Kuipers are: \**ʔək*/\**ʔəq* ‘worn out’, where Shuswap has *ʔikt* ‘worn out (material)’ vs. Spokane *ʔiqn* ‘wear something out’, or \**k<sup>w</sup>əm*/\**q<sup>w</sup>əm* ‘lump, heap’, where Bella Coola has *k<sup>w</sup>m* ‘thick, bulky’ vs. Lillooet *q<sup>w</sup>əm-ən* ‘to pile up’. We may also have a uvular-velar alternation within the same language, as in Lillooet *ǰ<sup>w</sup>əy-ǰ<sup>w</sup>-ǰqs* ‘maggots on head of deer’ vs. *s-x<sup>w</sup>ú-x<sup>w</sup>əǰ* ‘ant’ (both forms listed under \**x<sup>w</sup>/ǰ<sup>w</sup>əy-a?* ‘fly, maggot, worm, ant’ in SED:122), or Lillooet *ǰ<sup>w</sup>əy-t* ‘many people dead’ vs. *x<sup>w</sup>aǰ* ‘to disappear’, with regular alternation *z* (*ǰ*) > *y* before *t*, as detailed in section 4.2. (SED:129 lists *ǰ<sup>w</sup>əy-t* [written *ǰ<sup>w</sup>ey-t* on the basis of an older transcription used by Van Eijk] under \**ǰ<sup>w</sup>əy* ‘to perish pl., disappear’, and *x<sup>w</sup>aǰ* [*x<sup>w</sup>eǰ*] in square brackets under \**ǰ<sup>w</sup>əy*, but does not list the uvular-velar alternation as a doublet.)

Kuipers (1981:325) comments on uvular-velar alternation: “In a number of cases the alternation has a sound-symbolic value”, adding (SED:6) “the uvular form having the connotation *large, strong, loud, etc.*”

Kuipers’ characterization of a number of the uvular-velar doublets as resulting from sound-symbolism is backed up by (a) a number of the examples he gives, such as the Lillooet pair *ǰ<sup>w</sup>əy-t/x<sup>w</sup>eǰ*, where it is clearly the form with the uvular that represents the “stronger” meaning, and to which we probably can also add a pair like Lillooet *q<sup>w</sup>iq<sup>w</sup>s/k<sup>w</sup>ik<sup>w</sup>s* ‘small’, perhaps with a connotation paralleling English ‘tiny’/‘teeny;’ (b) the fact that, although the existence of these doublets suggest an incomplete change, which would violate the neogrammarian postulate of exceptionless sound changes, such a change does, as we have seen with retracted phonemes, not constitute an exception if it can be proven to be tied in with social, cultural and/or psychological factors, in which case it only affects a part of the forms that should be covered by a certain change, such as those with a particular emotive or connotative aspect.

What remains then is to decide whether it is the forms with the uvulars or those with the velars that are basic, or in other words whether we have a shift from velar to uvular signalling some form of augmentative, or from uvular to velar signalling some form of diminutive. While the pairs themselves do not give us a definite answer, Nichols (1971:829), notes that Tillamook employed a shift *q* > *k* signalling the diminutive, as per the following two examples from Edel (1939:16), also given in Nichols (*op. cit.*, p. 844): *waqaq* ‘frog’ > *wuwekek* ‘tiny frog’, *qaqał* ‘play’ > *c-kakał* ‘he (child) played’. (Edel’s examples, and Nichols’ retranscriptions, are here retranscribed in accordance to Thompson and Thompson’s 1966 recasting of Edel’s description of Tillamook phonology.)

If, in the uvular-velar doublets, the forms with uvulars are basic, and the forms with velars signal the diminutive, this could be the result of Salish children acquiring velars before they acquire (or acquired) uvulars, a development well documented for Thompson, Halkomelem and Saanich, and beyond Salish for Kashaya Pomo, Cocopa and Quiche (see Egesdal 1992:63 for details). Indeed, Egesdal (1992:62) gives two examples of the replacement of *q* with *k* in child’s speech in Thompson, viz., *kak* ‘dog’ for *s.qáqǰa?*, and, in a story where Littlest Bear Cub speaks, *ka:kam-áya-s* ‘her (-s) little (-*aya*) breasts’, with *kam* ‘breast’ replacing regular *q?em*. With these cases in mind, the presence of velars rather than uvulars in a number of Salish forms could

have resulted from adults imitating children’s speech, much like anglophone adults pronouncing “fish” or “rabbit” as “fis” or “wabbit” to young children who have not yet developed “sh” and “r” beside “s” and “w”. The use of nursery talk is clearly the case in a line from a Thompson story where Rat—a kidnapper and abuser of children in the traditional Thompson world view—replaces *q̣* with *k* in *wəq̣-e-cút-e* “Open!” > *wək-e-cu* (also with a stress shift, and dropping of final *t-e*), Egedal (1992:63–64). This parallels the use of *y* rather than *z* in Owl’s speech in Lillooet, as mentioned in section 4.2.

Thus, the evidence for the uvular obstruents being basic in the uvular-velar doublets seems strong. On the other hand, as SED:51 and Van Eijk (2017:324–325, 333–334) show, Squamish, Halkomelem (various dialects), Nooksack, Northern Straits (various dialects), Klallam, Thompson and Shuswap share words for ‘grizzly’ that go back to PS *\*kʷəy* ‘frosty, grizzly’ (SED:51), but the Lummi dialect of northern Straits has *q̣ʷ* instead of *kʷ*, and so does a variant form in Nooksack (Van Eijk 2017:324). Since the forms with *kʷ* clearly reflect the “frosty”, i.e., whitish, appearance of the grizzly (see Van Eijk 2017:333 for details), they suggest that the forms with *q̣ʷ* are an innovation, possibly indicating an augmentative, something made feasible by the great awe in which the grizzly was (and is) held by Salish peoples, as commented on in Van Eijk (2017:327, 335). However, SED:95 also lists a PS root *\*q̣ʷal/\*q̣ʷay* ‘to scorch, (burn to) ashes, black; roast, ripe(n), berry’, which Kuipers tentatively connects to *\*qʷəl* (left untranslated by Kuipers, so it is not entirely clear whether he refers to PIS *\*qʷəl* ‘dust, ashes, powder snow’ or to PS *\*qʷəl* ‘to boil (food), cook’, but both etyma would apply here), *\*qʷay* ‘blue, green; bruise’, and *\*kʷəl/\*qʷəl* ‘green, yellow’. This wide range of etyma seems a stretch, and a connection between *\*q̣ʷal/\*q̣ʷay*, *\*qʷəl* and PIS *\*qʷəl* on the one hand, and between *\*qʷay* and *\*kʷəl/\*qʷəl* on the other, seems more likely, with *\*q̣ʷal/\*q̣ʷay* and PIS *\*qʷəl* sharing a notion ‘ashen, greyish, whitish’. The *kʷ* and *q̣ʷ* forms of the words for ‘grizzly’ would then go back to an old *kʷ-q̣ʷ* doublet, with *\*q̣ʷal/\*q̣ʷay* representing the “stronger” notions. Although this does not decide the direction of the uvular-velar alternation, the terms for ‘grizzly’ cannot be taken either as *prima facie* evidence for a velar to uvular direction.

However, we may actually have a velar to uvular development, indicating an augmentative, in PS *\*paw*, *\*puh*, *\*puxʷ/paxʷ* ‘to blow, breathe, swell’ (SED:76), in which the Chilliwack (Upriver Halkomelem) form *paxʷət* ‘blow on patient (to cure him)’ should be *paxʷət* (Galloway 2009:397), and where we should add Squamish *pəxʷ-n* ‘to spit at somebody (e.g. with chewed medicinal herbs)’ (Kuipers 1967:249), Squamish *pəxʷ-ays* ‘to snort (about sea-lions, etc.)’ (Kuipers 1969:42), Lillooet *pəxʷ-ən* ‘to squirt something out (on something), tr. (with particular reference to Indian doctor squirting water on a patient)’ (Van Eijk 2013:23), and Coeur d’Alene *tə-pəxʷ* ‘spit’ (Kuipers 1967:249). If the forms with *xʷ* indeed result from an augmentative-indicating shift from a velar, this may constitute a reversal (essentially a back-formation) from the more common diminutive velar to uvular shift, since, as Nichols (1971:827) observes, “an augmentative shift presupposes a diminutive shift”.

If the number of occurrences of uvular or velar forms in the recorded etyma is a criterion for deciding the direction, the fact that generally, forms with uvulars tend to outnumber those with velars, as in *\*kʷəm/\*qʷəm* ‘lump, heap’ (SED:45), or *\*q̣ʷal/\*q̣ʷay* (SED:95–96) vs. *\*kʷəy* (SED:51), would suggest that the forms with the uvulars are the older ones. In other cases, however, such as *\*kʷup/\*qʷup* ‘to push together, stuff’ (SED:46) the velars dominate, so this criterion must be held in abeyance.

Finally, SED:6 also mentions that unexplained cases remain, as in Twana which often has a uvular where other languages have a velar (and that occasionally the opposite occurs). These may

be due to the disappearance of the velar or the uvular form in one vs. the other language, in a sense paralleling the skewed ablaut relation between Greek *pod-* and Latin *ped-*, where Greek lost *ped-* and Latin lost *pod-* (Arlotto 1972:119,124).

### 6.1 Retraction, velar and uvular resonants, and velar-uvular obstruent doublets: summary.

The three types of alternations we discuss in Sections 4 through 6 have in common that they are all driven by what at least originally were certain forms of sound symbolism. In the case of retraction, we have a negative or jocular connotation, while in the case of the velar and uvular resonants we have what is most probably an augmentative. In the velar-uvular obstruent doublets, the velar members seem to be derived in most cases from the uvular members to signal a diminutive, although in some cases we may have the opposite shift signaling an augmentative.

Of particular interest are root triplets which show a plain form with none of the three alternations under discussion, plus a retracted form, and a velar-uvular alternation, such as  $*\text{ʔ}^w\text{əl} \sim *w\text{əl} \sim *w\text{əl}$ , or  $*\text{ʔ}\text{əl} \sim *y\text{əl} \sim *y\text{əl}$ , both sets discussed in Section 5, or  $*\text{tək} \sim *\text{təq}$  ‘worn out’ (SED:57, which also lists Lillooet *tək* ‘to conk out’, beside Lillooet *tək* ‘to settle, deflate’, under the reflexes of  $*\text{tək} \sim *\text{təq}$ ).

A final note is in order on the parallelism between retraction and uvular resonants. Thus, Mattina (1979) describes a process in Colville where roots  $C\text{ʔ}aC$  transfer the  $\text{ʔ}$  to a suffix, but lose it in the root, with the roots and suffixes in question generally paralleling roots and suffixes with retracted phonemes in other IS languages. Although this would argue for retraction being a form of uvularization (pharyngealization), various factors argue against this interpretation. In the first place, in Lillooet (which we take here as the general model of retraction, because of the presence of  $\text{ç} \text{ ʃ} \text{ ʎ}$  in that language), uvular resonants and retraction essentially exclude each other, and forms like, for example,  $!*\text{ʃ}\text{ə}^w$  or  $!*\text{ʔ}\text{ç}$  do not exist (in contrast to  $s\text{ə}^w$  ‘to take or peel something off’ and  $\text{ʔ}\text{əç}$  ‘to tie’). In the second place, roots with uvular resonants do not cause retraction in suffixes, hence,  $\text{lə}^w$  ‘to hide’ >  $\text{lə}^w\text{-ilx}$  ‘to hide oneself’ but not  $!*\text{lə}^w\text{-ilx}$  (vs.  $p\text{əm}$  ‘fast’ >  $p\text{m-ilx}$  ‘to hurry’). Finally, roots  $CCVC$  are rare in Salish (Van Eijk 1997:32 lists them as comprising only 5% of all Lillooet roots), and it would be striking to have a relatively large number of roots with a rare phoneme like  $\text{ʔ}$  as  $C_2$ . It seems that the  $\text{ʔ}$  in the Colville cases may be a concomitant realization of retraction, much like the velar to uvular shift before retracted vowels in Thompson and other languages, as discussed in 4.1. At any rate, if retraction was caused by uvular (pharyngeal) resonants, or vice versa, one of these phenomena must be stripped from the phonological repertoire of the earliest stages of PS.

In addition to the three types of alternation discussed so far, all of which involve some form of velar or uvular articulation (of manner in the case of retraction, and of place in the case of the velar-uvular alternations), there is also a form of sound symbolism that involves a secondary laryngeal articulation which we discuss in Section 7.

## 7 Glottalized resonants

The position of glottalized resonants in Salish is peculiar, because (a) they are often difficult to distinguish from (i.e., auditorily closer to) non-glottalized resonants, in contrast to the clearly audible difference between glottalized and non-glottalized plosives (here encompassing both oral stops and affricates), glottalized resonants being laryngealized (essentially produced with creaky voice), while glottalized plosives are ejectives (see Ashby 2011:passim for details on both

articulation patterns), and it is not uncommon to record the same form now with a glottalized resonant, then with an unglottalized one; (b) glottalized resonants are relatively rare in PS, while glottalized plosives abound; and (c) resonant glottalization may be triggered by certain phonological or morphological conditions, such as (i) the placement of the stress, as in Lillooet *-min/-miñ* (relational transitivizer), *-tumx/-tuñx* (1S object after non-control transitivizers), *-tumi/-tumi* (2S object after non-control transitivizers), of which the second of each pair is in a position in a word where the first vowel of the suffix cannot attract the stress, (ii) reduplication, as in Lillooet *twit* ‘good hunter’ > *twiwt* ‘boy’, *s.qayx* ‘man’ > *s.qáqyáx* ‘boy’, or (iii) the presence of certain suffixes, such as Lillooet *ǰzum* ‘big’ > *ǰzum-q* ‘big animal’ (-*q* ‘head, animal’).

With regard to the first point, Mattina (in his introduction to Mattina and DeSautel 2002) mentions “the often ideosyncratic laryngealization of resonants” (p. 33), and although he refers only to Okanagan here, his words hold true for the general phonetics of Salish glottalized resonants.

As for the second point, SED:15–135) lists only 18 PS roots with glottalized resonants (none of them in root-initial position) vs., for example, 27 PS roots with root-initial \**k* alone, and 11 with \**k* in C<sub>1</sub> or C<sub>2</sub> position. There is also only one minimal PS pair involving a glottalized vs. a non-glottalized resonant, viz., \**ǰaw* ‘to pull out’ vs. \**ǰaw/ǰaʷ* ‘to wash, clean’ (the Lillooet, Columbian, Colville [Okanagan] and Spokane forms of which have *w* rather than *w*, further demonstrating the instability of the glottalized resonants).

The third point is also recognized by Thompson and Thompson (1992:5), where they state that “Glottalized resonants [...] are commonly derived, there being a fair number of morphological processes calling for glottalization of underlying plain resonants”. As an example of such a process the authors give *séye* ‘two’ > *sésýe* ‘two four-legged animals’, with the same type of diminutive reduplication we have in the Lillooet examples given above. We also have secondary resonant glottalization in Shuswap, where “the glottalized resonant of a suffix yields its glottalization to the final resonant of a stressed root CVR” (Kuipers 1974:30). Thus, with, for example, *-(e)ws* ‘surface, road’ we have on the one hand *x-pét-ws* ‘dead-tired’ (lit., ‘lying (*peł*) on the road’ vs. *c-x-k<sup>w</sup>uy-ws* ‘log lying across the road’ (*k<sup>w</sup>uy* ‘long object lies’). Also, the Shuswap suffix *-ke?* ‘implement’ drops its final *?* after a stressed root CVR, and glottalizes the final root resonant, as in *xíc-ke?* ‘scythe’ (*xíc* ‘to cut hay’) vs. *x<sup>w</sup>ul-ke* ‘firedrill’ (*x<sup>w</sup>ul* ‘to rub fire’). More examples of morphophonemically caused resonant glottalization in Shuswap are given by Kuipers (1974:32–33). A Lillooet case that parallels the Shuswap forms with *-ke?/-ke* is *liqa?* ‘easy’ ~ *liłq id*. There are also cases where resonant glottalization is not caused by an overt morphological operation, as in the Lillooet pairs *-almən* ‘to be about to do/be something’ vs. *-alməñ* ‘to want to do/be something’, or *-xin* ‘shoe’ vs. *-xiñ* ‘foot’, but where the second form is clearly derived from the first one (and in these cases marks the diminutive).<sup>13</sup> Egesdal (1992:69) gives Thompson *ʷəł<sup>w</sup>əłxixtm* (the name of a girl in a traditional legend), with reduplication of the root *ʷəł* ‘to burn’ (with archaic *l* that normally would have developed into *y* in Thompson) and of which the author notes: “glottalization of *l* > *ł* is a secondary development that provides the word with an affective nuance”. Nichols (1971:843–845) gives a useful catalog of resonant

<sup>13</sup> Here probably also belongs Shuswap *ǰey* ‘to set up a structure’ vs. *ǰey* ‘to write, draw’, which are listed separately in Kuipers (1974:241), but which Kuipers (2002) lists, respectively, as PS \**ǰal*/\**ǰay* (CS \**l*, IS \**y*) ‘to build a structure, raise a tent; to camp’ (p. 87), and as PIS \**ǰəy* ‘to make marks, write, draw’ (p. 181), and which he tentatively connects on p. 182, by interpreting *ǰəy* as ‘to set up a little structure’.

glottalization in diminutive forms in a number of Salish languages. In addition, Reichard (1958:298) describes resonant glottalization in Coeur d'Alene and Kalispel as “clearly a morphological process”, to which Nichols (1971:836) adds that if this is so (and the process in question would signal diminutive shifting), “the proto-Salish phonemic system may have been extended by symbolism to include glottalized resonants”.

On the other hand, Nichols also cautions that there are glottalized resonants that do not seem to have a symbolic value, and Thompson and Thompson (1992:5) note, with regard to Thompson, that “there are glottalized resonants which must be recognized at the underlying level”, as an example of which the authors give *péye?* ‘one’ vs. *péyes* ‘spread [e.g. berries] out (to dry)’. Such pairs are indeed not rare in Salish, as in Lillooet *pál-ən* ‘to pull something in with a stick or hook (e.g., something floating in the water)’ vs. *pəl-p* ‘to get lost’ (with rare deglottalization in *páll-əp* ‘to get sold’, accompanying reduplication of the consonant following the stressed vowel), or *-alc* ‘house’ vs. *-alc* ‘rock, stone’. However, the fact that in many cases (such as those mentioned in the preceding paragraph) the glottalization is caused by a morphophonemic process, and/or adds a certain connotative (basically diminutive) value to the word in question, strongly suggests that resonant glottalization in Salish is generally a secondary development or, as SED:6 puts it, “Glottalization in resonants (for some CS languages interpreted as *m?*, *w?*, etc.) is unstable and of limited etymological significance”. It is thus highly probable that, as suggested by Nichols (1971:836) quoted above, glottalized resonants were not part of the original stock of PS phonemes, although they definitely developed before Proto-Salish evolved into its daughter languages.

Although on the whole, glottalization in plosives is much more stable than in resonants, there are also a number of PS root doublets where one member of the pair has a glottalized plosive and the other a non-glottalized one. We turn to this issue in the next section.

## 8 Glottalized plosives

SED gives 19 PS, Proto-Coast Salish (PCS) and PIS root doublets where one form has a glottalized plosive that is paralleled by a non-glottalized plosive in the other form, e.g., PS *\*s-čik/\*s-čik* ‘fir or pine cone, acorn, nut’ (27), *\*čəq/\*cəq* ‘to hit’ (32), *\*pəq* ‘white’ (75) - *\*pəq* ‘white, bright’ (81), *\*x<sup>w</sup>uk<sup>əw</sup>/<sup>w</sup>x<sup>w</sup>uk<sup>w</sup>* ‘to pull (out)’ (119), PCS *\*pk/\*p̣k* ‘mosquito’ (147). Since plosives do not become secondarily glottalized under the circumstances in which resonants become glottalized and that we discuss in Section 7, the presence of glottalized vs. non-glottalized plosives in these cases must either go back to original PS forms, or other factors are at work here. It is a striking fact that of the 19 doublets, 12 have one form in which both plosives are glottalized, as in *\*s-čik/\*s-čik* or *\*čəq/\*cəq*, or where we have complementary glottalizations, viz., in *\*pk/\*p̣k*, and the possibility must thus be weighed whether the non-glottalized plosives may have arisen through dissimilation. Such dissimilation is indeed active in Shuswap where, following a Grassmann-like pattern as described by Kuipers (1974:23, 2002:8), if there are two or more plosives in a root, only the last one can be glottalized, as in  $\sqrt{cek}^{əw}$  ‘bright’ (Kuipers 1974:172) vs. PS *\*čak<sup>əw</sup>* ‘light, bright’ (Kuipers 2002:28) or  $\sqrt{pciq}^{əw}$  ‘to spit’ vs. Lillooet *p̣ciq<sup>w</sup>* *id.* This also applies to cases with reduplication such as  $\sqrt{cex}$  ‘ashamed’ > *cəcex-m* ‘to be ashamed’. Kuipers (2002:8) further mentions that traces of this phenomenon occur in Bella Coola (where a root structure *\*CVC* is as a rule not permissible) and in languages of the North Georgia branch (Comox-Sliammon, Pentlatch, Sechelt), and “more regularly in Ti[llamook], where it seems to be universal in roots and is common in reduplications”. Here we may also add Lillooet *səmcác* ‘type

of groundhog’ (Van Eijk 2013:37) for which cf. PIS *\*mčac’* ‘a type of groundhog’ (Kuipers 2002:172, who does not mention the Lillooet form), and of which Van Eijk remarks that the Lillooet form perhaps has “a Grassmann-type (and for Lillooet unique) deglottalization of the first *c’*”. The fact that in some PS forms it is the second plosive that deglottalizes, as in Squamish *čičn* ‘hazelnut’ (< *\*čikn*) could be accounted for by the fact that dissimilation, like assimilation, can move in opposite directions, as in Latin *frāgrāre* ‘to emit a smell’ > French *flairer* ‘to smell out, scent, sniff’ vs. Latin *frīgorōsum* ‘cold’ > French *frileux* ‘chilly’ (Arlotto 1972:87). This then would account for the fact that in Shuswap *scik’* ‘edible acorn’ vs. Squamish *čičn* we have opposite deglottalization patterns, both forms putatively going back to PS *\*s-čik’*, with deglottalization patterns that already developed within PS, leaving its effects in a number of daughter languages, particularly in Shuswap.

This, of course, leaves doublets like *\*x<sup>w</sup>uk<sup>w</sup>/x<sup>w</sup>uk<sup>w</sup>* unaccounted for, and barring any future explanation they must be kept as doublets. Should they go back to a single root, deglottalization of the sole glottalized plosive would be more likely than glottalization of the non-glottalized plosive, glottalized plosives being more highly marked across the world’s languages (see Greenberg 1966:13–18 for an illustrative sample).

## 9 Conclusions

In this paper we offer the hypothesis that three series of PS phonemes, viz., (a) retracted consonants and vowels, (b) velar and uvular resonants, and (c) glottalized resonants, were not part of the PS stock of phonemes that formed the basis of developments into the various daughter languages, but that these phonemes developed out of a smaller stock of PPS phonemes, to wit:

<i>p</i>	<i>t</i>	<i>c</i>		<i>k</i>	<i>k<sup>w</sup></i>	<i>q</i>	<i>q<sup>w</sup></i>	
<i>p̣</i>	<i>ṭ</i>	<i>c̣</i>	<i>č</i>	<i>ḳ</i>	<i>ḳ<sup>w</sup></i>	<i>q̣</i>	<i>q̣<sup>w</sup></i>	?
		<i>s</i>	<i>š</i>	<i>x</i>	<i>x<sup>w</sup></i>	<i>š</i>	<i>š<sup>w</sup></i>	<i>h</i>
<i>m</i>	<i>n</i>		<i>l</i>	<i>y</i>	<i>w</i>			
				<i>i</i>	<i>u</i>			
					<i>ə</i>			
					<i>a</i>			

**Figure 3:** PPS phoneme inventory

Interestingly, this is in essence the same phoneme inventory that exists in Bella Coola. Would that be an indication that Bella Coola already began to diverge prior to the PPS → PS transition?<sup>14</sup>

With regard to series (a) through (c), our arguments are based on the fact that here we are dealing with various forms of sound symbolism, and such forms are by definition secondary to

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<sup>14</sup> Nater considers Bella Coola to be related to other Salish, in descending order of closeness, as follows: within Salish, Bella Coola resembles, on several levels, most closely Tsamosan, then Central and Oregon Salish, and then Interior Salish. Note also that Nater would have preferred — in terms of time depth only — to use in this paper the term “PS” instead of “PPS”, and “post-PS” (which → proto-IS, where velar and pharyngeal resonants emerged, and → proto-maritime Salish) instead of “PS”. In this context, Bella Coola would have split off from Nater’s PS not long before Tsamosan, Central and Oregon Salish evolved, and — like all maritime Salish — without going through a *\*ɣ > y* shift.



the original stock of phonemes. Series (c) also concerns what in most cases results from a morphophonemic operation, viz., the signaling of a diminutive, often caused by the presence of an (at least underlying) diminutive suffix that transfers its *ʔ* to a preceding resonant. The three series are also highly marked, and although it is impossible to look into the earliest origins of any language family, one would expect any language in its earliest stages to start with a set of rather unmarked phonemes. It should in this respect be noted that of the 31 obstruent systems tabulated by Lass (1984:147–153), 29 have at least two members of the *p-t-k* set, with other obstruents distributed more sparsely over the languages presented by Lass,<sup>15</sup> and none of the resonant systems tabulated by Lass contains glottalized resonants. Pharyngeals (the phonetic realizations of uvular resonants in IS) are also rare (although not limited to the five languages mentioned in Hockett 1955:126), and in IS they are also limited in number of occurrences in roots (and virtually absent in suffixes).

Where PS has uvular-velar obstruent doublets, as discussed in Section 6, these most probably go back to one root, usually with a uvular, and the forms with a velar reflecting diminutive sound symbolism. Root doublets with a glottalized plosive in one form where the other has a plain plosive (Section 8) probably go back to forms where all plosives are glottalized that are glottalized in one or the other form in the daughter languages. Although the uvular-velar doublets, and the (non-)glottalized plosive doublets do not affect the phonemic system of PS as such, they will lead to a smaller number of PS roots, through the reduction of a large number of doublets to single forms.

Reconstructive research always remains a work in progress, and Bynon (1983:559) is correct in observing that “it is after all a common experience that protolanguages change rather rapidly at the hands of scholars!” This places on linguists a heavier burden of proof the deeper they dig into the (pre)history of a language family, and the authors of this article do not expect to have their observations and conclusions accepted without questioning. We do in fact welcome critical comments to our arguments. What matters is not whether we win, or whether our potential opponents do, but that Salish wins. We hope that this paper serves to make a contribution towards achieving that goal.

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<sup>15</sup> Tillamook, for which Lass gives only *k*, without *p* or *t*, should also be added to the *p-t-k* languages, because the language did have *t* (Edel 1939:7, Thompson and Thompson 1966:314), and it originally had *\*p*, which became *h* (SED:3).

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