SAMISH PHONOLOGY
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In December of 1983 I was contacted by Dr. Jay Powell of the Department of Anthropology, University of British Columbia. He invited me to join him and Ken Hansen, Chairman of the Samish Tribe, in a discussion of the possibility of linguistic fieldwork with a speaker of the Samish dialect of Strait Salish. This was exciting news because the Samish dialect was thought to have become extinct 20 or even 30 years ago; no tapes were known to have been made of this dialect and only a small sample of words had been transcribed (circa 1948 by Wayne Suttles).

The Straits language (or Straits Salish) was aboriginally spoken by peoples along the north shore of the Olympic Peninsula from Clallam Bay to Port Discovery (Clallam) and by peoples on the San Juan and Gulf Islands between Washington and Vancouver Island (Strait of Juan de Fuca and Strait of Georgia) and adjacent coastlines. It was and is spoken in both the state of Washington and the province of British Columbia. It now comprises two languages, Northern Straits and Clallam (most consider these separate languages), Northern Straits includes the following dialects: Hoods, Songish, Samish, Lummi, and Samish. Semiahmoo may also have been a Northern Straits dialect, but only a few early short word lists survive (for ex. Gibbs ca 1853-1860). Samish speakers aboriginally "dominated a cluster of islands around Samish and Quadra Islands" (Thompson, Thompson and Efrat 1974:184), probably including Samish, Quadra, Cypress, Burrows, Allen, Blakely, Decatur, and part of Lopes, San Juan and Fidalgo Islands.

In 1981 Wayne Suttles completed an excellent ethnography of the Straits people as his Ph.D. dissertation, "Economic Life of the Coast Salish of Hors and Rosario Straits". This includes ethnographic information on the Samish and some Samish names and words are cited. Suttles reported working with Charlie Edwards, "probably the last speaker of the Samish dialect" who died in Dec. 1984 and Annie Lyons, a partial speaker of Samish. Chafe 1962 reported approximately two speakers of Samish then alive in Washington, as part of his report on estimates of speakers of North American Indian languages. The only linguistic material available on Samish, besides the handful in Suttles 1951, is that in Thompson, Thompson and Efrat 1974 (two words, and perhaps nine more quoted as being the same in all Northern Straits dialects). Until 1983 linguists had thought that the last speakers of Samish were dead.

Ken Hansen, chairman of the Samish Tribe, headquartered in Anacortes, Washington, on Fidalgo Island, had learned of a man living in British Columbia who still spoke Samish fluently. He and anthropologist Sally Snyder interviewed him in 1983 and recorded a Samish text, The Maiden of Deception Pass, from him. He was indeed fluent and speaks both the
Saanich dialect and the Samish dialect fluently at winter ceremonies and spirit dances. I was free to work with him until Sept. 1984 if funding could be found for the field work. I quickly applied for an urgent ethnography contract with the Canadian Ethnology Service at the National Museum of Man in Ottawa, to tape record and analyze whatever Samish material I could obtain in 25 days, six-hour sessions each day. The contract was approved and the Samish tribe also found some funds to help out. I would like to express my deep gratitude to both the Canadian Ethnology Service and the Samish Tribe for their timely support of this project.

I began work with Victor Underwood Sr. of the Teatout Reserve, East Saanich, Vancouver Island, British Columbia. Born on Orcas Island in Washington, he had learned Samish from his grandfather, David Tom, and Saanich from his grandmother, Cecilia (Sam) Tom; Victor's mother died shortly after he was born (about 1914), and his grandparents raised him on Orcas and Guemes Islands. In about 1928 Victor left Orcas Island and stayed in Anacortes. When he was about 16 he came to East Saanich where he lives on land inherited from his grandmother. He never spoke English till he left Orcas Island. In 1936 he married Ethel, a fluent speaker of the Cowichan dialect of Halkomelem (and of English). Victor has learned some Cowichan and some Lummi as well as being a fluent speaker of English; Ethel understands Saanich and Samish also.

We began on July 11, 1984 by re-elicitng the only traditional story that Victor remembers completely in Samish, the story of q’alassævat, the maiden of Deception Pass. I then began elicited Samish words cognate with words I had in the other Straits dialects in publications and manuscripts. As we worked Victor was sometimes unsure whether a particular form he remembered was in the Samish dialect or in the Saanich dialect. After Victor had given me a few such terms he suggested that he should check them out with his “aunt” (his grandfather’s sister’s child), Mrs. Lena Daniels, on the Hahatet Reserve, also on Vancouver Island. He said she is also fluent in Samish, in fact has never spoken anything else. At this pleasant surprise I encouraged him to try to contact her if he could. We continued work the rest of the week, marking any forms Victor was unsure of.

On July 16th Victor had found out where to reach his aunt, and he phoned her to ask if the three of us could meet and work together. With Victor’s permission I recorded his end of the phone conversation, which was all in Samish. Mrs. Daniels was interested and on July 24th took a ferry to the Saanich peninsula, Victor drove her to his house, and we spent a very productive day checking and eliciting forms. Thereafter she joined us for almost all the remaining sessions. We met most weekdays through August 24, 1984, then were not able to resume our sessions till June 10, 1985. We finished the funded work June 19, 1985, toward the end getting seven stories told in Samish by Mrs. Daniels.

In our joint sessions I would give an English word, phrase or sentence, Victor would give a definition in Samish to Lena, they would discuss it in Samish, then Lena would give the Samish form several times, followed by Victor. In many cases Victor knew the word and gave it first, but we always recorded Lena’s pronunciation as well. One ground rule was that to avoid influence from other dialects I would only prompt with a form from another dialect after Victor (and Lena) had taken all the time they wanted to try to remember the Samish form. They were quite conscientious. In turn, I tried to pick up as much conversational Samish as I could, to use in eliciting.

Lena Daniels understands some English (if spoken slowly) but can speak very very little. She understands the Cowichan dialect of Halkomelem quite well and speaks a little more of it than English but is not fluent. We had two sessions with Ethel Underwood explaining what I was asking in Cowichan and Lena replying in Samish. This is in fact how the two of them usually communicate. Lena was born on the Hahatet Reserve (where Cowichan is the Indian language normally spoken). She is about the same age as Victor, perhaps a year or two older. She was born Madeline Harry, daughter of Cecilia Tom (1866-1949) and Harry Steel (1858-1949). Cecilia was a sister of Victor’s grandfather David Tom (1850/56-1940) and spoke fluent Samish. Harry Steel (also known as Steel Harry) was Cowichan and spoke Cowichan.

Intrigued by finding this degree of fluency in transplanted families when the language had died out in the United States, I asked, through Victor, how Lena had kept up her Samish and whom she had talked with. Lena’s mother had spoken only Samish to her children; they all became fluent speakers of Samish with her (till her death about 1949) and with each other. Lena spoke only Samish to her children, several of whom can still speak Samish (though their children speak only English). Lena’s sister, Emma taught all of her children Samish; one is still alive at Hahatet in his late 50’s and still fluent. One of Emma’s daughters had a son who can speak Samish. Others of Cecilia and Harry Steel’s grand-children learned Samish but only speak Cowichan now. So within this extended family, Samish has been moved to Vancouver Island and has precariously survived. What is unclear is how fluent the younger generation of speakers is (there are three who are said to speak Samish and two more who may also speak it or may just understand it). Victor’s children can understand some Samish but do not speak it.

One further attestation of Samish has come to light. Mrs. Violet
Hilbert, Iqal‘al, a speaker, teacher and researcher of the Lushootseed language at the University of Washington in Seattle, has been transcribing some Lushootseed tapes made in the early 1950’s by Leon Metcalf. They are now in the University of Washington archives. One tape (820) is an interview in October 1953 with Tommy Bob speaking in Samish. Mrs. Hilbert kindly made the tape available to me in 1985 to copy, transcribe, and play for Victor and Lena. It includes most of the Swadesh 200-word list (Tommy Bob gives 149 words). Then Tommy Bob gives a medium sized text of about 50 or so lines in a formal speech style. This material really rounds out the samples of Samish speech (citation, conversation, stories, speeches). It also gives attestation to an older generation of Samish as Tommy Bob died in the 1950’s. He lived at LaConner, Wash. on the Swinomish Reserve, as did a number of Samish. His mother and Victor’s grandmother were sisters.

One other helpful step in the present fieldwork was a trip to Orcas Island, Washington organized by Ken Hansen. Joining us there were Victor and Ethel Underwood, Mrs. Lena Daniels, Mrs. Laura Edwards (speaker of the Skagit dialect of Lushootseed), Wayne Suttles, anthropologist Sally Snyder, and tribal secretary Mrs. Mary Hansen. The first day we worked on Samish with Wayne Suttles confirming that it sounded like the true Samish he had heard years ago in his work. We also did mutual intelligibility tests and comparative elicitation with Samish, Saanich, Skagit, and several dialects of Halkomelem, as well as some ethnographic elicitation. The second day we chartered a boat to round parts of Orcas Island to elicit place names, ethnographic information, and marine terms in Samish.

My goal has been to gather enough material for a preliminary analysis of the phonology and some morphology with as full a citation of data as possible, including an index or word list and some sentence examples. To benefit from previous linguistic work on other Straits dialects I elicited forms cognate with forms in previous works, for example:


It may be of interest here to mention Victor Underwood’s impression that the Samish dialect is most similar to the Lummi dialect, then next most similar to the Saanich dialect. This seems likely for geographic reasons and may well be confirmed by the present data, but there has not yet been time to study this fully.

One final word here. The Samish and Saanich people I have met have all been friendly and very supportive of this work. It has been a pleasure to work with them. I look forward to more work with them in the future.
1. PHONEMICS

1.0. SAMISH PHONEMES

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(El. = elit. gr. = grooves; lat. = lateral; lab. = labialized; pal. = palatal)

Comments on the chart:
1. /ʃ/ is very rare, occurring only in the deictic morpheme (ca). However, this morpheme is fairly common and is also combined with some suffixes to form deictic pronouns, etc. Historically it is a mere combination of t + e (each of whose functions can be demonstrated).
2. /ʃ/ is found only in loan words from European languages (English, French) and Chinook Jargon.
3. /ʃ/ is quite common in VU pronunciation but corresponds to /ɾ/ in the speech of LD and TB. While LD's speech could have conceivably been influenced by the Cowichan Halkomelem /ʃ/, it seems unlikely that TB's speech was (he did not live in a Cowichan speaking area). TB had some Saanich ancestry but did not live in a Saanich speaking area, so it seems unlikely that he was using /ɾ/ from Saanich influence. On the other hand, VU grew up on Orcas Island, a Lummi speaking area, and emphasized the similarity of Lummi to Saanich. Thus VU's /ʃ/ could be influence from Lummi (which has /ʃ/). It could also be influence from Saanich which VU grew up speaking since Saanich /ɾ/ is more often pronounced (ʃ) than (ɾ) (see Montler 1966:8-9 and see below). Since the two older speakers have /ɾ/, it seems more likely that Saanich in their day had /ɾ/ rather than /ʃ/. None of the speakers of Saanich use both, and none of the other dialects of Straits tolerate both /ɾ/ and /ʃ/, so Saanich was very unlikely to have both.
4. /ɾ/ is found mainly in loan words from Indian and European languages as well as from Chinook Jargon. There may be a few cases also where /ɾ/ has become vocalized recently to /u/ or where the combination /ɾu/ sounds very close to /u/ in closed syllables (though /w/ is more frequent).
5. /ɾ/ and /ɾu/ are used mainly not restricted to loans.

1.1. DESCRIPTION OF PHONETICS AND ALLOPHONES

1.1.1. Obstruents

Stopes are unaspirated in the following positions: S, V, R(ṣ, C), ṛ, ṛ where S = spirant, V = vowel, R = resonant, (ṣ, C) = pause or consonant (resonants in these positions are syllabic).


TB [ʔələ] 'here' (t clear and unaspirated)

(Note: glottalized resonants are almost always realized as resonant plus an adjacent unaspirated glottal stop. See below under resonants.)

/ʃ/ is optionally aspirated only V.(V,S); it is unreleased C and often C.S (where C = consonant).

Thus besides examples elsewhere:
VU  [ɛp̪χəçə] 'watertight basket' (\^r - ?)
VU  [saɛs/laqə] 'grandmother'
VU  ([ləʔə]) 'there' (\^r - ?)

Elsewhere stops are aspirated (LD's final stops often weakly aspirated).

Besides some of the examples above, the following show such aspiration:
[ɛčəqən], TB [ɛčəqən] 'back of neck, back of head'
[ɛ̃ləqən], TB [ɛ̃ləqən] 'eye'
TB [ɛ̃kəwɛl] 'blow (like of the wind)'
TB [ɛ̃kəwɛn], VU [ɛ̃kəwɛn] 'nine'
VU  [laq̪ələlə] 'key' (loan from Chincop Jargon < French le clé)
VU  [ɛ̃laq̪ələlə] 'to lock something'
VU  [ɛ̃l̪əq̪əq̪ə], TB [ɛ̃l̪əq̪əq̪ə] 'sand'
VU  [sənq̪ənə], LD [sənq̪ənə] 'white hanging lichen (grows on alder)'
VU  [sənq̪ələlə] (LD [sənq̪ələlə] (q̪) has weak aspiration) 'top of
head, crown of head'
VU  [lísəq̪ə] 'put it in the sack'
VU  [səp̪ələ] (LD [səp̪ələ]) 'lump (on tree, ground, person)'
TB, VU, LD [nək̪əp̪] 'nose'
TB [sən̪ən̪ə], VU, LD [sən̪ən̪ə] - [sən̪ən̪ə] 'rock, mountain'
[ɛ̃səs] 'poor'
VU  [ɛ̃q̪ιn̪ən̪ə] 'Tuesday'

Geminates obstruents are rearticulated.

Thus, VU  [ʃəps̪ət̪ə] 'beat somebody'
LD [t̪ečə] 'to sleep'
LD [t̪əl̪ət̪ə] 'still sleeping now'
LD [sən̪ət̪ə] 'lagoon', VU  [nəq̪ət̪ə] 'any bay'

This contrasts with geminate spirants and resonants which are subject
to a morphophonemic rule converting the second member to length (/\^r/).
For example, VU  /tsa̱ːs-enə/ /tsəːs-enə/ ([tsəːs-enə] 'I'm poor',
/ə-wətsəs-tə-nə səsəs//ə-wətsəs-tə-nə səsəs/ 'palm of your hand',
/ɡən̪-məs-ənə//ɡən̪-məs-ənə/ [ɡən̪-məs-ənə] 'Haida Island'.

Glotalized obstruents are fairly fortis in pronunciation. Aspiration,
especially in consonant clusters, is fairly strong also. From this point
on aspiration of stops will not be reproduced in phonetic quotations.

Although Samish has /θ/, /ð/, and in loans, /kθ/, it lacks plain counter-
parts of the first two and a glottalized counterpart of the last. /θ/
is actually a glottalized interdental affricate (thus it is listed among
the obstruents rather than among the spirants). As discussed in the comments
on the table above, /θ/ is pronounced roughly as [ɕ] by VU but as the inter-
dental affricate by LD and TB. Montler 1984:8-9 mentions a similar but dental
pronunciation is the norm for Saanich. In a number of places my transcription
actually shows VU using a dental [ɕ]. The environment for this fronting
does not seem predictable. VU's Saanich forms show the dental norm for both
/θ/ and /ð/ as Montler reports for his speakers; (interdental pronunciations
are found but are rare in Saanich). In Samish LD and TB have interdental /θ/
only. VU also has interdental /ð/ but rarely.

No significant allomorphy has been noted for the obstruents not mentioned
so far. Examples of minimal and subminimal contrasts of all phonemes
will be given in section 1.2.

1.1.2. Spirants

All three speakers of Samish use an occasional [θ]. These are lappes
as is shown by the facts that they are almost always corrected to (ɛ),
that they sometimes occur for a few citations after EU has been speaking Cowichan
or VU has been speaking Saanich (both of which have /θ/), and that if not
corrected immediately, the forms are attested everywhere else by the same
speaker with (ɛ).

In a number of forms VU has a dental [ɡ] where Saanich and Cowichan
have /θ/. May that this might indicate a phonemic contrast between dental
[ɡ] and alveolar [ɛ], I checked very carefully as I solicited. LD uses only
alveolar [ɛ] in both cases (where Cowichan and Saanich have /θ/ and where they
have /θ/). TB has examples both of (ɛ) and dental [ɡ] (usually the first
corrected to the second) where Saanich has /θ/, and of alveolar [ɛ] (where
Saanich has /θ/ and where it has /θ/). VU has the dental [ɡ] for Saanich
(as he should) and even occasionally in a Cowichan word (where he should
have [θ]). Both VU and LD have words in which a root ending in [ɛ] in
Saanich, Cowichan, and Samish) proceeds a suffix beginning with [θ]
in Saanich but /θ/ in Cowichan and Saanich; in these cases both VU and LD
are able to use the morphophonemic rule which changes the second member
of a geminate cluster to /θ/. Thus Saanich [mənə-ɛt], Cowichan [nənət]
'get fat'. This rule does not apply when Saanich [θ] and [ɛ] are adjacent.

The most likely conclusion then is that Samish has only one phoneme /θ/.
VU and TB sometimes pronounce it as dental [ɡ] where Saanich has a
dental [ɡ] /θ/ corresponding, and this is Samish dialect interference.
LD who might be expected to show Cowichan influence does not use the
dental [ɡ] precisely because it is Saanich influence, and her family
background does not show a likelihood of Saanich influence like VU's
and TB's.
Some examples include:

VU [si'yaq'ínæ] ‘dig’ but later VU [si'yaq'it] ‘dig it up’

LD [spé~'ætæ] but one page later LD, VU [spé~'ætæ] ‘bear’

LD [saqw'niï], VU [saqw'niï] ‘him’ (vs. LD, VU [saqw'niï] ‘her’), just a few citations after Cowichan citations by EU (Cowichan would use /tæ/ in the same rare dialects where Samish has /t/)

VU [kwi'qætæ], LD [kwi'qætæ] ‘tip (oneself over) in a canoe’ (with /æ/ cognate to Cow. /ætæ/)

VU /Stægæ/ > /Stægætæ/, (Cow., Saan., /Stægætæ/) ‘face’

LD, VU /Stægætæ/ ‘uncle or aunt by marriage’ (note that Samish /sætæ/ is a nominalizer as is Cow. /sætæ/ and that the Cow. /sætæ/ /sætæ/ and /sætæ/ respectively correspond historically to the Samish /sætæ/, /sætæ/, and /sætæ/ (Thompson, Thompson, and Efrat 1974, Raffo 1972, and Galloway 1982)

VU /Tægætæ/ > /Tægætæ/ ‘move oneself, get out of the way, go off to the side’ (Upriver Halkomelem has /Tægætæ/ ‘dodge, get out of the way!’)

LD Samish /ætæ/ EU Cow. /ætæ/ ‘right side of body’

LD, VU /ætæ/, TB /ætæ/ corrected to /ætæ/, LD, VU /ætæ/ ‘blood’

TB /ætæ/ corrected to /ætæ/, LD, VU /ætæ/ ‘mouth’

TB /ætæ/ corrected to /ætæ/ ‘push, shove s-o or s-th’

TB [Tæsægæ], VU [Tæsægæ], Saan. (Montler 1984:87) /Tæsægæ/ “s’ sharpened-edged”

VU /'æsægætæ/ ‘it’s getting warmer’ (compare Upriver Halkomelem /'æswäktæ/ ‘get warm’)

VU [hæsæq'ínæl], LD [hæsæq'ínæl] ‘awl’ (VU, LD [hæsæq'] ‘a hole’)

No significant allophony has been found for the remaining spirants in Samish. For example, in some other dialects of Straits /h/ is reported to have an occasional affricated allophone, [k]. Such an allophone has not been found in Samish. Examples of all spirant phonemes will be found, with contrasts, in section 1.2.

1.1.3. Resonants

Samish has a matched set of plain and glottalized resonants. The glottalized resonants appear to have arisen historically from clusters of glottal stop plus resonant, probably encouraged by a morphophonemic rule inherited from Proto-Central Salish which inserts glottal stop adjacent to resonants to mark ‘continuative’ (= ‘actual’) aspect in verbs. Glottalized resonants in Samish almost always decompose phonetically into clusters of plain resonant plus glottal stop; there are only a handful of examples of words pronounced with phonetic glottalized resonants as a variant. More on this below.

Samish /ŋ/ and /野生/ are post-velar nasals rather than velar ones. They are articulated in the same position as Samish /ɾ/ /ɹ/ and /ɾ/ /ɹ/.

This was first described for a Straits dialect by Thompson (1972:257) for Lummi, where Lummi /ŋ/ is listed as a uvular resonant in the same column with /q/, /ɬ/, /ɹ/. It was hinted at by Raffo (1972:7.11) for Songish, but Songish /ŋ/ was still said to be velar, though “very back” and thus the resonant counterpart of /ɾ/. Montler (1984:13) is the clearest in this regard for Saanich: “/ŋ/ and /野生/ are post-velar, usually produced farther toward the back of the soft palate than the velar nasal in English ‘lung’.” Clallam and Sooke are described as having a velar /ɾ/.

/ŋ/ is historically related to /ɾ/. In Samish it is less common than /ɾ/ but it is not rare. /ɾ, ɾ, l, l/ are all articulated as apico-alveolar resonants. /ɾ/ and /ɹ/ are articulated as medio-palatal resonants. /ŋ/ and /野生/ are articulated as labio-velar resonants and in fact alternate with /ɾ/ /ɹ/ morphophonemically and historically.

Glottalized resonants are treated as clusters of plain resonant plus /ɾ/ in the descriptions of Sooke (Efrat 1968), Clallam (Thompson and Thompson 1971), Lummi (Thompson 1972), and Songish (Raffo 1972). Raffo gives six convincing arguments why this is so in Songish and supports each with ample data. Thompson, Thompson and Efrat (1974) and Efrat (1974) examine the situation in Straits and lean toward the view that glottalized resonants may well be phonemic in Straits (Efrat says this may be the case for the Sooke and Saanich dialects). Nakari (1981) concludes that they are phonemic for the Cowichan dialect of Halkomelem (Galloway 1977 and 1982 show that they are not present in Upriver Halkomelem due to loss of /ɾ/ adjacent to consonants). Montler (1984) concludes that glottalized resonants are phonemic in Saanich and gives four convincing arguments why this is so.

Both the arguments or tests of Raffo and Montler can be applied to see what the phonemic status of glottalized resonants in Samish is. Let R = any plain resonant and R’ = any glottalized resonant.
1. Raffo found no minimal or even near minimal pairs contrasting R and R'. Montler found minimal pairs (though only of roots, not of utterances). I found two apparently minimal pairs, LD, 

\[ \text{LD} [\text{gæ} \text{hl} \text{æ}], \text{LD} [\text{gæ} \text{æ}] \text{'dance'} \] 

2. Raffo found that in Songish neither R? nor ?R are reduplicated as a unit (as a phoneme would have to be). Thus Songish [gæ] 'to steal' but [gænæ] 'thief', [gæ] 'strong' but [gænæ] 'very strong', etc. Montler found however that in Saanich R? and ?R were reduplicated as units, for example with C:C:+ 'characteristic', C:C:+ 'plural', and C:C:+ 'repetitive' reduplications. Thus Saanich /gæ/ 'to steal' and /gænæ/ 'thief', /stælæ/ 'river' and /stælænæ/ 'rivers', /tænæ/ 'much' and /tænænæ/ 'too much'. In Samish both R? and ?R are reduplicated as units. Thus Samish has:

[gænæ] 'to steal' and [gænæ] 'thief'

[kænænæ] 'strong'

/stælænæ/ 'river' and /stælænæ/ 'rivers'

[tænæ] 'house' and [tænæ] 'houses'

[ænæ] 'awake' and [ænæ] 'lively'

3. Raffo found that in Songish glottal release was heard before and after R. Montler found for Saanich that R was heard with glottalization co-articulated with R. Montler found that in Saanich decomposition of R was sporadic but had phonetic justification: laryngeal tension carried over from a stressed vowel gives [?] a headstart and conversely is carried over to a following stressed vowel from an R preceding. In the case of Saanich, I found co-articulation of resonant and glottalization extremely rare but present (decomposition is the rule). Here are all of the examples I have found to date of true co-articulated glottalized resonants:

LD [ænæ] 'awake' and [ænæ] 'lively'

LD [ænæ] 'at home'

LD [ænæ] 'go toward, come toward'

4. Montler found that R? and ?R contrast on the morphophonemic level in at least one rule in Saanich:

's actual aspect' /-?-/ inflex -> ?e in the environment V'7

But -> ? in the environments V'R'. V'R

Thus Saanich //θelâ[?æ]næx sen/ //θelânæx sen/ 'I'm hearing it now.' and //θelânæx sen/ 'I heard something.' vs. //Χ'ænæx sen/ //Χænæx sen/ 'He hit it.'

I have not yet been able to find comparable forms for Saanich, but since this is a morphophonemic rule it does not really affect the phonemics of resonants.

5. Raffo suggested several other diachronic factors supporting the cluster analysis of R' in Songish. These include the facts that comparative evidence shows: that /?/ has been lost or added historically in word-final position, that in some cognates /?/ has shifted position from one syllable adjacent to a resonant in one language to the next syllable in other languages, and that there is a number of cases of Songish /?/ adjacent to R in correspondence with Chilliwack Halkomelem phonemic length just as /?/ adjacent to other consonants is in correspondence with the same Chilliwack Halkomelem phonemic length. It is true that these facts support the diachronic cluster origin of R', and all else being equal they would be decisive. They support the case of Songish, where the other factors point in the direction of clusters, but in Saanich and Samish the other factors point in the other direction, so, as Montler points out, diachronic factors are less relevant than synchronic factors.

6. Tabulations of environments permitting R? and ?R in Saanish show that:

R'/?/ syllabic R' /R?/.

CC'V', CC(C)V, CC(C)(C)V.

V'C(C)(C)V.

V?/V'.

V?/V'.

V?/V'.
- R occasionally in the speech of VU and TB (less in that of LD)

This is a rule of allophony for all saltash glottalised resonants. There is also a phonemophone rule at a higher level which operates after all affixing is done; it converts /-R-/ and /-R?/- both to /R/.

There is also an optional later morphophonemic rule partially dependent on the speed of speech, which allows deletion of /R/ and feeds into the R producing syllabic resonants (both glottalised and plain).

- These rules can’t be confirmed in all respects for the speech of TB because there is less available and because my transcriptions of the text and citation forms show far fewer glottalised resonants in his speech.

- In medial positions TB retains enough glottalized resonants to show similar patterns to VU and LD. Thus R seems to be found only in VU while R is also found there and elsewhere.

- Some examples of TB’s medial loss of glottalized resonants (or VU/LD’s addition of them) include: TB [?a:no] (VU [?a:no]) ‘come’, [?a:lo:] (VU [?a:lo:]) ‘animal’, [?a:wyo:] (VU [?a:wyo:]) ‘man, male’, [?a:wes] (VU [?a:wes]) ‘new’; this seems part of a process of TB’s loss of /R/ adjacent to other consonants: TB [?a:y? (VU [?a:y?]) ‘have a sharp edge’, [?a:w] (VU [?a:w]) ‘narrow’, [?a:lo:] (VU [?a:lo:]) ‘they (these people)’ (close approximates from LD).
1.1.4. Vowels

1.1.4.1. /i/

Samish /i/ has allophones [i], [ɪ], [ɪ̯], [i], and perhaps [eɪ] (if the latter isn’t a morphophonemic variant, /eɪ/). [ɪ] is front lower high and lax and occurs stressed before /n/ and /ŋ/ and unstressed in the following positions: before palatals /ɨ, ɨ̯, ɨ̞/ (especially when /i/ also follows palatals or alveolars), and after palatals /y, ɥ, ɨ̞, ɨ̯/ especially when /i/ also precedes palatal, alveolar, or /s, ʃ/.

\[ \_n, \_t, n, \_t, s, \_l, ɨ, ɨ̯, ɨ̞, ɨ̮, i, ɪ, ɪ̯, ɪ̞, ɪ̮, o, \_o, \_u, ʊ, \_u̯, ʊ̞, ʊ̮, õ, õ̯, õ̞, õ̮, ð, ð̯, ð̞, ð̮, ɚ̯, ɚ̞, ɚ̮, ɜ̯, ɜ̞, ɜ̮, ɟ, ɟ̯, ɟ̞, ɟ̮, ɥ, ɥ̯, ɥ̞, ɥ̮, yr̩, yr̞, yr̮, i̯r̩, i̯r̞, i̯r̮, ɪ̯r̩, ɪ̯r̞, ɪ̯r̮, ʊ̯r̩, ʊ̯r̞, ʊ̯r̮, ɚ̯r̩, ɚ̯r̞, ɚ̯r̮, ɜ̯r̩, ɜ̯r̞, ɜ̯r̮, ɟ̯r̩, ɟ̯r̞, ɟ̯r̮, ɬ̯r̩, ɬ̯r̞, ɬ̯r̮, ɹ̯, ɹ̯̞, ɹ̮, s̯, s̯̞, s̯̮, \]

Thus for example:

- LD [ʔiʃɪˈɡənəm] ‘a comb’ (VU [ʔəʔɪˈɡənəm])
- VU [ˈʃɪɡənəm] ‘wish for it’
- LD [pəˈʃɪɡənəm] ‘smoking shed’

The allophone /i/ occurs word-finally under stress for VU where LD seems to have [i]. VU’s /i/ seems somewhat laxer as well as lowered. It is sometimes in free variation with [ɪ]. Some examples include:

- VU [həjɪ] ‘hay’
- LD [həjɪ] ‘big’
- VU [ɡənɪ] ‘seagull’

The allophone /ɪ/ occurs word-finally under stress for VL where LD seems to have [ɪ]. VL’s /ɪ/ seems somewhat laxer as well as lowered. It is sometimes in free variation with [ɪ]. Some examples include:

- LD [pəˈʃɪɡənəm] ‘gun’
- VU [ˈpəʃɪɡənəm] ‘many swimming’

I should mention here that it is not always easy to distinguish [ɪ] from [i], the raised and fronted allophone of /eɪ/, which sometimes occurs in similar environments. (Historically Straits and Halkomelem have both changed many cases of unstressed /i/ to /eɪ/, thus causing some of this complication.) Some of these cases can be seen when the same morphemes appear affixed under different stress patterns. A few can be seen when speakers differ, one using [ɪ] and others using [i]. In some cases [i] was transcend where [ɪ] should have been and vice versa.

The allophone /ɪ/ occurs word-finally under stress for VL where LD seems to have [ɪ]. VL’s /ɪ/ seems somewhat laxer as well as lowered. It is sometimes in free variation with [ɪ]. Some examples include:

- LD [ˈpəʃɪɡənəm] ‘pussy willow (lit. “puppy in the hand”)’
- VL [ˈpəʃɪɡənəm] ‘five’
- LD [ˈpəʃɪɡənəm] ‘day’

// has a rare allophone [ə], tense raised upper mid front unrounded vowel, (sometimes in variation with [ɪ]) when stressed and adjacent to postvocalic and glottal obstruents. Plain [ɪ] also occurs here however and seems to be more frequent in these positions. When following a postvocalic, stressed /ɪ/ allophones are sometimes preceded by a schwa on-glides; when followed by a postvocal, they are sometimes followed by a schwa off-glides. Since the phoneme /eɪ/ has allophones including [e] and [ɪ] (among others), the [e] allophone of /i/ is occasionally hard to distinguish; the allophones of /eɪ/ however do not seem to have schwa glides adjacent to postvowels.

Some examples of [eɪ] and [ɪ] include the following:

- VU [pəˈʃɪɢənəm] ‘black’

Examples are few compared to other Straits dialects. The norms for both
[wv] seems to occur in both stressed and un stressed positions as an alternate to [l] in careful pronunciation and often after postvowels. [wv] in the latter environment probably reflects the schwa on-glides and a lowered allophone of /i/. For example:

VU [laenjyt - lenjyt], [laenjis] 'watching it, looking at it'
LV [mawy?qaj - mawwajis]. LV [mawy?qaj] 'man' (LV's [wv] also reflects a lower more careful pronunciation)
[laenjyt - laenjyt] 'cedar bark'

[laenjyt - aenjyt] 'dark of fir or balsam'
LV [grpim?mnaC], LV [grpim?mnaC] 'tree trunk and roots, stump' (LV's retention of [wv] is evidence of slower/more careful pronunciation in contrast to LV's [li])

Examples of /I/ has allophone [l] (optionally with schwa on-glides after postvowels and schwa off-glides before postvowels, as mentioned). No examples of both on-glides and off-glides on the same allophone have been found so far; where postvowels surround /I/, the schwa off-glides seems to be retained while the on-glide is dropped.

Some examples of [l] include:
[grw?as] 'grandparent-in-law'
[giwi?y] 'ashamed to take a slave'
[ki?zat] 'loving each other'
[pir], TV [pir] (normal speed, text) - [pir] (slow citation) 'and'
[pikat] 'a float'
[pikim] 'split roasting-stick'
[gi?yim] 'story'
LV [gr?li?q-t], LV [gr?li?q] 'miss it; move it'
[gr?li?q-t] 'something around the neck (cloth, neckchief, necklace)' LV [platen] 'horn, antler'
LV [platen] 'I know him'
[si?ime] 'fish slime'
[si?it] 'true, truly'

Examples of unaltered [l] are quite rare except before y spos (where they could also be heard as [s] /s/). This is the result of a historical change shared within Straits and Halkomelem (see above).

1.1.4.2. /w/

Samish front unrounded /w/ has allophones [s] (upper-mid tense), [s] (lowered upper-mid to main-mid tense), [s] (raised lower-mid to main-mid tense), [s] (lowered mid lax), [s] (lowered lower-mid tense), and [s] (upper-low lax). The distribution and frequency of these are similar for LD and LV but rather different for TV. For LD and LV [s] and [s] are the most frequent (55.7 percent) of the words with /s/ had these), [s], and [s] are the next most frequent (36.3 percent), and [s] is the least frequent (10.5 percent). For TV [s] is the most frequent (78.5 percent), [s] is next most frequent (12.8 percent), and [s] is the least common (9.2 percent). 6 examples which either vary with /I/ (1), appear as [li] or [s] for the other speakers, or could be transcribed as [wv] /I/).

For TV, [s] is rare in citations (6 examples) and is never cited under stress. It is more frequent in the text but still not as frequent as [s]; in the text it appears a few times (mainly before /a/ or /s/ as with LD and LV), but in both the text and the citations [s] is clearly the unaltered allophone of /s/. [s] on the other hand is almost always stressed (42 out of 61 citations); half of the cases of unstressed [s] are echo vowels in the environment <t>... In the text of TV [s] only appears stressed or in the position of an echo vowel, i.e. in the environment <t>... In the text [s] only appears a few times and always as a stressed allophone of /I/.

For TV then, /w/ has allophones:
[s] under stress (except <n, h>) and <t>
[s] elsewhere (stressed <n, h>, and unstressed
(s) is an allophone of /I/).

For LD and LV the situation is reversed in some respects. All the allophones of /s/ appear stressed most of the time in citations.
[s] and [s] are unstressed in only 34 out of 407 words (8.36 percent), [s], [s], and [s] are unstressed in 65 out of 253 words (25.7 percent), and [s] is unstressed in 15 out of 77 words (19.6 percent).

The 34 examples of unstressed [s] and [s] occur in the following conditions: five vary with [l] or are errors for [s] (allophones of /I/), fourteen are echo in the phonemic environment <t>, ten occur in the environment <t>y where they are likely [s] /s/, and the remainder appear to be errors for varieties of [s].

The 15 examples of unstressed [s] occur as follows: five occur as echo in the environment <t>... (s) six vary with [s], and four vary with [s].

The 65 examples of unstressed [s], [s], and [s] occur as follows: 14 are echo in the environment <t>... (mostly [t] and [t]), 18 or more occur C_{t}(?) (where C = consonant, usually a palatal), some vary with [s] and may reflect a fronted allophone of /s/ adjacent...
to palatal consonants (perhaps something like [s']), the rest seem to be the unstressed allophone of /æ/ for LD and VU, as well as for TB.

A word should be said about the phonemic environment of /æ/ which conditions unstressed /ä/ allophones for LD, VU, and TB. In most cases the unstressed allophone matches the stressed one. In some cases the unstressed allophone is shifted to a more mid allophone. Compare the following:

- LD [sp̪̚ʰæ] 'pipe' (for stove or tobacco)
- LD [sp̪̚³̚æ] 'bear'
- [sp̪̱̌̚æ] 'mosquito'
- [sp̪̠̌̚æ] 'crabapple'
- LD [sp̪̟̌̚æ], VU [sp̪̟̌̚æ], TB [sp̪̟̌̚æ] 'bad'
- VU [ȟ̪̟̚æ] 'yes'

An interesting fact to notice is that LD often uses the highest allophones, VU the next highest, and TB the lowest allophones of /æ/. This can be seen in the word for 'bad' just above and in a number of other examples such as:

- LD [ǩ̪̟̚ǐľěaab̪̟̌̚], VU [ǩ̪̟̚ǐěaab̪̟̌̚] 'turnip' (loan from Chinook Jargon)
- LD [leeň̪̟̚ǎ], VU [leeň̪̟̚ǎ] 'the bone, shalal game'
- LD [leeň̪̟̚ǎ'] 'the bone, shalal game'
- LD [leeň̪̟̚ǎ] 'playing shalal'
- LD [leeň̪̟̚ǎ] 'the Transformer'
- LD [leeň̪̟̚ǎ] 'fishing rod, fishing boat'
- LD [leeň̪̟̚ǎ] 'fishing rod, fishing boat'
- LD [leeň̪̟̚ǎ] 'medicine'
- LD [leeň̪̟̚ǎ] 'outside'
- TB [leeň̪̟̚ǎ] 'one hundred'
- TB [leeň̪̟̚ǎ] 'back'
- TB [leeň̪̟̚ǎ] 'father'
- TB [leeň̪̟̚ǎ] 'liver'

When the allophones of /æ/ are charted on a grid of adjacent consonants for VU and LD the following patterns show up:

[a] can occur in any of the environments

[e'], [e'], [i'], [e'], and [a] occur /R,.Q, R/ (Q = postvelars, R = glottalized resonants, R = plain resonant); in these environments they vary freely with each other and with [a] (but some preferences have been noted above).

[a] is found more often adjacent to Q or before ?

[a] can acquire a [y] off-glides Q,M,N (M = nasal, N = glottalized nasal)

[a] sometimes acquires a [y] on-glide ü, Q.

Examples of these rules are plentiful above except for the two about glides,

[a] 'teenaged girl.'
1.1.4.4. */w/*

*/w/* is a rare phoneme, appearing mainly in loanwords from Chinook Jargon, European and other American languages. (A sound shift affecting Halkomelem and dialects of Northern Straits [Saanich, Songish, and Samish] changed */w/* to */u/* before bilabial */w/* in unstressed positions or of schwa deletion and vocalization of */w/* to */u/*. These cases often vary with */w/* and can be shown to consist of */w/*, morphophonemically. There are also a few cases of this which occur under stress.

*/w/* in spite of all that does appear to have allophones. A few cases of */u/* or */o/* occur word-finally (sometimes other speakers have */u/* in those places). Also a few cases of genuine */o/* occur in some loans (sometimes in free variation with */u/*). Otherwise */u/* is the expected allophone.

Examples of */w/* include:

[VV /yukəv/ 'fish hook' (probable loan)]
VV [putalk=æ]. LD [pulTlk=æ] 'car' (root is loan < English "boat")
VV [put] 'boat'
VV [yiʔskw=ək=Ul] 'go to school'
[VV /skw=ək=Ul] 'he/ she's in school' (root < English with Samish reduplication)
VV [kw=Ul] 'gold' (prob. < Chinook Jargon < English)
VV [kapú], LD [kapó] 'coat' (< Chinook Jargon < French "capote")
[VV /pulA=æ] 'pigeon' (widely disseminated throughout Northwest in unrelated languages, see Saubury 1985)
[VV /pulA=æ] 'cow' (< Chinook Jargon)
[VV /pulA=æ] 'second biggest canoe' (prob. < Halkomelem where it has just this form)
[VV /pulA=æ] 'goat wool blanket' (prob. < Halkomelem where it has just this form and whose people had access to mountain goat unlike the Straits people)
[VV /pulA=æ] 'barrel, tub'

Examples of */w/* [nw] include:

 particle */nw/* 'contrastive' (often with contrast to an earlier clause or sentence) (precedes verb, often suffixed to other proposed particles, works much like in Saanich, see Hontie 1985:194-197):
VV [nw] yílísən kʷəsə q̓eʔəʔ?̓n?̓? 'I know the girl.
VV [nw] yílísən kʷəsə q̓eʔəʔ?̓? 'We know the girl.'
1.1.4.5. /a/

Sami /a/ has two allophones, [a] and [a]. [a] is rather rare compared to [a]; for example I count only 26 examples of [a] in all the citations but 110 examples of unstressed [a] alone and many more of stressed [a].

The above environments it is quite clear that [a] occurs (often in free variation with [a]) flanked by a labialised postvocalic on one side and a (labialised) postvocalic, labialised velar, or a labial resonant on the other side. Only rarely is one of the postvocales not labialised (n,q,\tilde{q}) those cases all have [a] as the more frequent variant allophone. Four cases occur of an alveolar consonant flanking and again they have [a] as the more frequent variant allophone. One other case occurs of [a] in an environment other than those mentioned but it is VU, LD (\textit{læsli}) 'shawl', clearly a borrowing from Chinook Jargon \textit{læshw} 'shawl'. An interesting pair is VU's citation of [\textit{væn}] as Lummi and [\textit{væn}] as Samish for 'go up (a hill)'; the Lummi norm for /a/ is [a] (Charles, Dimers and Bowman 1978).

Unstressed [a] is even more rare. In fact most of the examples go back to //a// morphophonemically. They may be slightly rounded and lowered allophones of /a/, mistranscribed as [\tilde{a}], or they may be genuine unstressed [a], found in the predicted environments but proportionately more rare than stressed [a]. If they are the latter a morphophonemic rule would be required for them, //a// -> /a/, or morphophonemically a new reduplication type would have to be posited for them.

Unstressed [a] in the environment _/?_ appears only in careful pronunciation. In normal or allegro speech it changes to [a].

Some examples of /a/ include the following:

- [\textit{fæl}] 'dead'
- [\textit{fæl}] 'blackcap berry'
- [\textit{fæl}] 'to drink'
- [\textit{fæl}] 'the whole world'
- [\textit{fæl}] 'point, nose'
- [\textit{fæl}] 'downstream'
- [\textit{fæl}] 'I'm getting wet', VU [\textit{fæl}]
- [\textit{fæl}] 'to get wet'
- [\textit{fæl}] 'to get a hole in it'
- [\textit{fæl}] 'head'
- [\textit{fæl}] 'arbutus tree'
- [\textit{fæl}] 'thin (for ex. tree or rope)', VU [\textit{fæl}]
- [\textit{fæl}] 'narrow'
- [\textit{fæl}] 'dirty (of physical or verbal qualities)'
- VU [\textit{fæl}]
- [\textit{fæl}] 'dirty house'
- [\textit{fæl}] 'here' but VU [\textit{fæl}] 'the dog is here'
- [\textit{fæl}] 'snaks'
- [\textit{fæl}] 'grasshopper'
- [\textit{fæl}] 'spider'
- [\textit{fæl}] 'mouldy'
- [\textit{fæl}] 'raven'
- [\textit{fæl}] 'loon'

1.1.5. Length and Stress

/\/

/\/ has two allophones, [\textit{væ}] and [\textit{\textit{væ}}]. The former occurs only after stressed vowels in a few examples in careful speech and as emphatic length (sometimes even [\textit{\textit{væ}}]) in stories and conversations. The latter, [\textit{\textit{væ}}], occurs after spirants and non-globalized resonants; a morphophonemic rule, mentioned in the discussion of consonant allophony above, changes geminate spirants and resonants to spirant/resonant plus length (see 1.1.1 for examples). [\textit{\textit{væ}}] also occurs after stressed vowels occasionally, for example:

- [\textit{\textit{\textit{væ}}} 'bluejay'
- [\textit{\textit{\textit{væ}}} 'shelk'
- [\textit{\textit{\textit{væ}}} 'dance'
Stress has not been found to be predictable and thus is phonemic.

There are subminimal pairs (see below). I have occasionally transcribed secondary stress, (') within a word, but so rarely that I believe it is probably missetranscription. This seems confirmed by the fact that it is not attested consistently from one citation of a given word to another.

1.2. SOME MINIMAL AND SUBMINIMAL PAIRS

Minimal pairs are a helpful shortcut to determine phonemic contrasts and provide useful confirmation of such contrasts. They are no substitute for tabulation of environments which provide the predictive power of phonemic descriptions. Due to the large number of phonemes in Samish there are fewer minimal pairs than in languages with a smaller phonemic inventory. The fact that Samish is more synthetic than analytic also diminishes the chances of minimal pairs. However by eliciting data cognate with minimal pairs in other Straits dialects and in Halkomelem it has been possible to find some pairs sooner than by accident. Here are a few minimal and subminimal pairs found in Samish to date. More of these are from WU because there was little need to re-elicit them from LD.

[Waw?n?] 'him' vs. WU [Caw?n], LD [Gaw?n] 'her'
[is] 'the (female)' vs. [ss] 'the (male)' vs. [le] 'the (visible, generally existing)' vs. [kwa] 'the (invisible, remote) [subordinator]' vs. [ya] 'oblique case marker (nominal phrase not co-referenced by verb affix)' vs. [na] 'my'
[qwa?al] 'dance' vs. LD [qwa?al], WU [qwa?al] 'dancing'
LD [qal?ast] 'hail oneself' vs. LD, WU [qal?ast] 'boil something'
[VU [Kw?al] 'spill, overturn, capsize'
[tša] 'approach, get near' vs. WU [tša] 'it got smashed'
WU [q̥el?em] 'tide starts to come in' vs. WU [q̥el?em] 'tide is coming right in'
[VU [L̥al] 'to sweat' vs. WU [L̥al] 'to melt' vs. WU [L̥al] 'it's burned' vs. WU [L̥al] 'get burned' vs. WU [L̥al] 'surprised' vs. LD [L̥al] 'rotten (of wood)'
WU [q̥al?] 'talk' vs. WU [kwa?al] 'to hide' vs. WU [q̥al?] 'believe' vs.

VU [kʷ̥al?] 'spilled (of a container)' vs. WU [q̥al?] 'ripe, cooked' vs. LD [kʷ̥al?] 'gold'
VU [saw̥a?] 'to be lazy by nature' vs. [saʔə?] 'damp (in the morning), dew'
VU [q̥al?] 'ear' vs. WU [q̥al?] 'he's barbecuing' vs. WU [q̥al?] 'eye' vs. LD [kʷal?] 'to fly'
WU [st̥in] 'what is it?' vs. LD, WU [st̥in] 'to walk' vs. LD, WU [st̥in] 'wish for it'
WU [q̥ewat] 'shake it and make it fall, brush something off' vs. WU [pax̥at] 'blow it up (with mouth), blow it off' vs. LD [paw̥at] 'blowing (of the wind)' vs. WU [paw̥at] 'it's stale, boring'
VU [saw̥a?] 'beach' vs. WU [saw̥a?] 'mouth'
VU [m̥ak] 'it burst (of a sore)', WU [m̥ak] 'all' vs. WU [m̥aʔat] 'duck' vs. WU [m̥aʔat] 'atout (of a tree) [in text]' vs. WU [m̥ak] 'satisfied with food, full'
WU [c̥aʔ] 'got hit (by something in air, ground, or water)' vs. WU [t̥aʔ] 'poor (in wealth, spirits, etc.)'
VU [l̥akl] 'lock it up' vs. WU [ʔalaʔ] 'again'
[ʔaʔ] 'get stuck (like clothes in chair, etc.)' vs. WU [ʔaʔ] 'it peeled off (bark for ex.), came off (of something stuck on)' vs. LD [ʔaʔ] 'it went out (of fire)'
VU [t̥aʔ] 'get tight' vs. WU [t̥aʔ] 'to break (of a stick)' vs. LD [t̥aʔa] 'mud is loose' vs. [t̥aʔa] 'red snapper'
LD [t̥aʔa] 'get bruised' vs. [ʔaʔ] 'salal berry'
WU [ʔaʔa] 'to go swimming' vs. WU [ʔaʔa] 'red salmon (one kind)' vs. WU [ʔaʔa] 'smoke'
WU [ʔaʔa] 'to sneeze' vs. LD [ʔaʔa] 'soapberries, Indian ice cream'
VU [ʔaʔa] 'wake up' vs. WU [ʔaʔa] 'to wake up, LD [ʔaʔa] 'go through a narrow place (in mountains, in crowd)'
VU [ʔaʔa] 'rope' vs. WU [ʔaʔa] 'small black Chinese slipper (has something like teeth on outside) [limpet shell] (eaten after cooking)'
WU [ʔaʔa] 'past' vs. WU [ʔaʔa] 'at there' vs. LD [ʔaʔa] 'past contrast[ive]'
VU [ʔaʔa] 'to finish' vs. WU [ʔaʔa] 'to be good'
[ʔaʔa] 'to be fat' vs. [ʔaʔa] 'four'
[ʔaʔa] 'tear it' vs. [ʔaʔa] 'tearing it'
[ʔaʔa] 'scatter it' vs. [ʔaʔa] 'scattering it'
[ʔaʔa] 'push it' vs. [ʔaʔa] 'pushing it'
[ʔaʔa] 'crawl' vs. [ʔaʔa] 'crawling'
2. MORPHOPHONEMICS (A BRIEF OUTLINE)

Several morphophonemic rules have already been referred to above:
1. A spirant or resonant - /\ after an identical spirant or resonant (1.1.1, 1.1.2, 1.1.5).
2. /\ is inserted adjacent to resonants in the 'continuative aspect' (also known as the 'actual aspect' in the literature on Straits) (1.1.3).
3. /R/ and /R/ \R/ (where R = resonant, R = glottalized resonant) (1.1.3).
4. /w/ \w/ in some roots (1.1.3). The other Samihan languages show /w/ for these forms and for all other cases of Straits /\ (except Twa and Lushootseed which show /b/) and other languages show traces an arrested sound change toward /b/ (for example, Comox and several old dialects of Upriver Halkomelem, see Galloway 1982 and Thompson and Kinkade forthcoming). I believe these derive from a Proto-Central Samihan *w/ (Kuipers 1970 and 1982, Galloway 1982) (Thompson 1979 proposes */\w* for Proto-Samihan and by implication for Proto-Central Samihan).
5. /x/ \x/ and /w/ in some roots (1.1.3). Closely related is the rule that /s/ \s/ (and /f/) in some roots; cognates in most other Samihan languages show that historically these alternations were produced by a sound change as follows: */y,v,w/ Straits Ç,k, respectively, other languages y,w in the environment /y,v,w/ Straits (4 other Samihan languages) y,w respectively elsewhere (i.e., _Ç,Ñ,Ñ). This rule however has not survived intact as a synchronic rule in Straits. There is now a more general tendency to use the resonant in the continuative aspect and the aspirant in the non-continuative, though traces of the original rule can also be seen.
6. Glottalized resonants are reduplicated as any other unit consonant is (1.1.3).
7. Samihan has a number of types of reduplication, including at least Ç,vÇ/- 'plural' (where V = V; or /w/), Ç,vÇ/- 'characteristic' (where the equals sign shows the position of affixation of a derivational affix)(1.1.3), and others in pp. 39, 45-47.
8. /s/ is deleted optionally when unstressed in allegro speech; the rule is actually somewhat more complex than this I believe (1.1.3). For example, /w\ normally makes such a deletion in the environment Ç,Ñ (where C = any consonant) while VU and TB rarely make it except when the final consonant is a nasal. This rule feeds into the rule producing glottalized resonants (and so precedes it); it also feeds into the allophonic rule producing syllabic resonants.
9. (A phonotactic rule): Glottalized resonants are not attested word-initially (1.1.3).
10. /\ may vary with /e/ in some words (1.1.4.1).
11. There may be a morphophonemic rule inserting echo vowels between /\ and non-resonants in a number of words (1.1.4.2).
12. There is likely a rule vocalizing semivowels as follows: /\,v/ \\w/ \\w/ respectively in the environment Ç,Ñ (1.1,4.4).
13. /w/ \w/ after most preverbal particles (1.1.4.4).
14. If unstressed /\ is not mistranscribed for a slightly rounded and lowered allophone of /\ (which I believe it is), then either a morphophonemic rule /\ \\w/ in certain unstressed environments is required or a new type of reduplication (Ç,vÇ). Both seem unlikely (1.1.4.5).
15. Unstressed /\ \\w/ in the environment _/\_ (where the /\ is optional as shown by parentheses)(1.1.4.5).

Additional morphophonemic rules which must be present in Samihan include:
16. Optional insertion of /\ in the environment R,ß,ß (R = plain resonant). This rule is used much more frequently by LD than by VU; it is also attested in TB's speech.
17. Morphophonemic rules are required for specifying each distinct type of reduplication. Besides 'characteristic' and 'plural' reduplications Samihan uses reduplications also for 'diminutive', 'continuative/actual aspect', and perhaps other aspects such as 'resultive' or 'durative' as well as some derivational processes.
18. Morphophonemic rules are required for several kinds of ablaut, metathesis, and stress shifting, all used in forming 'continuative aspect', 'plural', and some other aspects and derivations.
19. Morphophonemic rules are required for several infixes as well, for example //al- - 1a- 'plural' and //Ç,vÇ//- 'continuative aspect', to specify places of insertion and the lexically-determined and morphological classes to which they apply.
20. One or more morphophonemic rules are needed to describe the shifts of stress found when roots of different values (strong = always retains stress, weak = never bears stress, neutral = bears stress in certain environments) are affixed with affixes with such stress values. Most, if not all, combinations are attested in Samihan.

Examples of the first fifteen rules except for 4, 5, and 12 can be found in the sections mentioned but a few more are given here. Examples of rules 15, 16, 17, 18, and 19 are also present in some of the forms given but are not easily found there; some examples are given here also, along with examples of rules 4, 5, 12, and 20. Some affixes may not be segmented yet. Hyphens separate inflectional affixes, equals separate derivational affixes; infixes are shown enclosed in square brackets and either hyphens or equals signs as appropriate. Morphophonemic transcrip-
tion is enclosed in double slashes; allomorphs can be seen within phonemic single slashes but segmented with hyphens or equal signs.

1. //s-sima?] / Tha /s-sima]? / (9:3ma7), VU /sima7/ 'ice'.
   VU /ké-se-at/ /ké-se-at/ 'it's getting warmer [or get hot]'
   VU /k-an-nax/ ne s-cái-ən// /k-an-ox/ ne əcán/ 'I have a cold'

2. //k-w-n-tal// 'to fight' vs. //k-w-[e-]-t-an//-t-an-7//
   /k-w-n-tal// 'fighting'
   //sá-l-t-ə// 'splash him' vs. //sá-l-[e-]-t// //sá-l-tə//
   //sá-l-tə// 'splashing him'
   //sá-k-se-at// LD /sák-se-at/, VU /sák-se-at/ 'to show off' vs.
   //k-w-[e-]-t-an//-t-an-7// LD, VU /sá-wet/ /sá-wət/ 'showing off'

3. see the examples in 2 just above

4. /máq/ 'full (of stomach), satiated (with food)' vs. LD /máq-t//,
   VU /máq-t// [náq] 'swallow it'

5. //s-sén-sy]-? /s-sén-ný/ 'lady, woman' vs. /s-sén-sy-aill//
   /s-sén-sáča// 'girl (around 14)'
   //s-w-n-tal// /k-w-n-tal// 'they fought' vs. //w-[e-]-n-tal//-t-an-7//
   + 'continuative' glottalization -> //w-[e-]-t-an//-t-an-7//
   //k-w-n-tal// /k-w-n-tal// 'they're fighting' (shows that
   the reduplication is infixed first, then the glottal stops after each
   resonant (stopping the second w from becoming kw), then rule 5
   is applied after all infixing; an alternate analysis would have
   the root be //k-w-// 'grab' (cf. /k-an-nax/ 'grab it', /k-an-nax//
   'hold it, take it') + /-tal// 'reciprocal' but requiring rule 5
   to also work in the reverse, /k-// => /w/ before consonant or pause;
   the second treatment seems to be historically accurate since
   the root has /k// in all three words in non-Strait Salish cognates)
   //si-w-n-sy/-? /s-w-n-sy// [máq-k-an] 'rested' vs. /s-w-[e]-[e-]-t-w-an//-t-an-7//
   //s-w-n-sy//- [e-]-t-w-an//-t-an-7// 'be resting' (resultive/durative aspect)
   /s-w-n-sy//- /s-w-n-sy//- [e-]-t-w-an//-t-an-7//
   /s-w-n-sy//- [e-]-t-w-an//-t-an-7// 'to use it' vs. //k-w-[e-]-t-an//-t-an-7//
   /s-w-n-sy// [e-]-t-w-an//-t-an-7// 'using it' (note that the non-continuative form probably
   had a stage /s-w-n-sy/-an// then deleted /a/ due to rule 5; the continuative
   the other hand kept the /a/ due to insertion of /w/, converted it to
   /e/, then added an aphonetic /a/, or the continuative followed the
   pattern of resonant in continuative; aspect in Straits is often very
   complex phonologically)
   //s-w-n-sy//- VU /sá-k-sə//, LD /sá-k-sə// 'put it down' vs. /sá-k-sə//-t-an-7//
   //s-w-n-sy//- VU /sá-wə//, LD /sá-wə// 'putting it down'
   /sá-wə// /sá-wə// 'aim it' vs. VU /sá-m-ə//-t-an-7// /sá-mənətən//,
   LD //s-sa-m-ə//-t-an-7// /sá-mənətən// 'it was aimed' (resultive
   aspect, note different reduplication and /-inflx pattern)
   //máq-an//- /máq-an/ 'to laugh' vs. /máq-an-7// /máq-an//-7//
   'laughing' (note prefixed continuative reduplication for this root)

6. see all of the examples found so far, in 1.1.3, argument 2.

7. see examples in 5 & 6 above

8. A number of examples have been given in section 1; a few more are
   'use it' and 'put it down' in 5 above, as well as;
   VU /lääcən/, LD /lääcən/ 'it is full'
   VU /säməcən-sa/, LD /säməcən// 'mother's brother's wife'
   VU /lääptə/, LD /lääptə/ 'sharpener it'
   VU /säägətsə/, LD /säägətsə/ 'he'a/she's scattering it'
   TD /sääliqə/ 'berry', (LD, VU hadn't heard this word, used
   /sääliqə/ 'berry')

In reviewing the field notes I notice that VU is more likely to apply
this rule when LD was not present, i.e., when he alone was responsible
for reporting the Samish form. For example, VU alone July 12, 1984
'asleep'. In a few places he gave forms without the /ə/-deletion
as Saanich and forms with deletion as Samish. For example, VU Saanich
/sák-ə/, LD Samish /sák-ə/ 'wash it'. If this is indeed a difference
between Saanich and Samish, then VU may have let this effect
of a Saanich accent slip into his Samish when LD was present and
giving what he said was real pure Samish.

9. no attestations

10. VU /páwə/ - /páwə/ 'flounder (the fish)'
    /páwə// 'fjir cone, pine cone'
    /sáli/ - /sáli/ 'dark of fir or balasm'

11. Historically, it is not clear whether the echo vowel was
    present in Proto-Central Salish and lost in some languages or absent
    in Proto-Central Salish and added in some languages (Galloway 1982:181, 104,
    proposes that both may have happened in different forms). More
    examples need to be found to tell whether Samish has a synchronic rule
    adding echo vowels or not.

12. see also the examples for 10, above.

13, 14, 15. no further examples to add.

16. LD /sääsəlnəxʷ/ - sääsəlnəxʷ/ 'butter'
LD /séláləŋx/;  
17. /státələqaxw/ - /sétələqaxw/ 'small lake' vs. /sétələqaxw/ 'lake'
LD /státələqaxw/,  
/etiq/ 'horse'  
20. /séləqan/;  
/álqetə/ 'to poison' vs. /álgətə/ 'to poison someone'
LD /séləqan/,  
/élqə/ 'to spirit dance' vs. /élqətəxw/ - /élqətəxw/ 'spirit dance house'
LD /séləqan/,  
/qəyila/ 'to dance' vs. /qəyila/təxw/ - /qəyila/təxw/ 'dance hall' (note the strong root stress on /ə/, does not change when the presence of stress-attracting /-ətx/)  
/LD /skəpeləqən/,  
/ápəpeləqən/ 'cushion' (note 'diminutive' /pə-/, attracts stress away from stressed derivational suffix /ə-/)  
(LD /skəpeləqən/;  
/álepəpeləqən/ 'cushion' (note 'diminutive' /pə-/, attracts stress away from stressed derivational suffix /ə-/)  
(LD /skəpeləqən/;  
/álepəpeləqən/ 'cushion' (note 'diminutive' /pə-/, attracts stress away from stressed derivational suffix /ə-/)  

10. see examples in 2, 5, and 17 above.
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Jesse Sawyer, ed.
Introduction

The intention here is to describe and to compare data concerning color categorization from four Pacific Northwest languages: (1) Shuswap, (2) Chilcotin, (3) Kwak'wala, and (4) Makah, which represent Salishan (1), Athapascan (2), and Wakashan (3-4).

The data were collected in August and September of 1985 according to three independent procedures of elicitation, each based on 330 Munsell colors as a direct stimulus and standard of measurement. The procedures and stimulus materials are described in a theoretically oriented account of the same data (MacLaury 1987: Note 2).

Table I outlines the three elicitation procedures and the order(s) of data that resulted from each:

<table>
<thead>
<tr>
<th>Procedures</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Naming. 330 separate color chips are named in a fixed random order.</td>
<td>1a. Naming Ranges of color-term roots.</td>
</tr>
<tr>
<td>1b. Modifiers of roots.</td>
<td></td>
</tr>
<tr>
<td>2. Focus Selection. A “best example” of each term is chosen on an array of the 330 chips.</td>
<td>2. Foci.</td>
</tr>
<tr>
<td>3. Mapping. Each term is mapped on the array with rice grains, usually in steps in response to repeated requests to map all of X-term.</td>
<td>3a. Mapping Ranges.</td>
</tr>
<tr>
<td>3b. Mapping Steps within mapping ranges.</td>
<td></td>
</tr>
</tbody>
</table>

Correspondence between different data from an individual verifies their accuracy.

Figs. 0a-d present derandomized naming ranges and foci in the format of the Munsell array. The unnumbered column at the left displays white-grey-black and columns 1-40 display prismatic hues from left to right, lightest at top and darkest at bottom. The break between columns 40 and 1 is artificial, as hue composes a circular band. Fig. 0d provides the English speaking reader with a reference by which to gauge the Munsell system and to assess how other languages have named it. Fig. 0a shows naming ranges from a Shuswap speaker, who designates yellow and green with one term. Fig. 0b shows naming ranges from a speaker of Apache, an Athapascan language of the American