A GRAMMATICAL SKETCH OF COMOX

by

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committee.

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Finally, I would like to thank my wife. As others must know, the joy of insight is private while the frustration of an inappropriate solution is public. I'm sure that was a smile of joy and relief that crossed her face when I announced that this dissertation was finished.

I hope the finished product justifies all of their efforts on my behalf.

H. Harris

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Preface

This dissertation was formatted on a Honeywell computer using the Roff text formatting language. It was then printed on an IBM 6640 inkjet printer. This printing technique has necessitated some adjustment in the character set used in transcriptions. It is a cross between the typewriter-based system of American Indian linguistics and the International Phonetic Association system (IPA) with some new symbols. The attempt has been to make the character set as mnemonic and readable as possible. The character set along with a short phonetic description is listed below:

Consonants

Stops

p - Bilabial stop like the p in the English "tip."

t - Aveolar stop like the t in the English "pit."

k^y - Palatalized front velar stop. A "yeh" follows the k.

k - Palatal stop like the k in the English "pik."

k^w - A rounded palatal stop with a w offglide (no distinction is made between a rounded stop with and without the glide). The glide is not present before a rounded vowel. It is pronounced like the "qu" in the English "quit."

q - A back velar stop. There is no English equivalent. It is like a "k" pronounced back in the throat.

q^W - A rounded back velar stop with a w off-glide. An explanation similar to that for k^W also applies.

ṕ - A glottalized bilabial stop. It sounds like the English "p" in "lip," but pronounced more forcefully.

t´ - A glottalized aveolar stop, like the English "t" in "sit," but more forceful.

$k̓^y$ - A glottalized velar stop with a palatal offglide. There is no Enlgish equivalent.

k̓ - A glottalized velar stop, pronounced like a forceful "k."

$k̓^W$ - A rounded glottalized velar stop with a "w" offglide. This sounds like a more forceful version of the unglottalized variety.

q́ - A glottalized uvular stop. Prounced like a "k" but back further in the throat.

$q́^W$ - A rounded glottalized uvular stop with a "w" offglide.

? - A glottal stop. This sometimes occurs in English between two vowels pronounced serially, "a?a."

b - A voiced bilabial stop, like the "b" in "bid."

d - A voiced aveolar stop, like the "d" in "do."

g^y - A voiced velar stop with palatal offglide, pronounced like the "g" in "go" with a "yeh" after the "g."

g - A voiced velar stop like the "g" in "gate."

Fricatives

θ - A voiceless interdental fricative, like the "th" in "thought."

s - A voiceless aveolar fricative, like the "s" in "sit."

ł - A voiceless lateral fricative. There is no English equivalent.

ŝ - A voiceless palatal fricative, like the "sh" in "shoes."

x^y - A voiceless velar fricative with a palatal offglide.

x - A voiceless velar fricative.

x^w - A voiceless velar fricative with a uvular off-glide (w).

x̱ - A voiceless uvular fricative.

$\underline{x}^w$ - A voiceless uvular fricative with a uvular off-glide (w).

h - A voiceless glottal fricative, like the "h" in "how."

Resonants

m - A bilabial nasal resonant, like the "m" in "man."

n - An Aveloar nasal resonant, like the "n" in "name."

l - A lateral resonant, like the "l" in "lip."

y - A palatal resonant, like the "y" in "yellow."

w - A rounded uvular resonant, like the "w" in "water."

m̓ - A glottalized bilabial nasal resonant. There are no English eauivalents to the glottalized resonants.

ń - A glottalized aveolar nasal resonant.

l´ - A glottalized lateral resonant.

ŷ - A glottalized palatal resonant.

ẃ - A glottalized rounded uvular resonant.

Affricates

tθ - A voiceless dental affricate. This is a "t" and "θ" pronounced nearly together.

c - A voiceless aveolar affricate, a "t" and "s" pronounced at nearly the same time.

ƛ - A voiceless lateral affricate, a "t" and "l" together.

ĉ - A voiceless palatal affricate, like the "ch" in "chew."

ć - A glottalized voiceless aveolar affricate.

ƛ´ - A glottalized voiceless lateral affricate.

ĉ´ - A glottalized voiceless palatal affricate.

j - A voiced aveolar affricate, like the "j" in "jump."

Vowels

i - A tense high front unrounded vowel.

ι - A lax high front unrounded vowel.

e - A tense mid front unrounded vowel.

ε - A lax mid front unrounded vowel.

(ae) - A tense low front unrounded vowel.

ɨ - A high mid vowel.

Λ - The lax mid vowel (schwa). There was no schwa
       available in the character set. This has been used as
       the low mid vowel in other character sets. It is un-
       derlined for the low mid vowel.

Λ̲ - A low mid vowel.

u - A tense high back rounded vowel.

ʊ - A lax high back rounded vowel.

o - A tense mid back rounded vowel.

o̲ - A lax mid back rounded vowel.

a - A low back unrounded vowel.

Accent

vówel - Primary word accent is indicated by an accent mark
         over the accented vowel.

Vowel Length

vo:wel - Long vowels are indicated by a ":" following the
          vowel.

A single consistent transcriptional scheme has not been
employed throughout for all cited forms. Forms are quoted
from a number of sources and the original transcription, in
so far as was possible, has been used. The single exception
is an article by Sapir. Forms from that article are used so
often that their transcription has been changed to be con-
sistent with my own data.

Finally, as a matter of convention phonetic forms cited in the body of the text are enclosed in square brackets, [form]. Underlying forms are enclosed in slashes, /form/.

A. The Model

The primary purpose of this sketch is to present some facts about the dialect of Comox spoken near the town of Courtenay on Vancouver Island[1]. With this in mind, I will in the course of this work provide not only the results of my own analysis in the model adopted, but will also provide the 'raw data'. This will leave other linguists with different beliefs about models to pursue their own course.   It will also not completely close the door on the next model to come along. Inevitably, however, the model influences what is focused on and what is elicited. Therefore, no data are model free, even at the level of transcriptional practice. In order to approach a model-free state, a broad phonetic transcription is provided for forms cited. Such transcriptions on the one hand make the language seem more complicated than it is. However, using broad phonetic transcriptions seems the best middle course to follow between using strictly some model of analysis and leaving the door open to other models. The syntax is a transformational case grammar. Such a grammar can lie close enough to the surface to allow a non-native to produce it. The phonological model is generally that of the <u>Sound</u> <u>Patterns</u> <u>of</u> <u>English</u> (Chomsky

------------------------- notes -------------------------
(1) Elsewhere this dialect is referred to as Courtenay, Coƚoltq, Qomox, Comux, Komookh, Comux, and Kommkh.

and Halle, 1968) with the feature system changed as seems appropriate. Where the choice between two formulations cannot be made on the basis of evidence, both formulations are presented as alternatives.

B. The Data Available

The data available to me on Island Comox are very limited. The earliest is a word list published by Tolmie and Dawson in 1840. The latest is the material that I personally gathered from one of the two remaining speakers of the language during the summers of 1969 and 1970. This material constitutes the bulk of the data used in this sketch. My consultant was Mrs. Marie Clifton, who at the time was seventy years old. She is a native of Comox and her father was a Comox. She married a Tsimshian and lived for many years among the Tsimshian. At present she uses Kwakiutl when she does not have to use English. Comox was her first language, but since it is not used actively now, much of the vocabulary has to be 'remembered'. Since she saw Pentlatch die, she was anxious to preserve as much of Comox as there was left. That I have any material at all is a tribute to her patience and persistence. Most of the materials I have gathered were elicited. This is their chief defect. I have elicited about 2,800 separate items including individual words, morphological variations, simple and complex sentences of various types. In addition I have

five very short texts. However without longer texts the inherent danger of skewing the distribution of forms by the pressure of translation exists. There is in fact some indication that this skewing did take place. In separate elicited sentences most of my examples have the pronominal subject following the verb while in the texts that Boas gathered most of the sentences have the pronominal subject preposed to the verb. Mrs. Clifton was a great story teller, but she was reticent to tell me any stories in Comox. I suspect this reticence was the result of fear that she wouldn't be able to remember all of the necessary vocabulary or that the syntax might be imperfect. In fact the weakest area of my materials is in syntax. There may also be morphological systems that I did not stumble upon during the course of elicitation.

The only published article on Island Comox is by Sapir, "Noun Reduplication in Comox: A Salish Language of Vancouver Island" (1915). This article classifies a number of stems with respect to the phonetic shape of the morpheme used in the plural, diminutive and the plural diminutive, all of which may be formed through initial reduplication. The consultant for his study was Tommy Bill, whose father was a Nootka and whose mother was a Comox. He learned Comox when he was living as a youth among his mother's people. He went with his mother to live with the Nootka. At the time he worked with Sapir, he spoke mostly English and Nootka.

Mrs. Clifton in fact knew Tommy Bill. She, however, uses the reduplicated plural and diminutive on fewer stems than did Tommy Bill. Although she can form them, she finds them strange or funny. For her the plural is formed periphrastically. Whether this difference results from the focus of the elicitation situation, from a restructuring of stem classes, from Tommy Bill's having forgotten the stem classes, or from the general decline of the language, it is impossible to say. However, Boas (1888: 234) reports that a similar reduction in the use of reduplication took place in Nootka when the language was declining. Nevertheless, the body of morphological data in the article gives an insight into the phonological processes of the language. There are also phonological differences between the speech of Mrs. Clifton and that of Tommy Bill.

The lacuna of textual materials in my data is partially filled by some texts that Boas gathered. During his stay among the Comox, he gathered nine short traditional tales:

1. Raven and Deer
2. Kunsnooɫ
3. Mink and Mussel
4. Mink and Bear
5. Mink and Wolf
6. Mink and Whale
7. The Jealous Man
8. Qomoqal
9. The Mink

All of these stories exist in several versions. There is what appears to be a hand-written first draft version of them in the Smithsonian Institution in Washington, D.C. Two

other versions exist in the American Philosophical Library in Philadelphia. The first has an interlinear translation in English that is not necessarily word for word. One of the two versions in the American Philosophical Library has an almost word for word interlinear translation in English, and the other has the translation in German. An English translation of some of these tales appeared in The American Antiquarian (Boas 1888). In this published version background not contained in the orginal is included. The German versions appeared in Indianische Sagen von der Nord-Pacifischen Kuste Amerikas (Boas 1895).

Also among the Boas materials in the Smithsonian are wordlists in Comox and some 'Catlotq Explanations', which are work sheets with elements of the tales broken down or expanded. They appear to have been used to gain a word for word translation, and are the modest beginnings of an analysis. As a part of this process, Boas also gathered from the tales examples of different morphological systems, but they are far from complete, and in some cases confusing. The wordlists in some cases extend to a thousand words or phrases.

The complete listing of materials gathered by Boas in the Smithsonian Institution is as follows:

1. There are three word lists.

    A. One about 850 slips long. It is in Boas' handwriting. The entries for the most part are single words and have an English gloss. They are arranged alphabetically by English gloss.

B. The second is about 600 slips long and
    is based on the texts. These are not
    all single words and some of the entries
    do not have glosses. The glosses are in
    English and handwritten.

C. The third list is about 1,000 words with
    an English gloss and equivalents in
    seven Salish languages: Lummi, Nanaimo,
    Squamish, Sechelt, Comox, Pentlatch and
    Bella Coola. Not every gloss has an en-
    try for each language.

2. The textual materials are the texts
    previously mentioned. There is an English
    interlinear translation, but it is not word
    for word. These occupy twenty-two legal-
    sized pages.

3. Another document of thirty-five pages
    glosses individual words and phrases in the
    texts. Beside each entry is a numbered
    reference to the texts. The entries are al-
    phabetized by the Comox word.

4. A document of six pages called 'Całoltq Ex-
    planations' is a list of phrases in Comox
    with English glosses.

5. Finally there are seven legal-sized pages of
    some grammatical notes. These are very
    sketchy and are mostly lists of forms that
    have been glossed as having one semantic
    reference. There is no textual explanation.

There are two collections of documents on Comox in the
American Philosophical Library. Both of these were gathered
by Boas. There are two versions of the same texts that are
in the Smithsonian. One has an English inter-linear trans-
lation and the other a German translation, both nearly word
for word. There are five pages of Comox phrases with German
translations, and there are two word lists. One list has
about 1,000 entries consisting mostly of single words in
Boas' handwriting. These have German glosses. The second

list contains about 1,000 words with English glosses in Boas' handwriting. In none of the material is there any description of the speaker or speakers who dictated the materials. Some of the materials are dated, but whether this is the date that the materials were gathered or the date when they were worked on is unknown. These dates extend to 1910.

From the foregoing descriptions it is clear that the Boas material could expand the known vocabulary of Comox. However, phonetically the materials in the Smithsonian Institution are imperfect since the following transcription symbols are not biunique:

```
He writes        for
    tl - - - -ɬ,ƛ,ƛ´
    k - - - - k,ƛ̓
    ƛ - - - -q,qʷ
    q - - - - x,x̱,xʷ,x̱ʷ
```

and he does not transcribe the glottal stop. Therefore these materials cannot be used for phonological analysis, although they could be used for re-elicitation.

The only other materials that exist on Island Comox are wordlists. Pilling (1893) lists six different people who either published materials on Comox or had such materials in their possession. Some of the above materials of Boas are listed. The others are:

1. Gibbs gathered a word list at Nanaimo in September 1857. It was published in 1877 in Volume 1 of the Contributions to American Ethnology. The list, although one of

the earliest, is flawed by an inadequate transcription system. Some examples will illustrate.

	Gibbs	Harris
nose	muk-shud (no accent)	mᴧ́qsen
head	bo-óhsh	mó?os
house	klúb-umsh	ƛ´ᴧms
grass	kluk-kum (no accent)	ƛᴧkᴧm

The transcriptions fail to distinguish between front and back velars both in the stop and fricative series. There is some confusion between the [s] and the [ŝ]. He fails to include glottal stops and fails also to distinguish between glottalized and unglottalized consonants. But in spite of all these faults, the list is interesting since Gibbs writes [b] and [d] where correspondingly I have recorded [m] and [n]. Sapir also recorded some voiced stops corresponding to the nasals, but not as many as Gibbs. Gibbs also records a few words with [m] and [n]. These correspondences will be discussed later in the phonology. There are at present neither a [b] nor a [d] in the language. The Gibbs list contains 175 words.

2. A list of twenty-two words with the numerals from one to ten are included in a article by Daniel G. Brinton. I have not seen a copy of this.

3. An article by the Reverend Myron Eells entitled "Indians of Puget Sound: Measuring and Valuing" (1888) in-

cludes the numerals of Comox (Komookh), but these are taken from other sources.

4. Alphonse L. Pinart appears to have studied several Salish languages without publishing his results. Pilling solicited a description of the materials he had. Pinart did not return a detailed description, but reported that the materials contained some Comox (Comux) materials. What happened to this material I do not know.

5. A manuscript by F. L. O. Roehrig of 180 words from fourteen languages including Comox (Kommkh) was in the library of the Bureau of Ethnology. I have not seen this and I do not known whether it still exists.

There may be other materials in the hands of ethnologists. For example, whether Barnett collected any materials in the native tongues I do not know. In his book he occasionally gives an indian term for some artifact or concept. Some of these are Comox, but the transcriptions are not very detailed.

The mainland dialect of Comox has been studied by Randy Bouchard, John Davis and others. Davis wrote a Master's Thesis (Davis 1970) on the phonology of that dialect at the University of Victoria. He has since written other papers on the language. But since there are some differences between the two dialects, it seems best not to make a grammatical amalgam of the two dialects. Therefore mainland materials have not been used as data in this sketch.

There is a list of words from eighteen languages published in the _Proceedings of the British Association for the Advancement of Science_. It is based on the list published by Gallatin in 1836 in his _Synopsis of the Indian Tribes_. It has been revised and expanded by Wilkes, Gibbs, Dall, Powers, Tolmie and Dawson. It is merely a list of words, but these are the words that often prove to be most useful for determining linguistic families. It is much more reliably transcribed than other early lists. No attribution is given for any specific parts of the list (Boas 1890: 692-715).

C. Data Used

The materials used as the basis for this sketch are:

1. The materials dictated to me by Mrs. Marie Clifton. These contain the necessary elaboration of many morphological systems that are wholly lacking elsewhere.

2. Secondly, the materials gathered by Boas provide texts and help to fill in the system of articles, of which I had only three in my data.

3. Third, the article by Sapir gives insights into the morphological systems of the reduplicated plural, diminutive and plural diminutive. It contains a large number of phonological alternations, which give an insight into the phonology of the language.

4. Fourth, the wordlist from Gibbs and the one published in the _Proceedings_ _of_ _the_ _British_ _Association_ _for_ _the_ _Advancement_ _of_ _Science_. The Gibbs materials are the earliest data that I have. The BAAS list provides materials from Pentlatch and Sechelt.

From the previous description of the materials available, it is readily apparent that what follows can be little more than a grammatical sketch. The published materials are either simple lists compiled primarily for genetic classification, or they are unreliable phonetically, or both. The range of first hand materials available is limited. I lack texts of everyday conversations. The possible permutations of word order are probably greatly reduced because of the nature of the materials used. The situational contexts are not varied enough. Complicated embedding, counter-factuals, etc., are almost entirely lacking. Mrs. Clifton translated complicated embeddings into long conjunctions. Where there are conflicts or problems that cannot be resolved, I have indicated as much.

However, from the materials available it is possible to gain a good idea of the phonology of the language apart from intonation or sentence stress patterns. The morphology is probably nearly complete in terms of the systems covered, but perhaps less so in morphemes identified. And finally the syntax is little more than a thumbnail sketch.

II. The Linguistic and Cultural Setting

A. Linguistic Affiliations

Comox is a member of the Salish language family. The Salish language family is a group of languages that were spoken in the Northwestern United States and British Columbia in Canada (see the map in Figure I). In the United States the speakers of this family ranged from eastern Montana across Idaho and Washington down into Oregon. In the interior of British Columbia they ranged north to near the present day town of Williams Lake. On the coast the northernmost member of the family, Bella Coola, was isolated on Dean Inlet and Bentick arm. The contiguous members on the coast began in the north with the Comox at the Salmon River on Vancouver Island near the present day town of Kelsey Bay. Thompson (1973: 983-984) has postulated the following classification for the Salish languages.

Interior Salish

    I.   Northern Branch

        1. Lillooet
        2. Shuswap
        3. Thompson

    II.   Southern Branch

        1. Okanagan-Colville
        2. Columbian
        3. Kalispel
        4. Coeur d'Alene

Coast Salish

    I. Bella Coola

    II. Tillamook

III. Olympic Branch

    1. Inland Upper Chehalis and Lower Cowlitz
    2. Lower Chehalish and Quinalt

IV. Central Coast

    1. Twana
    2. Puget Sound Salish
    3. Straits

        a. Clallam
        b. Nooksack
        c. Squamish
        d. Halkomelem
        e. North Georgia

           i. Seshelt
          ii. Pentlatch
         iii. Comox

Swadesh (1950) theorized that the speakers of this large group of languages in prehistoric times inhabited an area in northwest Washington and southwestern Canada. They divided into two main groups, a coastal group and an inland group, which became separated by the coastal mountains in this area. As is apparent from the above listing, the coastal group is the most diverse (Jorgensen 1969).

Comox is the northernmost of the contiguous coast Salish languages. Bella Coola lies farther north but is separated from the other Salish languages on the coast by Kwakiutl speakers. Comox is at present (1970) spoken on both sides of the Strait of Georgia in British Columbia, Canada, and exists in at least two distinct dialects. One dialect is spoken on the mainland on reserves near Powell River, at Church House, and at Squirrel Cove. The mainland dialect is spoken by three distinct groups, the Sliammon,
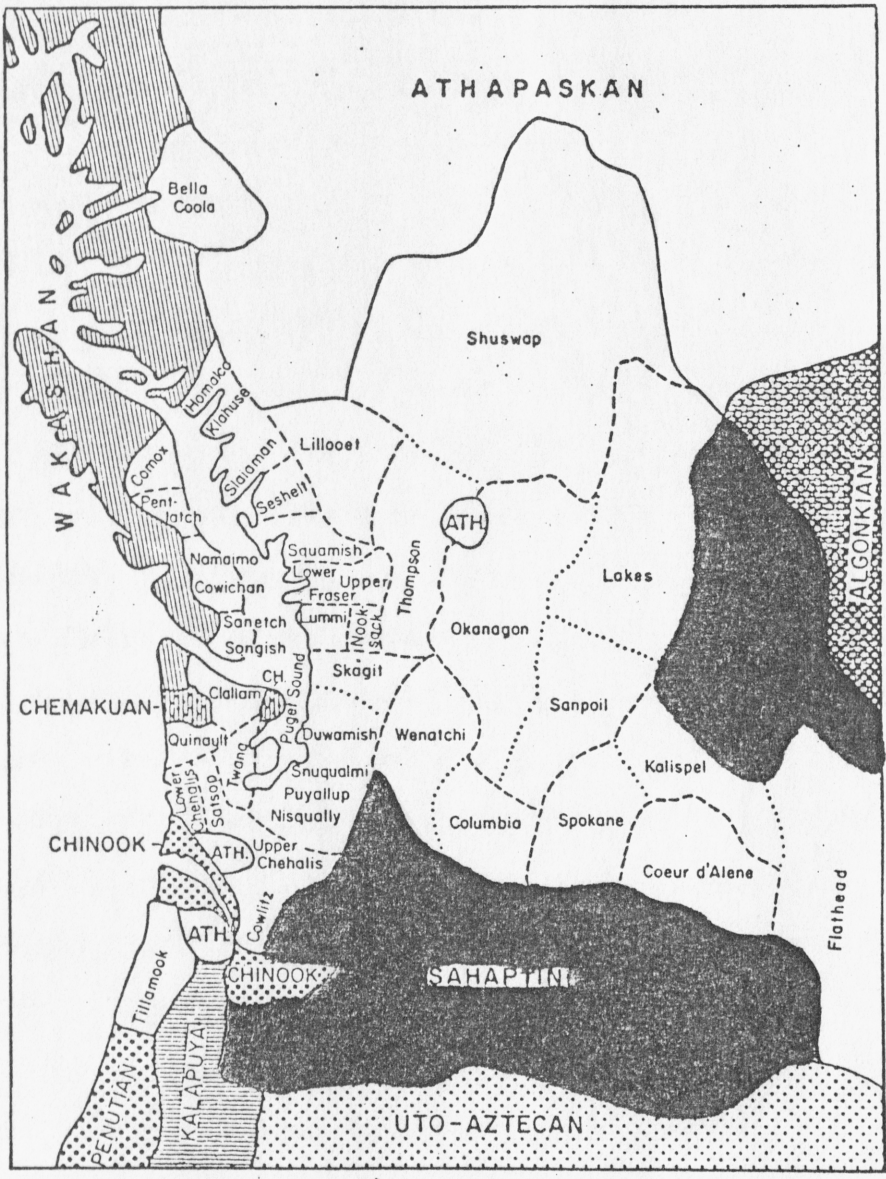
Taken from Jorgensen (1969)

Figure I. The Salish Language Family

the Klahoose, and the Homalco. There have been no dialect differences detected among these groups (Davis 1970: 3). The second dialect is spoken on a reserve about half way up Vancouver Island between the towns of Comox and Courtenay (See the map in Figure II). These two dialects are mutually intelligible, distinguished only by a few lexical, phonological, and grammatical differences.

At the time of first white contact there may have been as many as ten distinct groups of Comox speakers on Vancouver and Quadra Islands. Boas lists five groups: (1) Catloltch, (2) Eeqsen, (3) Qaqecht, (4) Claache and (5) Tatpoos. Only two groups remained in 1886, the Cotloltch and the Eeqsen. Barnett was told by Billy Mitchell, a Comox speaker, that there had been ten groups, but he could not remember the names for all of them. He volunteered the following: Sasitla, the YayaqwiLtah, SaLaLt, KatKaduk, Komokwe, and Eiksan. A Sliaimon informant volunteered another , Papusenitc, 'big rumps'. Only one group now remains on the Comox reserve. It is not clear that all of these 'island' groups spoke the same dialect.

The number of speakers of the languages in the North Georgia Branch are as follows:

Pentlatch is now extinct. Barnett (1955) did ethnographic work with the last living speaker of that

Figure II. Vancouver Island

language. In 1970 there was an old woman still alive who
was one of the orginal indians living at Qualicum Beach.[1]
Some of that group is listed by Boas (1887: 132) as speaking
a dialect of Pentlatch, Saamen. However, she left there
when she was seven years old and said that she could
remember nothing of the language she spoke as a child.

Sechelt had an entire population in 1963 of 428 (Cuff
1964: 24); of these, Chafe (1967) estimated that fewer than
one hundred could speak the language and all of these were
over 50 years of age. This estimate is probably very
generous.

In 1963 the population of the Homalco was 216, the
Sliammon 347, and the Klahoose 92 (Duff 1964: 24). Of these
it was estimated by Chafe (1967) that five to six hundred
spoke the mainland dialect of Comox.

The Comox reserve in 1963 had a population of 79. At
present there are two people who speak the Island dialect of
Comox.

Swadesh (1950) gives the following percentages of
shared basic vocabulary among the languages of the North
Georgia Branch.

Comox--Sechelt 55%

Comox--Pentlatch 45%

------------------------   notes   --------------------
(1) The group presently living at Qualicum are not the
    original inhabitants. The original inhabitants were
    massacred. The few survivors moved away to stay with
    friends or relatives elsewhere.

Sechelt-- Pentlatch   51%

Swadesh also constructed a core vocabulary of 'Early Salish' by including only forms that are shared by any two Salish languages separated by a time depth of four or more. The languages of North Georgia retained the following percentages of words cognate to that constructed vocabulary:

Comox   37%

Sechelt   43%

Pentlatch   31%

These figures lead to the conclusion that Pentlatch probably split off as a separate language before Comox or sechelt; but Pentlatch and Sechelt have a larger percentage of shared vocabulary than Comox and Sechelt, apparently contradicting the conclusion that Pentlatch was the first to separate. However, this lower percentage of shared vocabulary between Comox and Sechelt might also result from a strong non-Salish influence on Comox and, although splitting off later than Pentlatch, has borrowed more than Pentlatch from its non-Salish neighbors.

Comox has been more innovative phonologically than Pentlatch or Sechelt. In particular it has undergone several phonological changes since its separation from 'North Georgia'. Boas and Haeberlin (1927) identified the change of North Georgia [l] to Comox [w] next to a rounded vowel and to [y] elsewhere. Comox has also changed North Georgia [w] to [g]. This took place before the above change since there

are surface [w]'s in the language.[2] It has also changed North Georgia [y] to [j].

The Kwakiutl influence on Comox can be illustrated by the number of Kwakiutl borrowings in Comox. Boas (1890) listed the following:

1. infant   xé:ep
2. elderbrother nó:utl
3. axe   s'o:paíu:
4. kettle   há:niHtlala
5. pipe   wá:q'atsei
6. leaf p^há:q?am
7. deer   qé:qaθ

However, the word for deer may be Salish, cf. Puget [sqíq^{w}ʌc]. 'Axe' is borrowed with the Kwakiutl instrumental suffix and there are other words, also, borrowed with this suffix.

8. oar   λ^{y}íka:yu

Cultural considerations which will be discussed later also suggest that the Comox were strongly influenced by the southern Kwakiutl.

---------------------   notes   ---------------------
(2) Swadesh (1952) postulates that all [l]'s became [y]'s
    and later [y]'s next to rounded vowels became [w]'s.
    The [l] to [y] change took place in languages in the in-
    terior of British Columbia. He says it spread across
    the coastal mountains from Lillooet, although this seems
    unlikely. If it spread down the Fraser River then up
    the coast, Comox would be the last of the wave. There
    are no data I know of to choose between my formulation
    and his.

B. Locations of the Island Groups

The present site of the Comox on Vancouver Island was not their location at the time of first white contact. Boas (1889: 806) gives the locations of the languages of the North Georgia Branch at the time of white contact (1790's) as follows:

1. The Sechelt were on Jervis Inlet.

2. The Comox inhabited Discovery Passage, Valdes Island, Bute and Malaspina Inlets.

3. The Pentlatch extended on Vancouver Island from Comox to Qualicum Beach.

Boas (1887: 131) lists the locations of the individual Comox groups as follows:

1. The Saloltxw were along the shore of Discovery Passage.

2. He lists none for the Eeqsen.

3. The Qaqecht were at Cape Lazo.

4. The Claache were on Valdes Island.

5. The Tatpoos were also on Valdes Island.

6. The Chuechomatlqo were located on Bute Inlet.

7. The Tlahus were on Toba Inlet.

8. The Tlaamen were in and around Malaspina Inlet.

Barnett's informant also claimed that the Comox on Vancouver Island extended from the Salmon River in the north to Kye Bay in the south (Barnett 1955: 24). He claimed that five of the ten Comox groups on the Island wintered at Cap

Mudge on the southern tip of Quadra Island. Their summer
camps were:

1. The Sasitla went north to Salmon River.

2. The YayaqwiLtah remained at Quathiaski Cove.

3. The SaLaLt shifted to 'near the point'.

4. The Katkadul went to Rock Bay.

5. The Komokwe went north to Menzies Bay.

Barnett's informant separated the above five groups
from the remaining five culturally by saying the latter
formerly lived in bark houses, and learned to build plank
houses later than the above five groups. He could remember
the name of only one of the other five, the Eiksan (Barnett
1955: 25).

The Eiksan lived near the mouth of Campbell River.

Taylor and Duff (1956) argue convincingly that the
Comox have made a post-contact movement south on Vancouver
Island. The argument is based on the following kinds of
data.

Vancouver gives a complete description of a village
site at Cape Mudge. This description, however, does not fit
the present Kwakiutl village site at Cape Mudge. It does
describe an abandoned site two miles southeastward. The
present site is on a low meadow gently slopping to the
beach. Vancouver described the site as being on a high
sandstone bluff. Taylor and Duff report that the midden
deposit at the present site is shallow while the other site

is deeply stratified and also has five petroglyphs which resemble those found farther to the south in Salish territory.

Menzies, who accompanied Vancouver on the first circumnavigation of Vancouver Island, reports in his journal that he gathered the numerals from a group at Menzies Bay, north of Cape Mudge, and that they corresponded 'nearly with those of the East side of the Gulph of New Georgia' (Newcombe 1923: 84).

Curtis (1913:31-32) also claims that the Comox 'extended northwestward beyond Salmon River on Vancouver Island and Port Neville on the Mainland'. He gives the name Hwussam, from which Port Kusam was derived as being Salish. One of Taylor and Duff's informants, Chief Billy Assu insisted that Kusam was a Kwakiutl word, but admitted that all place names to the south are Salish. My consultant, Mrs. Marie Clifton, also claimed it was a Salish word and related it to the word for oil.

Salmon River $x^w\Lambda sam$ $x^w\Lambda s + am$

                                      oil + adjective

It, therefore, does appear to be a Salish word.

Curtis also claimed that the Salish had a fortified village on an island just north of Quathiaski Cove.

Taylor and Duff (1956: 59) give the present Lewiltok village at Cape Mudge as Tsqulotn saying their Cape Mudge informants stated that the term was Salish and meant

'playing field'.

Therefore, modern day informants, historical accounts, ethnographic and archaelogical data agree that the range of Comox speakers on Vancouver Island at the time of white contact extended from Salmon River in the north to around Kye Bay in the south. Taylor and Duff (1956: 63) date the move of the Kwakiutl to the village at Cape Mudge at about 1845. The move to Campbell River was probably a few years earlier and the occupation of Salmon River probably a generation earlier.

Granted then that at the time of first white contact, Comox speakers were as far north as Salmon River, what can be said about the distribution of the dialects of Comox in this area. The place name 'Quathiaska Cove' on Quadra Island appears to be a corruption of a Comox word. Mrs. Clifton has given me [k^{w}ʌsaysqɛn] as the Comox word for this place name. There is no [θ] in Kwakiutl. The mainland dialect of Comox has a [θ] that corresponds to a [s] in the Island dialect. The English borrowing would suggest that a dialect with [θ] was spoken in this area.

Boas also recorded a [θ] in a word list published in 1890. He gives the name of the group he was working with as the [catlo:ltq] which I have recorded as [sáɫoɫtx^w].

The following chart compares the occurrance of [θ] in the list published by Boas in 1890 with what is recorded presently for Mainland Comox with what I have recorded for

Island Comox:

Gloss	Boas	Mainland	Island
head	mo:óc	mó̠?os	mó?os
head(suf)	o:s	-	os
mouth	co:cin	θó̠θen	sósɪn
tongue	te:ᵒ'qcuatl	tíxʷθʌɫ	tíxʷsaɫ
beard	ko:'po:cEn	qʷópo̠θen	qópos
winter	co:'tit´c	sótɪch	sótɪĉ
island	ƛu'cais	---	---
forest	ci:'tcim	---	sʌĉʌmɪn(woodchip)
to go	co:	---	so
to stand	cEka:'t	---	---
to run	co:djitl	---	so + jiƛ
three	tsiá:tlas	chɛ́lʌs	ĉálʌs
five	tse:atsá:e:	θéiyεchɪs	seyá:ĉɪs
seven	ts'utcisá:e:	θ'ó?chɪs	ćó?ĉɪs
husband	gʸá:qas	qʌ́qʌθ	gʸá:qas

The forms given by Boas are not clearly the mainland dialect unless it has changed in the last eighty years. Boas has thetas where the mainland has none as in <u>head</u> and <u>winter</u>. It also has [s] where the mainalnd dialect has [θ]. These correspondences could only be accounted for by com- plicated dialect borrowing in both directions. It is more likely that some of the forms given by Boas are incorrect.

However, if the information given by Gibbs, Sapir and Barnett are taken into account, the dialect situation

becomes even more complicated.

Gibbs recorded no [θ]'s in his data, although he too claims that the data are of the same dialect as that given by Boas, S'tlaht-tohtlt-hu. But Gibb's data were recorded at Nanaimo and he does not say where his informant was from. He merely notes, 'Their own name is S'tlaht-tohtlt-hu; that of S'komook is the one given them by the Uguultas' (Gibbs 1877: 269).

Sapir, also, does not record any [θ]'s and notes that some of his [s]'s correspond to Boas' [θ]'s. He says, 'The dialect represented in these notes seems to be Comox proper (Q'o'moxws) with which L'o'hos, spoken on the mainland of British Columbia was stated to be identical. Sa:'lo:lt'w was stated to be a northern dialect of the same language.' (Sapir 1914: 2-3).

Now according to Billy Mitchell (Barnett's informant) the group with this name wintered with four other groups at Cape Mudge, (Sasitlo, Yayaqwiltah, SaLaLt, KatkaduL and the Komokwe). Now we can speculate that these five groups spoke the same dialect and that this dialect may have had a [θ]. Tommy Bill, Sapir's informant, however, says that his dialect is Comox proper and he used no thetas. This group was, also, placed at Cape Mudge by Billy Mitchell. This is a direct conflict in reports. However, the English place name, Quathiaska, in this area indicates that one of the dialects in the area contained a [θ]. One solution to the

conflict might be that the Komokwe spoke a [s] dialect rather than a [θ] dialect, but this group according to Billy Mitchell spent the summer at Menzies Bay. This would have been the group from whom Menzies elecited the numerals. He states that they agreed with those on the east shore of the gulf of Georgia where the [θ] dialect is now spoken.

Without discounting some testimony, it is impossible to resolve the conflicts between the fact that Gibbs recording of Saloltxw has no [θ]'s while Boas does. And that Sapir's version of Comox has no thetas while they would have to be there if Menzies and Billy Mitchell are correct. Since Qomoks is a name conferred by the Lekwitok and does not appear in Boas 1887 list of groups nor do other of the groups named by Mitchell we might assume he does not have the names correct. It is not clear how well his version of the village sites agree with Boas. Now if we assume that there are at least two dialects, one with a [θ] and at least some of the groups speaking this dialect are allied with the Kwakiutl, then the name qomoks might be given to the s-dialect. Then Tommy Bill would be correct that the [θ] dialect was the most northern designated Saloltxw and that Comox was what he spoke, the s-dialect. Mitchell would have the names of the groups wrong but might be correct in their all wintering at Cape Mudge. With the socially separate Eeqsen residing at the mouth of Campbell River. However, I have recorded no [θ]'s in the speech of Mrs. Clifton and she

too was a Saloltxw, but the [θ] dialect might have disappeared on the island with the move south to Comox. Without more complete information about the informants used by Boas and Gibbs, it is impossible to say with certainty what the original dialect distribution was, but it does appear that some of the Comox speaking groups along Discovery Passage did use the [θ] dialect.

The Comox village today is located behind a point of land on which the town of Comox is built. This point forms the northern part of the entrance to an inlet (Comox Harbor) which faces southeast. The point protects the village from northern winds and the beach area in front of the village is protected by a sand bar that extends out into the harbor entrance. The village is located on the Comox (Dyke) road which cuts across the reserve (see the map Figure III). The inlet is the mouth of the Courtenay River which was formed only a mile earlier by the confluence of the Puntledge and Tsolum Rivers. The Comox in this century also had a summer encampment on the northern tip of Denman Island.

The Puntledge River is named for the Pentlatch who had a village just around the bend from its confluence with the Tsolum River (see the map Figure IV). This might appear an inconvenient spot for a village, but in fact it lies just above the high tide line, so that the river provided fresh water and yet the site was easily accessible with minimal paddling at flood tide.

TO FORBIDDEN PL.

CESSFORD RD.
CONDENSORY RD.
PUBLIC CAMP SITES
LEWIS PARK
SANDY
PUNTLEDGE CENTENNIAL PARK
POWER HOUSE RD.
POST OFFICE
COURTENAY
COURT HOUSE
CITY HALL
MARINA
BACK ROAD
COMOX (DYKE)
COMOX RESERVE
CANADIAN FORCES BASE & AIRPORT
ANDERTON RD.
RYAN ROAD
LITTLE RIVER
KYE BAY
ELKS PARK, P.A.
KNIGHT ROAD
POINT HOLMES, P.A.
AD
COURT
TOURIST BUREAU & MUSEUM
MARINA
AIR PARK
COMOX
HOEL AVE.
LAZO ROAD
LAUNCHING RAMP
CAPE LAZO P.A.
LAKE TRAIL RD.
MARSDEN ROAD
ARDEN
CUMBERLAND
WILEMAR AVE.
COMOX HARBOUR
CORTES
GOLFING
ST. JOSEPH'S GENERAL HOSPITAL
COMOX SHOPPING CENTRE
LAUNCHING RAMP
TYEE POOL
MARINA
DOM. GOV'T. WHARF
BELL BUOY
FRASER ROAD
LAUNCHING RAMP
GOOSE SPIT
MINTO RD.
ROYSTON
RED CAN BUOY
CUMBERLAND ROAD
ROYSTON ROAD
TRENT RD.
TRENT RIVER
ISLAND HIGHWAY 19
TOURIST BUREAU
P.A. = PUBLIC ACCESS
TREE ISLAND PARK
TREE ISLAND
UNION BAY
DENMAN ISLAND
DENMAN ISLAND
FERRY
BUCKLEY BAY
HORNBY ISLAND
HELLIWELL PROV. PARK P.A.
TO BUCKLEY BAY FANNY BAY
NANAIMO & VICTORIA

Figure III. Comox Harbour

With the Comox and Pentlatch villages lying so close to
each other (see the map in Figure IV) there was a great deal
of interaction between them. Boas reports that in 1886
there was intermarriage between the groups with only two or
three Pentlatch families remaining (Boas 1888: 201). The
brother of my consultant was adopted by the last Pentlatch
speaker, Joe Nimnim. Unfortunately he never went to live
with Nimnim and, therefore, only learned one or two words of
Pentlatch. Although he was the last speaker of Pentlatch,
Nimnim used to tell stories in Pentlatch which no one could
understand.

C. The Causes for the Move South

Both Boas (1888: 201) and Taylor and Duff (1956: 65)
assert that military pressure from the Kwakiutl caused the
Comox to move south. Vancouver (Duff 1964: 59-60) found
that the Salish speaking peoples at Cape Mudge in 1792 had
no guns, while the Kwakiutls at the Nimpkish River north of
the Salish Peoples had muskets that they had gotten from the
Nootka who had been trading with the white man before the
circumnavigation of Vancouver Island. The Kwakiutls with
this advantage in firepower then began raiding all along the
Strait of Georgia. Duff says that, in fact, they so
decimated the Salish speaking groups immediately to the
south of them that they then were able to occupy their ter-
ritories. Duff mentions Vancouver but does not state ex-
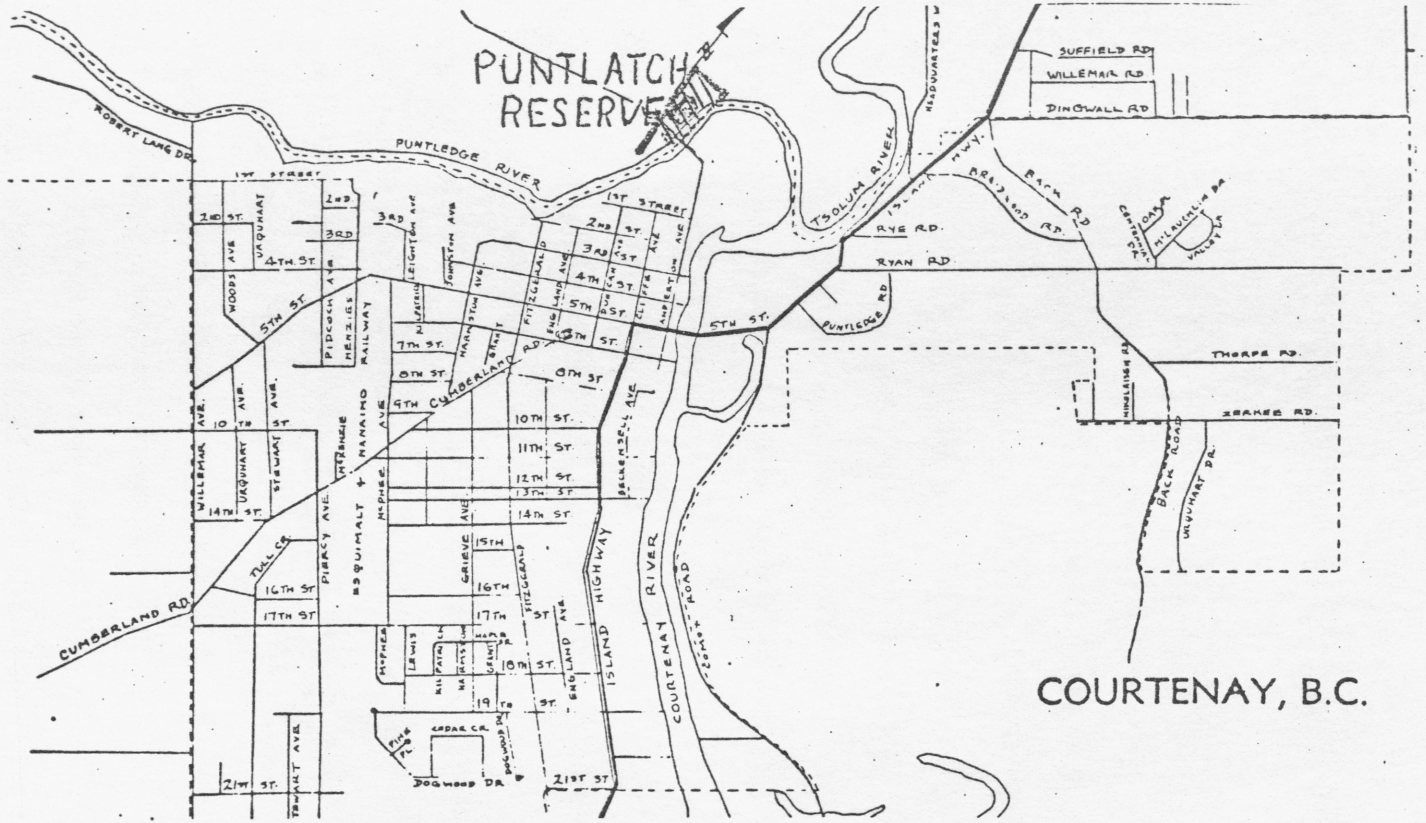
Figure IV. Town of Courtenay

plicitly his source for this information. It is, therefore, uncertain whether this is a corroborated fact or is a conclusion drawn from the fact that there were wars and that the Kwakiutls did move south.

If military pressure was the only cause of the move, then one would expect that there would be a long-standing emnity between the Comox and the Kwakiutl, since old hatreds and distrust die hard. But this does not seem to be present. Barnett states that the Comox for the most part look north to marry and have many relatives in the north. This was my impression too. This is not to say that they do not marry into other groups, but they seem to have closer ties to people in the north.

Curtis (Curtis 1913) gives an account of at least one raid made against the Cowichans in which the Kwakiutl and the Comox were allies.

The resolution of the apparent paradox that the Comox are and were friendly with their enemies lies in not viewing Comox speakers as a unitary group. Taylor and Duff (1956; 60) state that 'the term Comox as applied to these aboriginal Salishan-speaking villages in the area is generic. Modern Comox specify that they were not all politically aligned with the ancestors of the present-day Comox. The term "Comox" as thus employed is evidently socio-linguistic'.

Boas (1817: 132) states that in 1886 the Eeqsen oc-
cupied one longhouse at Comox, but were socially separated
from the Saloltxw. The Qaqecht, Cha?ache and Tatpoos had
already disappeared.

It has been mentioned before that Barnett's informant
separated the Comox speakers into two social groups, by the
fact that some groups learned to build plank houses before
the others who continued living in bark houses. The Eiksan
were one of these latter groups (Barnett 1955; 25). He,
also, gives the impression that some Comox groups were
pressing south attacking other Comox speaking groups. It
would appear that not all Comox were being attacked. Some
Comox groups themselves, far from being pressed, were allied
with the Kwakiutl in pressing south.

Sapir's informant told him that the Saloltxw were the
northern most group of Comox speakers. Although the group
with that name was not the northern most according to Billy
Mitchell, they are, however, the group that has survived.
It is this group that we would expect to have been allied
with the Kwakiutl. It may be that the summer camp of this
group is near the site of the present day Cape Mudge Vil-
lage. Billy Mitchell says that this group moved from winter
quarters at 'Cape Mudge', presumably the more northern and
presently unoccupied site described by Vancouver to a posi-
tion 'near the point' for the summer.

Military pressure was not the only factor operating to ihfluence a move south. For almost a century after white contact, epidemics of smallpox and other white diseases decreased the native population of British Columbia from 70,000 in 1835 to 28,000 in 1885 (Duff 1964: 34). There is no specific evidence that these reached as far south as Comox, but it may be that the devastating plague of 1862 spread among the Comox. It broke out among Indians gathered at Victoria in April 1862. A white man brought the disease to Victoria and it quickly spread to the Indian camps. The authorities, fearing the spread of the disease, burned the Indian camps and dispersed the Indians. They carried the disease back to their homes. It is reported that a party of Haidas was ambushed at Cape Mudge by Euclataws and that the disease was spread to them. It is estimated that this epidemic killed a third of the Indians living in British Columbia.

Whole villages were destroyed by such epidemics. These village sites would be left vacant and could then be occupied by any other group. The decline in the native population reached a low point in 1929. During this decline, groups that became too small joined with other groups, and village sites were abandoned. This general population decline must be counted as a factor in the disappearance of the Comox. As their numbers declined they may have moved in with their cultural brethern, the Kwakiutl.

In the early part of this century there was a longhouse of Kwakiutl speakers at Comox, but they moved north again (Harris fieldnotes).

The question of why the Comox moved south may never be answered with certainty. Previous authors have universally ascribed the cause of the move to the pressure of attacks from the Kwakiutl. This was doubtless part of the reason for the move, given that the Kwakiutl acquired guns before their neighbors to the south, but this over simplifies the situation. The Comox were not a unitary group. Some of them were at times allied with the Kwakiutl and culturally closely related to them. These groups decimated by disease may have been gradually engulfed. The demise of the Pentlatch, leaving good village sites vacant, probably also tempted some to move.

D. The Causes for the Decline of the Comox Language

The factors that caused the Comox to move were at the same time causing the decline of the language even before the arrival of English. My impression is that English and schooling in English have administered the coup de grace to a language that was already being replaced by Kwakiutl. The latter in fact is the Indian language most used on the reserve at the present time. It seems clear that at least some of the Comox were strongly influenced culturally from the north. How strong this influence was before white con-

tact is not clear. But into this cultural situation we inject the presence of the white man, whose influence seems to have been fourfold.

First, he introduced diseases which caused the native populations to decline. The lack of exact census figures does not permit us to see how this influenced each individual group. It may have been devastating, however, on the Comox and the Pentlatch.

Second, he introduced firearms into the area. Taylor and Duff (1956: 56) speculate that the Bella Coola have become isolated from the rest of the coast Salish by the southward movement of the Kwakiutl. When they acquired firearms before their southern neighbors, this movement south was accelerated.

Third, the white man pacified the area. With the pacification of the area, those Comox groups that were allied with the Kwakiutl could now strengthen those ties. Boas reports that when he visited the Comox village in 1886, there was a group of Kwakiutls that had recently moved from Cape Mudge. My consultant reports that there was a longhouse of Kwakiutl speakers at Comox in the early part of this century, but they eventually moved back north. Therefore, the replacement of Comox by Kwakiutl may have been underway before the introduction fo English into the area.

Fourth the introduction of English had the effect of further reducing the number of young people who were learning Comox. With middle age speakers now using mostly Kwakiutl and the young learning only English, the stage is set for the death of Comox.

Although the above scenario is highly adumbrated, I think it is essentially correct. It provides evidence that English is not the sole culprit in the demise of Comox and that the situation is more complex than that.

E. Cultural Affiliations

Culturally the Comox share more with the Kwakiutl than they do with their Salish speaking neighbors to the south. Barnett says about the Comox groups living on Discovery Passage:

> Doubtless all these Comox groups spoke Salish, but language appears to be their only important linkage with their southern cogeners. Culturally, they, together with the Pentlatch, form a Salish subgroup with a decided Kwakiutl aspect. (Barnett 1955: 26).

The Comox and the Pentlatch formed a cultural block with strong cultural ties to the southern Kwakiutl. The mainland Comox also have a northern cast, although not as strong as the Island groups. The Sechelt seem to have been a people caught in the middle between people to the south and the Comox to the north. The peoples to the south, the Squamish, exhibit stronger ties to the Nanaimo-Cowichena-Saanitch cultural group. Barnett has characterized the cultural con-

tinuum between the Mainland and Vancouver as forming an arch beginning at Nanaimo and then running up the mainland through the Squamish, Sechelts, Mainland Comox and terminating with the Island Comox and Pentlatch.

There is a distinct break culturally and linguistically on the Island between the Comox in the north and Nanoose Bay in the south. Since most of the conclusions about the culture of this area come from information gathered by Barnett, it is of interest to look at the sources of that information. Barnett's Pentlatch consultant was the last living Pentlatch. He could speak no English and was, moreover, a reluctant informant. Eventually Barnett began using his wife as a source. She was not a Pentlatch and had learned what she knew of the Pentlatch culture from her husband. Regretably, she was a Kwakiutl. It is unfortunate that she knew the southern Kwakiutl culture because this is just the situation that would lead to the greatest confusion. It could work to make the Pentlatch more like the Kwakiutl.

It is, also, unfortunate that where a distinct cultural break occurs on Vancouver Island, the least is known about groups living in that area. Duff (1869:25) reports that before 1850 Pentlatch groups lived at Englishman River, on Denman Island, and at Comox. Boas reports that there were Pentlatch groups living in the area from Nanoose Bay to Comox Harbor. He says that in 1887 there were two or three families left at Comox and another one or two at Qualicum.

Whether these groups suffered a rapid decline in the general decline of the native population of this area or whether their disappearance was the result of tribal warfare is unknown. The lack of knowledge, about the Pentlatch living between Nanoose and Comox combined with what informants were available and willing at the time extensive information was being gathered may have combined to make this cultural break seem greater than it actually may have been. Barnett's data also show the Comox sharing more culturally with the Cowichan and Nanaimo than the Pentlatch share with these two groups. This again might indicate that the Pentlatch information is somewhat unreliable.

Some examples taken from Barnett (1955) will serve to illustrate the cultural differences between the Comox-Pentlatch and the rest of the Coast Salish. Both the Pentlatch and Comox used gabled houses painted with decorations. Only during this century has this type of house appeared among the Nanaimo, who originally used shed houses. The Homalco, Klahuse and Sliammon used both types of houses, but made a social distinction between those who used each type. The gabled houses were used by the rich and powerful while shed houses were used by the poor and the lower classes. The Sechelt, also used both types, but made no social judgement about the use of either house. The Comox and Pentlatch houses in general were more elaborate. They excavated the floor and had enclosed sleeping compartments for

each family in them. This was not the case across the strait.

The Comox had many crests, used on house posts and house decorations. They were acquired by inheritance, a method that resembles the practices of the Kwakiutl. The Comox speakers on the mainland occasionally used house decorations, but these were not acquired by inheritance. They were either purchased, or someone was merely hired to decorate a house. The structured social distinction that they implied to the Comox were not present for the mainland groups.

The Pentlatch, Comox, Homalco, Klahause, and Sliammon used a suspended-warp loom. The groups on the southern end of the Island and those south of the Sechelt on the mainland used a roller loom. The Sechelt used both types.

Ritualists were used by the Squamish, Musquiam and the southern groups on the Island while neither the Comox nor the Pentlatch used them.

The Comox and Pentlatch married northward for the most part. The Klahause, Homalco and Slaiammon married among themselves. In the economic transactions connected with marriage, the Pentlatch and Comox differed from the other Salish groups and followed the Kwakiutl customs. Among them the son-in-law was free to dispose of gifts of goods or privileges that he received as he saw fit. As with other groups, the son-in-law made a marriage gift to the father-

in-law. Some time later the father-in-law made a return
gift.   The Comox and Pentlatch held that the value of this
gift should be double the amount of the son-in-law's mar-
riage gift.

During the winter ceremonials the emphasis among the
Pentlatch and Comox was on the display of rituals or
paraphernalia that had been acquired either through in-
heritance, gift, or purchase.   These might simulate a
spiritual encounter, but were more for display.   Other
groups in the area emphasized possession or the spirit en-
counter in their rituals.

In all of the above instances both the Pentlatch and
the Comox appear to be Salish speakers with a definite
Kwakiutl cast. They share much of their culture with the
other Salish speaking groups on the coast, but they are
separated from them into a definite northern sub-area.

The cultural break on Vancouver Island is independently
confirmed by Boas through the analysis of myths. In 1886
Boas (1889: 814) spent several weeks with the Comox. In in-
vestigating the myths told by this group, he also found that
the Comox were the terminus of several myth elements from
much farther north.

> A statistical inquiry shows that the northern
> traditions are in close accord with the tales of
> the tribes as far south as the central part of
> Vancouver Island, where a tribe of Salish lineage
> (Comox or Pentlatch) is found; but farther they do
> not go. (Boas 1898: 672)

The Raven is an important figure in the tales of the northern tribes. He is the creator. The Raven complex extends intact as far south as the northern end of Vancouver Island. It did not, however, exist among the southern Kwakiutl. From here south only incidents about the Raven are told and the number of incidents told of Raven rapidly diminishes. The Tlingit, Tsimshian, and Haida have a total of eighteen tales about the Raven. At the northern end of Vancouver Island there are only thirteen tales told. The Comox tell eight of these tales, the Nootka six and the Coast Salish farther south only three. At Comox he accompanies Kumsnootl on his adventures. The later is the son of the deity. The Raven accompanying him probably represents an influence from the north (Boas 1889: 203).

Many of the adventures told about Raven correspond to the adventures told about Mink, who is present in myths only as far north as the Bella Coola. Almost every adventure of Kumsnootl corresponds to the adventures of Qanikila of the Kwakiutl. The Comox and Kwakiutl appear to be the northern terminus of the Raven stories. The myths give the impression from data entirely different from the ethnographic data gathered by Barnett that culturally the Comox are to be associated with the Kwakiutl to the north.

However, the above conclusion must be tempered by the fact that even at the early date at which Boas gathered his data, he was not able to separate the Pentlatch traditions

from those of the Comox. The Comox had already moved south to Comox. The remaining two or three familes of Pentlatch had intermarried with the Comox and their traditions were already confused (Boas 1888:201). In this circumstance the definiteness of the cultural break between the Comox-Pentlatch and groups farther south on the Island may be exaggerated since we have no information about the pivotal groups that would occupy the same position as the Sechelt on the Mainland. The fact that these groups probably spoke Pentlatch, however, would not make the cases entirely parallel.

Recapitulating then, some of the Pentlatch groups and some Comox groups on the Island are culturally closely related to the southern Kwakiutl and an apparent cultural break exists on the Island around Nanoose Bay.

F. The Linguistic Surroundings

All the immediate linguistic surroundings of a language are important in areas where a language is landlocked, but in this area most of the travel was by water. Therefore, it was possible to have contact with groups that were not immediately adjacent with comparative ease. To the south there was formerly Pentlatch and in recent times Nanaimo. To the north were Kwakiutl speakers, with whom the Comox had close contact.

On the west were Nootka speakers, but the mountains that run down the center of Vancouver Island effectively prevented much communication with the Nootka groups on the western side of the Island. Barnett reports that since the move to Comox there were raids across a pass near Courtenay on the Nootka. This would have, also , been possible across such a pass near Compbell River. Directly across the Strait lies the mainland dialect of Comox, and to the south is Sechelt.

The linguistic relationships among the North Georgian languages and the cultural continuum on the mainland side of the Georgia Strait seems to indicate that groups speaking 'Proto-North-Georgia' long ago moved up the coast from the southern end of their present distribution (see Suttles and Elmendorf 1963). Pentlatch was the first to split off, either crossing the Strait or island-hopping in the northern part of the Strait to Vancouver Island. The Comox and Sechelt remained in closer contact. When finally the Comox separated from the Sechelt and some of them moved to Vancouver Island, they eventually came under the cultural influence of people from the north. The Comox could have crossed the Strait across Quadra Island and then moved both north and south on Vancouver Island. Then in historic times they moved south to Comox under pressure from the Kwakiutl.

III. The Syntax

A. The Phrase Structure Rules

1. The Order of Sentence Constituents

On the surface the usual order of major constituents in the Comox sentence is:

Predicate-Agent-Object (VSO)

The first rule of the grammar is written with each of these and all other case nodes listed separately in a multi-branching rule. The first rule[1] is a modified semantic rule including a predicate and a schemata for arguments.

R-1.   S → Pred. + (Arg)*

Including a single argument node captures the fact that every case node probably can have the same structure. This structure, as one would expect, can also be an embedded sentence. The schema mechanism, however, will have to generate by convention the arguments in a particular order. If multiple examples of a single case occur, these would either result from a rule of argument expansion or from sentence conjunction and reduction.

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                              notes
(1) A complete list of the phrase structure rules is included in Appendix A.

Sentences occur in the data with up to three co-occurring arguments. Therefore, the first rule is partially a prediction about the language.

1. ya?pʌxʷʌs tom tʌ window ʌŝʌ x̱a?ʌjays

    broke-it(accidental)-he tom the window prep-a rock

    Tom accidentally broke the window with a rock.

By comparing the order of the co-occurring cases, we can establish an order for all arguments except the Benefactive and Dative, which were not found in the same sentence. Arbitrarily putting the Dative before the Benefactive we have the order:

Agent-Dative-Benefactive-Object-Instrument-Locative-Time

Examples showing the relative order of some of the arguments are:

Benefactive before Direct Object

2. ?ɛ?ʌjam?ʌmt^h cʌm tom ʌtʌ jʌq́

    imper-fix-intran-it-I-fut tom prep-the fence

    I'm going to fix the fence for Tom.

Dative before Direct Object

3. x̱anatʌs tom xʷixʷaylak ʌtʌ sa?ʌmɩn

    give-it he tom xʷixʷaylak prep-the net.

    Tom gave xʷixʷaylak the net.

Locative before Temporal

4. tawaʔoɬ ʌkʷ Alert Bay sjasoɬ

   came-past prep-the Alert Bay temp-yesterday

   He came from Alert Bay yesterday.

Locative after Direct Object

5. sosxʷʌsʌm tom tʌ nʌxʷɨɬ ʌkʷ Comox

   go-it-he-fut tom the canoe prep-the Comox

   Tom'll take the canoe to Comox.

Though VSO is the usual order, SVO occurs as an alternate order.

6. xʷixʷaylak hɛʔtʰ gʸaygʸajɪnak so ʔeʔjamʌtʌsʌwʔ tʌ jʌq́

   xʷixʷaylak conj gʸaygʸajinak go fix-it-he-plural
                                                     the fence

   Xʷixʷaylak and Gʸaygʸajinak went out and fixed the
fence.

This SVO order would result from transformational rearrange-
ment. In the above example "Xʷixʷaylak and Gʸaygʸajinak"
cannot be interpreted as being the predicate since they do
not attract the verbal person suffixes. This is not to say
that proper names cannot be used as predicates. They can.
When they are, they have verbal person suffixes attached.

a. The Predicate Complex

   Rule two expands the predicate node. Schematically the
surface order of elements in the predicate is:

Root-lexical suf-root type-obj suf-past-ques-subj suf-fut-aspect

However, not all of these elements are present in the phrase structure expansion of this node. Some of them are the transformational copies of argument nodes.

The verbal complex is often complicated by the use of the verbs 'to come' [q^{W}ʌl?] and 'to go'[só] as auxiliaries (they can also be used as main verbs).

1. ɫe so qoa?o

   art go ebb-tide

   It's going to be ebb tide. (Boas)

2. so cʌm justomi

   go-I-fut home-you

   I'm going to take you home.

But if the future implies coming from a distance, the verb to come is used.

3. tʌ qul taqaq

   det come back(?)

   It is coming back(said of the tide above in 1)(Boas)

'Come' too can co-occur with the future maker [sʌm]

4. q^{W}ʌl?sʌm ƛo?ostomoɫas

   come-fut pick-up-us-he

   He's going to pick us up.

Since 'come' and 'go', when used as auxiliaries, behave just as main verbs do, these are analysed as predicates of higher sentences which take verbal complements. The sentence initial articles are put there transformationally.

What would be translated into English as adverbs also occur as the initial predicate in a sentence.

5. payʌmĉxʷʔotʰ ʔeʔɛɬtʌm

    always-you incept imper-eat-intrans

    You are always eating.

6. qʷʌlʔcʌm x̱ʌpʌyʔ

    come-I-fut. back

    I'm coming back.

Their placement may depend on what is in focus in the sentence, e.g., when an independent pronoun is focused, it becomes the main predicate as in:

7. hɩɬcʌm ʌλʌstan

    he-I-fut. prep-hit-it-I

    He's the one I'll hit.

A lexical suffix may occur after the root. These suffixes appear to be more derivational than syntactic and will be discussed with nominal constructions. (See the section on lexical suffixes.)

Roots can be marked as being either transitive or intransitive, and active or passive. From elicitation it appears that roots are inherently one of these because the citation form will show a preference for one or the other type. The suffix [-ʔʌm] is a de-transitivizer. The passive is marked by an [ʌm]. According to my analysis there is no explicit transitive or active marker. These may be added to roots that were previously transitives.

8. łaq̓ʷʔʌm gʸʌ

    braid-detrans. imp.

    Braid!

9. łaq̓ʷatʰ gʸʌ

    braid-it imp.

    Braid it!

The preference in citation for one form or another, however, may be the function of real world use and not a reflection of root classes in the language. I do not have enough data to check out these classes. It might appear that a [t] is the transitive marker[2] (and probably was historically), but it is the third person object pronoun.

10. ƛʌsossɩcʌm

    hit-face-you-I-fut.

    I'll punch you in the face.

11. ƛʌsostʰ cʌm

    hit-face-him-I-fut.

    I'll punch him in the face.

The word "intransitive" is a little deceptive for these roots, since roots with this suffix can also take an object. It means more precisely that no object suffix is present. The object, however, may be specified by a prepositional phrase. Likewise, the passive marker means that the agent of the sentence is not necessarily specified by a suffix, although it may be. In both of these cases, if the agent or

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(2) Davis (1970) has analysed the [t] as the transitive marker in Mainland Comox.

the object occur, they are preceded by a preposition, [ʌ].

12. mʌmkxᵂtʌm ʌtʌ janxᵂ

    imp-eat-it-pass prep-the fish

    The fish is eating him.

b. The Object Suffixes

    There are three subject suffix paradigms and three ob-
ject suffix paradigms in Comox. The object suffixes precede
the subject suffixes.

i. Transitive Object Suffixes

    The objective pronouns on transitive roots are:[3]

    -s-   me   -tulmoɫ-   us

    -sɩ-   you(sg.)   -tanapi-   you(pl.)

    -t-   him,her,it   -t(ʌw?)-   them

employing these on a root yields:

1. yáɫasʌs   He called me.

2. yáɫasɩs   He called you.

3. yáɫatʰ.čan   I called him.

4. yáɫatulmoɫʌs   He called us.

5. yáɫatanapɩs   He called you (pl.).

6. yáɫatew?čan   I called them.

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                        notes
(3) For a discussion of the object pronouns, see Harris
    (1975).

ii. Detransitivized Object Pronouns

The second object paradigm is added to detransitivized stems. This construction is peculiar. The resulting construction is translated with the object pronoun being the subject of the root of the predicate in a relative clause. The addition of this object signals the addition of a higher level causative predicate. Schematically the translation would be 'X caused Y to R' where R is the root.
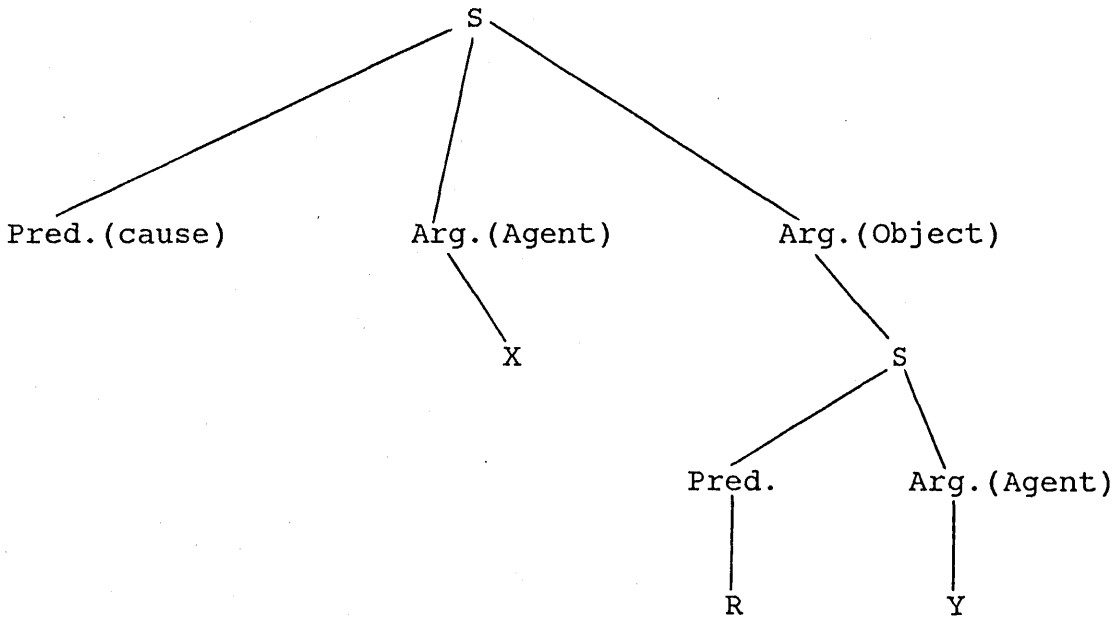
The paradigm is as follows:[4]

-stomŝ-	me	-stomoɬ-	us
-stomι-	you(sg.)	-stanapι-	you (pl.)
-sx^W-	him,her,it	-sx^W(ew?)-	them

Employing these on roots:

---------------------   ---------------------
notes
(4) For a possible further analysis of this paradigm, see
    section viii. Historical Development.

1. sɪq?ʌmstomŝas   He made me dig.

2. sɪq?ʌmstomɪs   He made you dig.

3. sɪq?ʌmsx^{w}ʌs   He made him dig. (dif. people)

4. sɪq?ʌmstomoɫʌs   He made us dig.

5. sɪq?ʌmstanapɪs   He made you (pl.) dig.

6. sɪq?ʌmsx^{w}ew?as   He made them dig.

The interpretation of this paradigm is based on the following contrasts:

7. sɪq?ʌmsx^{w}as   He made him dig.

as opposed to

8. sɪqɪtʌs   He dug it. (stative=ɪ)

and

9. qo?qosx^w g^{y}ʌ   Give him a drink!

as opposed to

10. qo?qot^h g^{y}ʌ   Drink it!

There are some translations with "let."

11. nʌqʌmsx^w g^{y}ʌ   Let him swim (fish)!

But what this last construction may imply is "cause it to be possible for him to swim" or "cause that he swim".

iii. Benefactive Suffix

This second paradigm is not to be confused with the Benefactive, which is indicated by putting the regular transitive objects following [?ʌm], the detransitivizer, giving:

1. sιq?Λmsas   He dug it for me.

2. sιq?Λmsιs   He dug it for you.

3. sιq?Λmtas   He dug it for him.

4. sιq?Λmtulmoɫas   He dug it for us.

5. sιq?Λmtanapιs   He dug it for you(pl.).

6. sιq?Λmtasew?   He dug it for them.

iv. Dative Suffixes

The dative is indicated by the transitive objective pronouns in the presence of an Object.

1. x̱anassΛm Λtʌ ĉ´a?Λnu?

    He'll give me a dog.

2. x̱anasιssΛm Λtʌ ĉ´a?Λnu?

    He'll give you a dog.

3. x̱anat^hΛssΛm Λtʌ ĉ´a?Λnu?

    He'll give him a dog.

4. x̱anatulmoɫΛssΛm Λtʌ ĉ´a?Λnu?

    He'll give us a dog.

5. x̱anatanapιssΛm Λtʌ ĉ´a?Λnu?

    He'll give you guys a dog.

6. x̱anatew?ssΛm Λtʌ ĉ´a?Λnu?

    He'll give them a dog.

These sentences, according to their construction, could be translated, 'He'll give me(etc.) to the dog.', but they were not. I do not known if such an interpretation is possible.

v. Unintentional Transitive Object Suffixes

The third objective suffix paradigm is added to regular transitive stems to indicate an unintentional transitive action. This paradigm is the regular paradigm of stems that do not contain an intentional element, such as 'to startle'. When this paradigm is added to regular transitive stems, they are translated with 'accidentally'.

1. sopʌtʰĉan   I chopped it.

2. sopʌxʷĉan   I accidentally chopped him.

3. sʌxʷatʰĉan   I stabbed him.

4. sʌxʷxʷĉan   I accidentally stabbed him.

Since someone cannot be ordered to do something accidentally, this paradigm does not occur with the imperative.

5. *t´oćoxʷ gʸʌ   Shoot him accidentally!

The paradigm has a special ending for the passive, [nom].

6. t´oćʌnom tʌ ĉ´a?ʌnu?

The dog has been shot accidentally.

This contrasts with

7. t´oćotas tʌ ĉ´a?ʌnu?   He shot the dog.

8. t´oćotʌm ʌtʌ ĉ´a?ʌnu?   The dog shot him.

In roots where there is no causative element present this object paradigm is the only one possible. The root [kʌmgʸ] means 'to meet someone unexpectedly.'

9. kʌmgʸιxʷoɫĉan

    met-him-past-I

I met him.

10. *kʌmg^{y}atałĉan

I accidentally met him on purpose.

11. xʷaʔag^{y}ιxʷĉan

I lost it.

12. *xʷaʔag^{y}at^{h}ĉan

I lost it on purpose.

The [xʷ] in sentences 9 and 11 is the accidental object. The [t] in sentences 10 and 12 is the regular transitive direct object which does not occur on these forms.

There are cases in the perfect aspect (this paradigm does not occur in the imperfect) where I could elicit no difference in meaning between the use of this paradigm and the transitive paradigm.

13. ƛ́ʌs   to chase a human being

14. ƛ́ʌstas   He chased him.

15. ƛ́ʌsʌxʷas   He chased him.

The passive is disjunctively ordered with the stative aspect (marked by [ι] insertion) in this paradigm.

16. ƛ́ʌsʌnom   He's chased away.

17. *ƛ́ʌsιt^h

The paradigm itself is as follows:

-nomŝ-	me	-nomoł-	us
-nomι-	you(sg.)	-nanapi-	you(pl.)
-xʷ-	him,her,it	-xʷ(ew?)-	them

Occurring on a stem they are:

18. x̲ʌypʌnomŝĉxᵂ You startled me.

19. x̲ʌypʌnomιĉ   I startled you.

20. x̲ʌypoxᵂĉ   I startled him.

21. x̲ʌypʌnomoɬas It startled us.

22. x̲ʌypʌnanapιĉ I startled you (pl.).

23. x̲ʌypoxᵂew?ĉ I startled them.

vi. The Reciprocal

The reciprocal is indicated by [-talwoɬ-] 'each other'
added to the stem ;in the predicate complex.

1. kʌmgᵞatalwoɬĉtʌm   We'll meet each other.

2. ?ayŝtalwoɬĉtʌm   We'll swap.

3. xᵂayxᵂajatalwoɬ   They're fighting (a group).

4. qa?ʌgᵞιtalwoɬĉt   We sleep together.

There is another suffix, [?ʌnxᵂegᵞas], which means
something like 'together'.   In certain contexts it has a
similar meaning to the above suffix.

5. kʌmgᵞιnxᵂegᵞasĉt   We net each other.

But it also occurs in

6. ni?ʌnxᵂegᵞastʰ gᵞʌ   Put it together.

vii. The Reflexive

The reflexive is indicated by an independent root
meaning "self", [?aymisot].

1. ʔaymisot^h ʔot^h tʌ hʌytas tʌ pot^h

    He himself built the boat.

viii. Historical Development

Arranging the three object paradigms in a table, we can draw some tentative conclusions about historical development, although it is not clear that the analysis is possible synchronically without some morpheme specific phonological rules.

	Singular			Plural		
1.	s	nomŝ	stomŝ	tulmoɫ	nomoɫ	stomoɫ
2.	sι	nomι	stomι	tanapι	nanapι	stanapι
3.	t	x^W	sx^W	t	x^W	sx^W

If we analyse the [-t-] in the first paradigm as a transitive marker, the [-n-] in the second paradigm as the non-control suffix, and the [-st-] as the causative, we can reconstruct two object paradigms.

	Singular	Plural	Singular	Plural
1.	s	umoɫ	omŝ	omoɫ
2.	sι	anapι	omι	anapι
3.	--	--	x^W	x^W

However, this analysis would not be possible synchronically without some morpheme specific phonological rules. Therefore, I am analysing [-t-], [-n-], and [-st-]

as having become merged with their respective object paradigms.

c. The Subject Suffixes

The subject suffixes come after the object suffixes in the predicate complex. This order is the opposite of the order of the cases in the full sentence. The order can be accounted for by the sequence of the copying transformations for these elements.

i. Intransitive Stems

The subject pronouns for the transitive and intransitive stems differ only in the third person. The subject pronouns for intransitive stems are:

ĉan,ĉ	I	ĉt	we
ĉx^w	you(sg.)	ĉap	you(pl.)
--	he,she,it	(ew?)	they

Used with a stem they are as follows:

1. ĉiɫɩmĉ   I danced.
2. ĉiɫɩmĉx^w You danced.
3. ĉiɫɩm ?ot^h He danced.
4. ĉiɫɩmĉt   We danced.
5. ĉiɫɩmĉʌp^h You (pl.) danced.
6. ĉiɫɩmmew? ?(ae)t^h They danced.

These do not change either with a change in tense or with a change in aspect.

7. ĉiɬι?ʌmoɬĉ   I danced. (past)

8. ĉiɬιmĉ   I danced. (simple present)

9. ĉiɬιmcʌm

   ĉiɬιmĉan sʌm   I shall dance.

10. ĉiĉɬιmĉ   I'm dancing (present imper-
fect).

ii.   Transitive Stems

The subject pronouns for transitive roots are:

ĉan,ĉ	I	ĉt	we
ĉx^w	you	ĉʌp	you
s	he,she,it	s(ew?)	they

Employed on roots they are as follows:

1. tahat^hĉan   I fed him.

2. tahat^hĉx^w   You fed him.

3. tahatas   he fed him.

4. tahat^hĉt^h ~ tahat^hĉʌt^h   We feed him.

5. tahat^hĉʌp^h   You (pl.) fed him.

6. tahatasew?   They fed him.

iii.   Embedded Stems

The subject pronouns change their form when they occur on embedded roots. Only the final consonant of the pronoun

is used when the root is embedded. When the stem is detran-
sitive and the enbedded stem expresses a desire or inten-
tion, the pronominal subject may be expressed by the posses-
sive pronouns. The embedded pronouns are:

	Singular		Plural	
	Matrix	Embedded	Matrix	Embedded
1.	ĉan	(V)n [5]	ĉt	(V)t
2.	ĉxʷ	(V)xʷ	ĉʌp	(V)p
3.	ŝ/∅	(v)ŝ	∅/s(ew?)	(V)s(ew?)

The fact that the form of the suffix on embedded roots
differs from that on main predicates by the deletion of the
[ĉ] suggests that this [ĉ] is a separable element.   Hukari
(1976) in Puget Salish has analysed the cognate form, also a
c̲ as being a clitic to which the subject suffixes are at-
tached.   However, Puget Salish has no third person subject
suffixes for either singular or plural.   The third person
subject elements in Comox are true suffixes. This first and
second persons, however, act like particles. This is espe-
cially true phonologically.   Historically, therefore, the
paradigm probably had the dynamics it has in Puget, but the
case is confused synchronically. The analysis here is that
the c̲ has merged with the subject suffix.   It should be
noted though that if this allows the third person to be a
suffix and accounts for why [ĉan] can be reduced to [ĉ] in
certain cases for the first person singular, it does not ac-

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                        notes
(5) See the footnote on the next page.

count for the boundary phenomena that occur before [ĉ]. The
question might be illuminated further by examining the pos-
sibility for movement of these person morphemes, which one
can be preposed to the predicate or moved to a higher
predicate. I do not have the data for this analysis.

In the case of embedded roots, both subject and object
pronouns cannot appear on the same root. This is avoided in
one of two ways. Either another root is introduced, usually
come or go; or the subject pronouns are attached to the
subordinating conjunction.[6] Illustrating this latter
process we have:

1. g^yayasʌs ɛtɛn k^wʌʔat^h

   He asked me to help him.

2. g^yayasʌs ɛtɛx^w k^wʌʔat^h

   He asked me to help him.

3. g^yayat^{h}ĉan ɛtɛs k^wʌʔat^h

   I asked him to help him.

4. g^yayatulmoɬʌs ɛtɛt^h k^wʌʔat^h

   He asked us to help him.

5. g^yayatanapɩs ɛtʌp^h k^wʌʔat^h

   He asked you (pl.) to help him.

6. g^yayatasew? ɛtɛs k^wʌʔat^h

   He asked them to help him.

When two embedded roots are used, the subject pronoun
can occur either on the subordinating conjunction or on the

------------------------- notes -------------------------
(6) I have not accounted for the color of the vowel that oc-
curs before the embedded pronouns.

first root.

7. gʸayasas ɛtʰ qʷʌlan kʷʌʔatʰ

   He asked me to come and help him.

8. gʸayasas ɛtʰ qʷʌlaxʷ kʷʌʔatʰ

   He asked you to come help him.

9. gʸatʰĉ ɛtʰ qʷʌlas kʷʌʔas

   I asked him to come help me.

10. gʸayatʊlmoɬʌs ɛtʰ qʷʌlatʰ kʷʌʔatʰ

    He asked us to come and help him.

11. gʸayatanapɩs ɛtʰ qʷʌlʌpʰ kʷʌʔatʰ

    He asked you(pl.) to come and help him.

12. gʸayatasew? ɛtʰ qʷʌlas kʷʌʔatʰ

    He asked them to come and help him.

   Switching the pronoun to the subordinating conjunction
we have:

13. gʸayasʌs ɛtɛn qʷʌl? kʷʌʔatʰ

    He asked me to come help him.

14. gʸayasɩs ɛtɛxʷ qʷʌl? kʷʌʔatʰ

    He asked you to come and help him.

15. gʸayatʰĉan ɛtɛs qʷʌl? kʷʌʔas

    I asked him to come help me.

16. gʸayatʊlmoɬʌs ɛtɛtʰ qʷʌl? kʷʌʔatʰ

    He asked us to come help him.

17. gʸayatanapɩs ɛtɛpʰ qʷʌl? kʷʌʔatʰ

    He asked you(pl.) to come help him.

18. gʸayatasew? ɛtas qʷʌl? kʷʌ?atʰ

    He asked them to come help him.

The same processes occur with intransitive roots.

19. gʸayasʌs ɛtɛn ĉiɫɩm

    He asked me to dance.

20. gʸayasɩs ɛtɛxʷ ĉiɫɩm

    He asked you to dance.

21. gʸayatʰĉan ɛtɛs ĉiɫɩm

    I asked him to dance.

22. gʸayatʋlmoɫʌs ɛtɛtʰ ĉiɫɩm

    He asked us to dance.

23. gʸayatanapɩs ɛtɛpʰ ĉiɫɩm kʷʌ?atʰ

    He asked you(pl.) to dance.

24. gʸayatasew? ɛtɛs ĉiɫɩm

    He asked them to dance.

And moving the subject pronoun to the root:

25. gʸayasʌs ɛt ĉiɫi?ʌman

    He asked me to dance.

26. gʸayasɩs ɛt ĉiɫi?ʌmaxʷ

    He asked you to dance.

27. gʸayatʰĉan ɛt ĉiɫi?ʌmʌs

    I asked him to dance.

28. gʸayatʋlmoɫʌs ɛt ĉiɫi?ʌmʌtʰ

    He asked us to dance.

29. gʸayatanapɩs ɛt ĉiɫi?ʌmʌpʰ

He asked you(pl.) to dance.

30. gʸayatasew? ɛt ĉiɫi?ʌmʌsew?

He asked them to dance.

iv. Independent Pronouns

Finally the independent pronouns are:

ĉınıɫ	I	ne?ʌmoɫ	we
nɛgi?	you	nowapʰ	you(pl.)
hıɫ	he,she,it	hıɫew?	they

The independent pronouns may be used either as arguments or predicates. They are used as predicates when the pronoun is in focus.

1. hıɫew? ?(ae)tʰ ʌ ĉiɫım

They are the ones who are dancing.

2. hıl ?(ae)tʰ ?ʌms hegʸos

He's our chief.

Their use as an argument is illustrated by:

3. ĉiĉɫım hɛ? tʌ ĉınıɫ

He's dancing with me.

2. Aspect

There remain two major parts of the predicate complex to examine, aspect and tense. There are at least five possible aspects in Comox. The imperfect indicates a continuing action either in the past or the present. The sta-

tive aspect indicates a state. The continuative is used with an action begun in the past and continuing into the present. This differs from the imperfect. The latter represents a continuing action wholly contained in the past or in the present. The continuative begins in the past and continues to the present. The focus of the continuative is the beginning point. While that of the imperfect is its 'spreadoutness'. The inceptive represents an action about to begin. The unmarked aspect is the perfect.

a. Imperfect/Perfect

The imperfect semantically indicates a continuing action (within one time period past or present).

1. yał?ʌm tom   Tom called.

2. yayyałʌ?ʌm tom   Tom's calling

In roots where no continuous action is possible, the imperfect represents a repeated action. For example:

3. łʌłʌqʌt^{h}sʌm tʌ janx^w

   He'll spear the fish repeatedly.

The imperfect is formed by reduplicating the first consonant and vowel of the verb stem. Formulaically this would be :

$$C_1V_1 - C_1V_1C_2.$$

Some examples are:

4. ćʌx^{w}ʌm   ćʌćʌx^w?ʌm   to wash

5.	hew?ĉɩs	hehew?ĉɩs	to paddle
6.	łekʷʌm	łełekʷʌm	to sew
7.	t´exɛm (sun)	t´et´exɛm	(sunshine)
8.	t´oq?ʌm	t´ot´oq?ʌm	to suck
9.	payʌm	papay?ʌm	always
10.	sapɩŝ	sasapɩŝ	to bathe
11.	kʸaĉ(deck of cards)	kʸakʸaĉ	to play cards
12.	x̱ʷat´oǵom	x̱ʷax̱ʷat´oǵom	to thunder
13.	sopeyʌkʷtʰ	sosopeyʌkʷtʰ	to clear brush
14	?o?ʌmʌtʰ	?o?o?ʌmʌtʰ	lazy

In cases where the stem vowel is not tense, the vowel in the reduplicated syllable is a tense vowel, with the exception of the schwa. The following are some examples:

15.	sɩq?ʌm	sisɩq?ʌm	to dig
16.	x̱ɛq?ʌm	x̱ex̱ɛq?ʌm	to scratch
17.	t´ɩnɩtʰ	t´itɩn?ʌm	to roast
18.	jʊxʷatʰ	jujʊxʷatʰ	to vomit
19.	?ɛłtʌn	?e?ɛłtʌn	to eat (intrans.)
20.	xɩltayyu (saw)	xixɩltʌ?ʌm	to saw

(This last form is a borrowing from kwakiutl with a front [x̱].)

There is a class of roots in which the first stem vowel is deleted after reduplication.

21.	qołom	qoqłom	to wade
22.	qasɛm	qaqsɛm	to play

23. ĉ´ιt·ʰ   ĉ´ιĉ´tΛʔΛm   to carve
with a knife

24. ĉ´εɬ   ĉ´εĉ´ɬ   to rain

25. mΛkxʷtʰ   mεmkxʷtʰ   to eat
(intrans.)

Cases such as

26. q́ʷΛkʔΛm   q́ʷoq́ʷkaʔam   to chop

where the vowel in the reduplicated morpheme is phonetically
different from the stem vowel can be accounted for by a set
of assimilation rules that are discussed in the phonology
(here a [Λ] becomes an [o] between labialized consonants).
There is, also, a set of cases in which a long vowel appears
in the stem to signal the imperfect.

27. jιƛ´   ji:ƛ´   to run

28 jΛk̓Λs   ji:k̓Λs   to crawl

These can be accounted for by the morphophonemics of the
language; the [j] is an underlying [y], and therefore the
underlying form of the imperfect for 'to run' is /yιyιƛ´/,
with [ιyι] collapsing to form [ι:] (before [y] becomes [j]).
This alternation will be discussed in greater detail later
in the phonology. There is, also, a set of roots which in-
sert a glottal stop in the reduplicated morpheme. Some ex-
amples are:

29. nιŝιm   nιʔιnŝιm   to swim

30. wowom   woʔwowom   to sing

31. qʷayʔ (say)   qʷaʔqʷayʔ   (talking)

32. x̲enιm   x̲eʔx̲enιm   to growl

| 33. nam?ʌm | na?ʌnam?ʌm | to write |
| 34. jʸaq́ʷam | jʸa?jʸaq́ʷam | to sweat |

With the exception of 31 and 32 these are accounted for by the presence of glottalized resonants. There are no initial glottalized resonants in the language, but there would be underlying initial glottalized resonants The glottalization would be deleted on the surface. Under certain circumstances the glottalization is separated from the resonant (see rule 15 of the phonology). Therefore, the imperfect

[CV + ẃowom]

would become

[ẃ+ẃwom] → [wo+ẃowom] → [wo?wowom].

There is one case noted so far where the imperfect is represented by CVC reduplication (the vowel alternation is also unaccounted for).

| 35. qʌsʌm? | qasqʌsɛm? | to laugh |

Davis, working with mainland Comox, noted two others in his data.

| t´ʌwq́ʌtʰ | t´ʌwt´ʌwq́ʌtʰ | to cough |
| hayɬɩm | hayhayɬɩm | to flirt |

but in Island Comox these are

| 36. tʊq́om | tutoq́om | to cough |
| 37. hayɬa?am | hahayɬa?ɩm | to flirt |

and, therefore, not exceptions.

There are some examples of imperfectives that have no perfect counterparts.

38. ----   ʔaʔawʔt^h follow behind

39. ----   hehew?   lead

There are also roots that take no imperfect.

40. qaɬʔʌm   ----   to work

b.   The Stative

Semantically the stative aspect indicates a state.   It is formed by inserting an [ɪ] before the final consonant of the stem.   It replaces a vowel if one was already present. The following pairs will illustrate the process.

1. g^{y}at´at^h lock   g^{y}at´ɛt^h It's locked.

2. ćepʌnx^w to close   ćepʌnix^w eyes closed
                   your eyes

3. ƛʌpx^w to break a   ƛʌpix^w It's broken.
                   a wooden stick

4. ĉ´ʌxat^h g^{y}ʌ Cook it!   tɪt^h ĉ´ʌxɪt^h It's cooked.

Davis (1976) found CVC reduplication used in predicates to express an iterative, but I have not found this in Island Comox. CVC reduplication occurs on two predicates and is translated as a pluralization of the subject.

c.   Aspect Particles

There are cases where one of three particles appear after the predicate.

1. ʔʌy ʔ(ae)t^h It's right.

2. ʔeʔejamʌtʌs ʔɛt^h tʌ jʌq́   He's fixing the fence.

3. ĉiyιĉt^h ʔot^h I hear.

What the particles [ʔot], [ʔɛt], and [ʔ(ae)t] mean is still not completely clear. Mrs Clifton was not able to pin down their meaning and I could not get a context where their meanings or uses became clear. They appear to convey some lexical meaning rather than being strickly formal grammatical particles. since they either may or may not occur in many cases.

4. qaɬʔʌmcʌm   I'm going to work.

5. qaɬʔɛmcʌm ʔot^h I'm going to work.

6. qaɬʔɛmcʌm ʔ(aet^h I'm going to work.

Their use does not appear to be limited to specific roots or root classes since all three can appear with the same root.

7. nanʔq́ ʔ(ae)t^h He's a slave.

8. nanʔq́ ʔot^h He's a slave.

9. nanʔq́ ʔot ʔɛt^h He was a slave.

10. nanʔq́ ʔɛt^h He's a slave.

but

11. *nanʔq́sʌm ʔɛt^h ??He will be a slave.

In the above set, number 5 means "I'm going to work but not now." This would indicate that these particles may be aspect particles which indicate the starting point or continuing

nature of the action of the verb. [ʔotʰ] is the only one that appears with questions. A tentative meaning for it might be 'unrealized', but it also occurs in

12. ʔàmʊtʰĉ ʔotʰ   I'm home.

13. ʔamʊtʰoɫĉ ʔotʰ   I was home.

How these can be resolved is unclear. [ʔ(aetʰ] can also oc-occur with the imperfect.

14. ʔeʔejamatasoɫ ʔ(ae)tʰ tʌ jʌǵ

    He's fixing the fence.

or with the future

15. ʔʌyʔ(ae)tʰ   It's all right.

16. ʔʌyʔsʌm ʔ(ae)tʰ   It'll be all right.

a clue to its meaning is provided in the following contrasts.

17. ćaćt´eqam ʔotʰ   It's still dripping.

18. ćaćt´ɛqɛm ʔ(aetʰ   It's been dripping.

19. ćaćt´eqɛm   It's dripping.

Tentatively these particles have been identified as meaning the following:

1. Inceptive [otʰ] --- will begin shortly or has just recently begun.

2. Continuative [(ae)tʰ] --- a continuing action that started in the past.

3. The meaning of [ɛtʰ] remains problematic.

d. An Older Inceptive

At one time there was an inceptive in Comox formed through the reduplication of the last vowel and consonant of the root. It is clearly present on the following examples, but I was unable to elicit any spontaneous examples.

1.	ƛ´ʌp	deep	ƛ´ʌpʌpʰ	getting deep
2.	ćoq́ʷ	day	ćoćoq́ʷoq́ʷŝɩn	daybreak
3.	ĉ´ʌm	cold	ĉ´ʌmʌm	getting cold
4.	ɫʌx̲anɩs	dull(blade)	ɫʌɫxax̲anɩs	getting dull
5.	mʌƛ´	calm water	maƛ´ʌƛ´	calmed down
6.	poq́ʷ	fade	poq́ʷoq́ʷ	fading

Semantically these forms appear to mean the same as the inceptive above. Since this process does not at present appear to active, the above particle may have replaced the reduplication. It appears that 'getting dull' and 'daybreak' are also initially reduplicated as imperfects.

3. The Tenses

There are three explicit tenses in Comox: the past, the present, and the future. The present is unmarked. The future and past are marked by morphemes added to the predicate.

a. Future

    The future morpheme is [-sʌm] and is placed after the subject pronoun in the predication complex. However, if the preceding pronoun ends in a [t] the [s] is dropped.

1. tahat^hĉx^wsʌm tʌ k^yutʌn

    You'll feed the horse.

2. hojot^h ĉtʌm tʌms qałʌm

    We'll finish the job.

3. sιq?ʌmĉʌpsʌm ʌk^w qa?ʌya

    You'll dig the well.

4. yaǵaŝsʌm tʌ cιxcιk

    He'll use the wagon.

If it occurs after [ĉ], the [ĉ] become [c] and the [s] is dropped.

5. mat´at^hcʌm tʌ ⱦ´ʌms

    I'll paint the house.

b. Past

    The past tense is marked by adding [?oł] to the predicate complex. Morphophonemically it appears on the surface in the forms, [oł] and [?oł]. The form without the glottal stop occurs when the immediately preceding segment is [-vocalic], that is after consonants. The form with the glottal stop occurs after the vowels and the resonants.

1. k^Waĉx^Wi y$\land$qto$\frac{1}{1}$

   Have you bought that?

2. k^Waĉx^W k$\land$mg$^Y x^W$o$\frac{1}{1}$

   Did you meet him?

3. k^Yak^{Y}aĉo$\frac{1}{1}$ĉ$\land$t^h

   We were playing cards.

4. x̲$\land$yp$\land$nomso$\frac{1}{1}$ĉax^W

   You startled me.

5. x̲anase?o$\frac{1}{1}$ĉ ?ιŝιms ĉ´a?$\land$nu?

   I gave you our dog.

6. so?o$\frac{1}{1}$ĉ $\land$k^{wh} ?ahk^{W}t^h

   I went downstream.

7. tih?o$\frac{1}{1}$ĉx^W

   You were big.

There is also a set of forms where the glottal stop is present, but another process has also been applied. In these examples the glottal stop has metathesized with the previous resonant. The glottal stop must be associated with the past tense marker to account for the following contrasts:

8. k^Yut$\land$n   horse

9. k^Yuta?$\land$no$\frac{1}{1}$ dead horse

10. k^Yuk$\land$t$\land$no$\frac{1}{1}$ colt

Example 10 has no glottal stop, but contains another suffix. There are two suffixes with nearly the same shape, [-o$\frac{1}{1}$], in the language and they mean nearly the opposite of each

other. The one is the past tense morpheme and the other is the suffix to indicate the offspring of an animal. This latter suffix is used in conjunction with diminutive reduplication. In the above examples the glottal stop only occurs with the past tense morpheme. Some additional examples are:

11. qaɫe?ʌmoɫĉ   I worked.

12. qʷa?ʌloɫ ?(ae)tʰ t̲om̲   Tom came.

13. kʷoyokʷome?ʌnoɫ t̲om̲   Tom was a fisher man.

14. qaɫe?ʌmoɫ sho?ʌjuɫ   He worked this afternoon.

In sentence 14 the past tense morpheme occurs twice for [sho?ʌjʌl] can be segmented as follows:

15. s-hoy-?oɫ

    temporal case-finish-past

The [y] in 'finish' becomes a [j] on the surface.

The facts, then, for claiming that the past tense morpheme is [?oɫ] are: (1) There is a glottal stop immediately preceding it in some phonological environments (i.e., after all vowels and [h]). (2) There is a glottal stop associated with its appearance, which occurs before nasals, [l], [y], and presumably [w] (although I have no examples of the last). The most economical way to account for these facts is to add two rules to the grammar: one to delete the glottal stop, and the other to metathesize it and a resonant, and include it in the underlying form of the past tense morpheme. Davis (1970) postulates the past tense morpheme in

mainland Comox as [oɬ] alone, without a glottal stop.

The past tense morpheme does not have the same position in the predicate as does the future. In most cases it comes after the object suffix and before the subject suffix. Its placement is discussed more fully later(Section B,5). When it is added to an argument to give the meaning of 'the former', it is added at the end of the stem and occurs before the possessive suffixes.

c. Present

The present in Comox is the unmarked tense although it is not clear that every unmarked predicate has the force of the present as an explicit factor of meaning. There may be cases where these unmarked strings are simply unmarked for tense. When the rule is formulated below for the predicate, it will include tense as a necessary element, but the above caveat should be kept in mind.

It is theoretically unclear how to handle the derivational elements in the stem. These can be either lexical suffixes that add additional elements of meaning to the root, but do not seem to change its syntactic function, or a suffix like [-am] in the following:

1. qʷʌqʷʌʔlam

    imper-come-inactive

    He wants to come.

2. sosoham ĉ

    imper-go-inactive-I

    I want to go.

3. juyx̱ʷatam ĉ

    dim-vomit-it-inactive-I

    I feel like vomiting.

We can bring these different translations together by inter-
preting the ending [-am] as a syntactic element for making
the root inactive. We could paraphrase the above transla-
tions as

    He (is) 'comey'.

    I (am) 'goey'.

    I (am) 'a little vomitty'. (the stem is a diminutive)

Such derivational elements can either be handled separately
in a morphological part of the grammar or by the syntactic
rules. Since the data that I am working with are limited,
and therefore no empirically based decision is possible, I
will choose a course that theoretically is noncommital and
institute an element called the "stem" which, depending on
one's view, may come either from the lexicon (Chomsky), from
a morphological part of the grammar (Halle), or may have
been generated by previous grammatical rules (McCawley).
The suffixes themselves will be discussed later (Section
A.4.h).

Having completed the discussion of all the elements
that can occur as a part of the predicate on the surface, we

can now formulate the phrase structure rule for the expansion of the predicate.

The predicate rule is:

R-2. Pred → stem + root type + tense + aspect 1 + (aspect 2)

The subject and object pronouns will be transformational copies of argument specifications. The question and negative elements are derived transformationally from higher verbs. The difference in the placement of the tense particles is transformationally governed (See Section B,5 6). The ordering of the tense morphemes with respect to the pronouns is accounted for by ordering the copying transformations. First, the object pronouns will be copied. Then the subject pronouns are copied, and finally tense placement occurs. Aspect 1 indicates the range of effect of the action. Aspect 2 indicates the placement of the beginning point of the action. These two kinds of aspects can co-occur, although the extent of co-occurrence has not been fully investigated.

To fill out the above non-terminal vocabulary, we would have:

R-3. Aspect 1 → $\begin{Bmatrix} \text{Imperfect---}C_1V_1 \\ \text{Stative-----/i/} \\ \text{Perfect-----}\emptyset \end{Bmatrix}$

R-4. Aspect 2 $\longrightarrow$ $\begin{Bmatrix} \text{Inceptive----[?ot]} \\ \text{Continuative--[?(ae)t]} \end{Bmatrix}$

R-5. Tense $\longrightarrow$ $\begin{Bmatrix} \text{Future------/s} \wedge \text{m/} \\ \text{Past--------/o} \ell \text{/} \\ \text{Present-----} \emptyset \end{Bmatrix}$

R-6. Root Type $\longrightarrow$ $\begin{Bmatrix} \text{Transitive-----} \emptyset \\ \text{Detransitive---/?} \wedge \text{m/} \end{Bmatrix}$

4. The Arguments

The arguments following a predication can be either nominal constructions (i.e., generated by the NP expansion rule)

1. ti m∧mkx^{W}tas t∧ ĉ´a?∧nu t∧ janx^W

    ??-imp-eat-it-he the dog the fish

    The dog is eating the fish.

or embedded predicate constructions (i.e., generated from an embedded S)

2. g^{Y}ayatanapιs ?(ae)t∧p^h q^W∧l?

    ask-you-he-that-you-came

    He asked you (pl) to come. (He asked that you come.)

The first rule for the argument expansion is:

R-7. Arg $\rightarrow$ Case + (Deictic) + $\begin{Bmatrix} \text{S} \\ \text{NP + (S)} \end{Bmatrix}$

Rule seven states that every argument is composed of a case marker that distinguishes the semantic function of each argument. All of the arguments are generated with the same syntactic form. The surface differences of the cases are accounted for transformationally. The Temporal and Locative cases differ most from the other cases in form. However, the following string provides some evidence that even the Temporal should be generated by rule 7.

3.   ʔʌc qʷayigʸan sqʷassʌm tʌ ćoq́

     my thought Tem-hot-fut the day

     It will be hot today.

Here the Temporal case marker [s-] precedes an embedded S, 'The day will be hot.'

Evidence of two kinds exists for proposing the case node. First, the case node is not always phonetically zero. (The Temporal is preceded by [s-] and the Locative is preceded by [ʌ].) Second, since all of the cases are generated with the same syntactic form, they must be distinguished from each other during the course of a derivation. They are generated in a specific order. It is, of course, possible to invent machinery to keep track of their order during transformational rearrangement. But rather than invent ponderous theoretical machinery, it seems to make more sense in this sketch to adopt the (admittedly) somewhat redundant alternative of marking each case.

A determiner usually occurs before common nouns but does not often occur with proper nouns. These possibilities are captured by making the Deictic node optional. However, the exact limits of the occurrence of the determiners needs further investigation. Before a time adverbial there is no determiner.

The expansion of the Deictic node is:

R-8. Deictic → (Det) + (Demon) + (Poss)

Although all of these elements are written as optional, at least one must be chosen.

That the Deictic node is generated outside of the NP is suggested by the following:

5. ʔeʔɛɫtʌn ʔ(ae)t^h ŝi ĉ´iĉ´ɩɫɩm tʌ qayimex^w

    imp-eat cont (the past) imp-dance-detran the people

    He ate while the people were dancing.

6. xʊĉ tʌx^{w}ʌnex^{w}an k^w ŝaʔmot^h tʌ qoʔ<u>ox</u> kayʔan

    no-I know-it-I the dry the dry fish make-I

    I don't know how to dry fish.

The [ŝi] in the first sentence actually suggests that the determiner carries the tense of the embedded sentence since the past tense suffix is not present on the verb, which is in the imperfect. The use of [tʌ] before 'people' also suggests that the determination of the presence or absence of an NP may be more complicated than simple real presence or absence, and may also involve specificity of the NP (See

Kuipers 1967: 138). The absent (non-specific) [k^W] in the second sentence occurs before 'dry the dry fish make' ('to make the dried fish'), meaning that speaker knows nothing about any fish drying. Determiners used in this way introduce clauses that are arguments. Relative clauses are not introduced with a determiner, as shown by the following:

7. mʌʔax^Wĉ ŝʌ pʌpɛʔ namʔʌm sʌs t̲omas

    receive-it-I the(past) letter write-detran me-he Thomas

    I got the letter that Thomas wrote me.

The relative clause

8. namʔʌm sʌs t̲omas

    writing-intrans-benefactive-me-he Thomas

does not have a determiner before it, and the rule reflects this fact. Transformations can put a copy of a determiner before the entire sentence. This process will be discussed later (See Section B,11).

It appears that demonstratives can co-occur with a determiner, and therefore they are each made a separate node. Although not all of the possessive affixes occur in front of the noun, those that do are attached to the determiner. To reflect this boundary condition, the node Poss is made a part of the Deictic expansion rule. This placement violates Greenberg's Second Universal (1963: 78). Although this formulation is mnemonic of the surface arrangement, a more consistent account would probably derive all possession from an embedded clause following the noun possessed. This

treatment would account for the placement of the possessing noun following the thing possessed. The verb of ownership would then occur only if there is no higher verb (See Section 4,g).

The total NP expansion is done in two stages. This reflects a difference in boundary conditions between the reduplicated plural and the reduplicated diminutive. The diminutive shows a phonologically less distinct boundary than the plural.

R-9. NP → $\left(\left\{ \begin{matrix} SG \\ Pl \end{matrix} \right\} \right)$ + Nom

R-10. Nom → (Dim) + Stem + (Tense)

There are only two numbers in Comox, singular and plural. As in other Salishan languages, it is not clear that number is an obligatory specification in Comox and therefore, it is made optional. Nouns may also have tense particles attached. Some of the possessive affixes occur as suffixes after the tense suffix. These will be placed by transformational processes.

a. Case Marking

The usual order of case arguments on the surface is:

Agent-Dative-Benefactive-Object-Instrument-Locative-Time

However, under some circumstances this order can be changed.[7]

i. Agent

The agent usually is the first argument after the predicate and is unmarked except in the passive. However, several orders have been observed.

(I). SVO Order

The Agent may optionally be moved in front of the predicate. Contrast:

1. x^{W}ix^{W}aylak x̲anat∧s g^{y}ayg^{y}ajιnaq ʔ∧ŝi ĉ´aʔ∧nuʔ

x^{W}ix^{W}aylak gives-it-he g^{y}ayg^{y}ajinaq prep-the dog

Xwixwaylak gives gyaygyajinaq a dog.

with the more usual

2. x̲anat∧s to̲m x^{W}ix^{W}aylak ∧t∧ saʔ∧m∧n

give-it-he Tom x^{W}iX^{W}aylak prep-the net

Tom gives Xwixwaylak the net.

In example 1, Xwixwaylak cannot be the predicate since it does not attract the person suffixes. But the movement of the subject does nto seem to depend on the presence of any single element in the sentence. The following are the only other sentences in the data with the subject first.

----------------------   notes   ---------------------
(7) For further discussion of the underlying order, see Harris (1975).

3. tʌ tumιŝ payyʌʔotʰ q̇oq̇hʌm niʔʌλˊʌmιs ʌkʷ cumberland

   The man always cont imp-passes-detran has house prep-the
                                                      Cumberland

   The man who always passes by here lives in Cumberland.

4. tʌ λˊaʔʌnus xʷixʷaylak mʌmkxʷtas tʌ janxʷs t͟om

   the dog-poss xʷixʷaylak imp-eat-it-he the fish-poss tom

   Xwixwaylak's dog ate Tom's fish.

5. xʷixʷaylak hɛʔtʰ gʸaygʸajιnaq so ʔeʔjamʌtʌssewʔ tʌ jʌq̇

   xʷixʷaylak and gʸaygʸajinaq go fix-it-they(pl)
                                                  the fence

   Xwixwaylak and Gyaygyajinaq went and fixed the fence.

The SVO (agent-predicate-object) transformation would appear to be a rhetorically governed alternative rearrangement of the standard VSO ((predicate-agent-object) order.

(II). OVS Order

   There is one example of an object-first order in the data.

6. ŝukʷ x͟ax͟aĉxʷʔoł ʌten ʔayyʌʔ

   sugar have-you-past prep-the-your house

   Have you got sugar in the house?

(III). Pronoun Verb Object

   The pronominal subject of a sentence may also be moved in front of the predicate when the sentence is in the stative aspect. Below are some illustrative examples.

1. ĉιt^h ʔεɫtaʔʌnoɫ   I've already eaten.

2. ĉi hojosιn   I've finished eating.

3. ĉi hojx^w tʌ pot^h   I've finished the boat.

ii. Dative

The Dative, when pronominal, is indicated by the direct object suffixes.

1. xanaseʔoɫĉ ʔɨxɨms ĉ´aʔʌnuʔ

    give-you-past-I prep-the-our dog

    I gave you our dog.

The two uses of the direct object paradigm would be distinguished by using the object particle before any other argument since this would be a three argument sentence. Contrast:

2. k^wi mʌkx^wtas ŝi ĉ´aʔʌnu ŝi janx^woɫ

    ??-eat-it-he the dog the fish-past

    The dog ate the fish.

and

3. xanatʌs ŝi ĉ´aʔʌnus x^wix^waylak ʌŝi mʌjas

    give-it-he the dog-poss x^wix^waylak prep-the meat

    He gave Xwixwaylak's dog the meat.

Presumably this last sentence could also be translated as 'Xwixwaylak's dog gave him the meat.'

The dative that occurs as an overt argument nominal is indistinguishable from the direct object since they are both marked with the same particle. It may in fact be a locative

(See Fillmore 1971).

4. nʌpac̀ɩssʌm t<u>o</u>m tʌ ĉ´a?ʌnu? ʌtʌ xʷixʷaylak

    send-he-fut tom the dog prep-the xʷixʷaylak

    Tom will send that dog to Xwixwaylak.

iii. Benefactive

     The benefactive, when pronominal, is a suffix on the
predicate. It is formed by adding the transitive direct ob-
ject suffixes after the detransitivizing suffix.

1. k̓ʷʌŝt^h g^{y}ʌ   Count it!

2. k̓ʷʌŝ?ʌms g^{y}ʌ   Count it for me!

A non-pronominal object is preceded by the object marker as
it would in any other three argument sentence.

3. ?e?jam?ʌmsɩcʌm ʌtʌn jʌq́

    I'm going to fix your fence.

Some examples with only pronominal suffixes are:

4. yʌq?ʌmsɩcʌm

    I'm going buying for you.

5. <u>y</u>ʌq?ʌmt^{h}cʌm

    I'm going buying for him.

iv. Objective Case

     Normally, the object is marked by position and is the
second argument following a predicate.

1. $q^W \Lambda q^W x^W$as t<u>o</u>m tΛ ĉ´a?Λnu? Λŝi karz(Eng)

    bump-(it accidental)-he tom the dog prep-the car-poss

    Tom hit the dog with his car.

However, in certain circumstances it is preceded by a
preposition, [?Λ].

(A) An object following a verb stem marked with a detransitive suffix

2. sop<u>o</u>t^{h}cΛm tΛ q^Woy?<u>x</u>

    chop-it i-fut the wood

    I'm going to chop wood.

versus

3. ĉi sosop?Λm ΛtΛ qoy?<u>x</u>

    I imp-chop-detran prep-the wood

    I'm chopping wood.

4. hay?ΛmcΛm Λk^W λ´Λms

    I'm going to build a house.

5. q́^{W}oq́^{W} ka?amĉ ΛtΛ q^Woy?<u>x</u>

    I'm chopping wood.

These should be contrasted with a true transitive.

6. mΛkx^{W}tas ?(ae)t^h tΛ ĉ´a?Λnu tΛ janx^W

    eat-it-he cont the dog the fish

    The dog eats the fish.

(B) If a transitive predicate has more than two arguments
other than the Temporal or Locative, then the object is
marked with this same particle.

7. x^{W}ix^{W}aylak x̲anatʌs g^{Y}ayg^{Y}ajɪnaq ʌŝi ĉ´a?ʌnu

   x^{W}ix^{W}aylak gives-it-he g^{Y}ayg^{Y}ajɪnaq prep-the dog

   Xwixwaylak gives gyagyajinaq a dog.

This is the case even though the third nominal has a pronominal surface form.

8. x̲anatʌs x^{W}ix^{W}aylak ʌtʌ ĉ´a?ʌnu

   give-it-he x^{W}ix^{W}aylak prep-the dog

   Xwixwaylak is giving him the dog.

9. x̲anasɪcʌm ʌtʌ ĉ´a?ʌnu

   give-you-I-fut prep-the dog

   I'm giving you that dog.

10. x̲anʌsʌs x^{W}ix^{W}aylak ʌtʌ ĉ´a?ʌnu

    give-you-he x^{W}ix^{W}aylak prep-the dog

    Xwixwaylak's giving me that dog.

Even if two of the nominals are pronouns, then the object is still marked by [?ʌ].

11. x̲anatʌmsʌm ʌtʌ ĉ´a?ʌnu

    He gives him a dog.

(C) This same particle is used to mark the agent of a passive sentence. If there are more than three nominals, it also occurs in front of the object in the passive sentence, with the agent preceding the object.

12. x̲anasɪmsʌm ʌtʌ x^{W}ix^{W}aylak ?ʌŝi ĉ´a?ʌnu

    give-you-pass-fut prep-the x^{W}ix^{W}aylak prep-the dog

    Xwixwaylak will give you a dog.

13. x̱anatʌmsʌm ʌtʌ xʷixʷaylak ʌtʌ ĉ´a?ʌnu

    give-him-pas-fut prep-the xʷixʷaylak prep-the dog

    Xwixwaylak will give him that dog.

    I am interpreting 14 below, and cases like it, as being
Locative. The Locative case uses this same particle.

14. toɫιt^h ʌtʌ k^yu?ʌn

    He's riding the horse.

15. toɫιt^h tʌ k^yu?ʌn

    The horse is riding him.

v. Instrumental

    The Instrumental case is preceded by the proposition
[ʌ] and occurs after the object.

1. qʷʌq́ʷxʷas tom tʌ ĉ´a?ʌnu? ʌŝi karz(Eng)

    hit-it(added)-he tom the dog prep-the car-his

    Tom hit (accidentally) the dog with his car.

2. qʷʌq́ʷtas ?ɛt major ʌtʌ car

    hit-it-he ?? major prep-the car.

    He hit major (name of a pet) with the car (on purpose).

vi. The Locative

    The Locative is marked with the same particle that oc-
curs before the objective case, [?ʌ]. It occurs before the
determiner of the locative noun phrase.

1. socʌm ʌtʌ ?ay?ig^Yan

   I'm going to the woods.

2. socʌm ʌtʌ soha?yεĉ tʌ k^Wʌpιt^h

   go-I-fut prep-the otherside the hill

   I'm going to the other side of the hill.

3. soĉtʌm ʌk^W Courtenay

   go-we-fut prep-the Courtenay (nearby town)

   We're going to Courtenay.

vii. Temporal Case

The temporal case is always prefixed with an [s]. The prefix occurs on the first word of the temporal argument, even though this is part of an embedded sentence.

1. ?ʌc q^Wayig^Yan sq^Wassʌm tʌ ćoq́

   my thought Temporal-hot-detrans the day.

   It will be hot today.

It also appears that the temporal marker can be used to temporize what might not otherwise be considered a time designation.

2. ɬʌx̱tʌm sq^Wa?ʌja?ʌnʋm   cloudy day

where [q^Wa?ʌja?ʌnʋm] mean 'sky' or 'weather', but here can be used to mean 'day'. The whole construction may be interpreted as a nominal, as in

3. masʌnot^h   to cheat or fool

versus

4. masnotʌm   cheater

b. Determiners

The determiner system is not well understood. At
present I am only able to adumbrate its general outlines. I
was unable in the course of elicitation to get a feminine-
nonfeminine distinction, although there were instances where
it should have occurred. Boas did obtain some examples of
this distinction. He, also, got changes in the vowel of
some determiners that I cannot account for. The forms that
I have elicited with their approximate meanings are:

    tʌ -- present

    ŝʌ -- former

    kʷʌ -- nonpresent

The following demonstratives were obtained:

    ?ʌt´e? -- this one

    ?ʌta? -- that one

    ?ʌtani -- that one over there

Boas lists the following demonstratives, but since he
transcribes [ɫ] and [λ] in the same way their exact phonetic
shape is not certain.

θé:eθa	(those?) feminine plural	sé:?ʌsa
tʌ':eta	those masculine plural	tʌ:?eta
ɫá?en	that feminine singular	ɫá:?en
tá?en	that masculine singular	tá:?en

ƙcen	that masculine singular	k̓ʷŝen
	(not present)	
ƙθen	that feninine singular	k̓ʷsen
	(not present)	

In the first column is the form as it occurs in Boas' notes, in the second a gloss, and in the third what we might expect now. The last four forms, although glossed the same by Boas, probably differ in the way indicated in parenthesis. All of the above forms are probably demonstrative plus determiner. Literally they mean 'the that one', since the demonstrative that I have, ʔʌtaʔ, seems to be contained in the second form above.

Boas lists the pair:

ɬa cʌginem	her (wife) mother-in-law
ta cʌginem	her (wife) father-in-law

The feminine present determiner would then appear to be [ɬa]. This pair also illustrates that the determiner could be used to give sex distinctions to a lexical item that is not specified for sex. This also means that the sex distinction is not purely a grammatical one. Although the pair is glossed as possessed, there are no possessive af-fixes present.

Davis (1970) gives the following paradigm for Mainland Comox.

tʌθ	nʌwʔɬ	your older brother

tʌc	nʌw?ɬ	my older brother
ɬιθ	nʌw?ɬ	your older sister
ɬιc	nʌw?ɬ	my older sister
sιć	cʸεpθoɬ	my deceased uncle
ɬιć	cʸεpθoɬ	my deceased aunt

These forms, together with the evidence from Boas, suggest that the feminine determiner was [ɬ] plus a vowel. Boas has examples with various following vowels: [ɬa], [ɬo], and [ɬe]. A specific-nonspecific distinction is a vocalic alternation in Clallam (Thompson and Thompson 1971: 265). What the vocalic change meant in comox is unknown. The following are listed for [t] (present); [ta], [te], and [ti]. Mrs. Clifton used:

ŝʌ wikʸʌ mahotogoɬ

The deceased wikyamahotq (female)

not with [ɬ], but with [ŝ]. This may be a symptom of the decline of the language, a lapse of memory or a real dialect difference.

From this discussion we can see vestiges of the semantic distinctions found elsewhere in Salish, but the exact forms of the determiners are not known.

A determiner is used before every common noun. Proper nouns may occur without determiners.

c. The Plural

There are at least five ways to form plurals in Comox.
Three of these are suffixes, one is reduplication and the
fifth is paraphrastic.

i. Plural Suffixes

The suffix [-tan] is added to one class of roots to
form the plural. This class contains kinterms for the most
part, although the word for 'village' is formed from the
word for 'house' with this suffix. The plural 'villages',
however, is formed through reduplication. The suffix also
occurs in the word for 'gums', which is formed from the word
for 'teeth'.

1. ƛ´ʌms houseƛ´ʌmstan   villageƛ´ʌmƛ´ʌmstan   villages
2. jɪnɪs tooth jɪnɪstan gums

Although many kinterms use this suffix for the plural not
all of them do. For example 'older sibling' (borrowed from
Kwakiutl), and 'grandmother' reduplicate for the plural.

3. no?ɬ   no?no?ɬ   older brother/sister
4. ĉʸa?ʌjʌ?   ĉi:ĉʸa?ʌja   grandmother

Some examples of the use of [-tan] besides those already
given are:

	Singular	Plural	Gloss
5.	qe?x̱	qe?x̱tʌn	younger sibling
6.	ĉaps	ĉʸapstan	uncle/aunt
7.	ku?pa?	ku?pa?tʌn	grandfather
8.	?ayŝ	?aystʌn	brother/sister
9.	?emas	?emastʌn	grandchild

A second suffix found on only two words to form the plural is [?am]; both involve stem changes. What its status is I cannot say.

1.	ĉ´a?ʌnu?	ĉ´ɩnʌ?am	dog
2.	ja?ʌjʌ	ja:ji?am	tree

The third suffix is [-cʌlli]. It is unclear whether this is in fact an inflectional suffix or a lexical suffix. It was described as being used for referents that occur in masses. Mrs. Clifton used it for the plural of berries, fish, maggots, bees, etc. This clear semantic limitation and semantic referent leads me to believe that it may more properly be called a lexical suffix.

Pairs occur where the plural of a berry is formed with this suffix, but when a lexical suffix for 'plant' is added to the word for a specific berry to form a stem meaning its bush, then the resultant stem forms its plural through reduplication.

1.	t´am?x̱ʷ	t´am?x̱ʷcʌlli	gooseberry
2.	t´am?x̱ʷay?	t´ʌmt´am?x̱ʷay?	gooseberry bush

In this example the semantic limitations on the use of [-cʌlli] are clear. If the root were marked for some plural formation, then derivations with this root could be expected to use the same plural process. But in this case the derived stem does not satisfy the semantic restrictions on the use of [-cʌlli]. Some additional examples of its use are:

3. ?apoq́ʷ   ?apoq́ʷcʌlli   maggots
4. mamiyagʸʌy?   mamiyagʸʌy?cʌlli   bee
5. ɬa?egʸat´   ɬa?egʸat´cʌlli   herring
6. ?osa?   ?osa?ʌcʌlli   blue huckleberry
7. t´ʌxʷ?ʌm   t´ʌxʷ?ʌmcʌlli   huckleberry
8. q́ʷʌteĉin   q́ʷʌteĉɪncʌlli   humpback salmon
9. kʊptʰ   kʊptʰcʌlli   kelp

ii. The Reduplicated Plural

The plural is also formed with initial "CʌC" reduplication. The productivity of this process is not clear at present. Sapir's consultant (Tommy Bill) (Sapir 1915) apparently produced many more reduplicated plurals than Mrs. Clifton. Bill left the Comox reserve with his mother when he was two years old. However, his mother continued speaking Comox with him. Under elicitation conditions he might have created forms by 'instant analogy'. However, it is also the case that Mrs. Clifton has not used the language actively for some time. Boas reports that among the Nootka

the use of reduplicated plurals became much reduced as the language began to decline in some villages. The same process might be at work here. It is the case that Mrs. Clifton could produce the forms in question, finding them amusing. She did not find them grammatical. A third possibility is that the elicitation situation might have caused Mrs. Clifton's reaction by forcing her to focus on these forms. The question here is how widespread the process of plural reduplication was, not on what its form was. Both informants essentially agree on the form.

The reduplicated plural can be represented formulaically by:

C∧C + CVC. . .

Sapir, on phonetic grounds, classifies his data into eleven types, with one additional group of irregular plurals. However, eight of these classes can, with a suitable set of phonological rules, be shown to have the above underlying form.

Sapir's classes have the following forms for the reduplicated syllable: (1) CVC, (2) C∧C, (3) CO: or CO, (4) CV, with syncope of the stem vowel (there is only one form in this group; both the [g^y] and the [ʊ] are derived from [*w])

1. g^{y}áqa:has   g^{y}aʊqa:has   married woman

(5)CVC with a short vowel, (6) CaC, (7) CV, (8) Ci, (9) Ca
or Ca:

Haeberlin (1917) felt that all these different types
could be reduced to three: (1) those that reduplicate the
first CVC of the stem, (2) those that shift the stem vowel
to [ɩ], and (3) those that repeat the first CV of the stem.
In this last type there would be cases of ablaut of the stem
vowel to I and to O.

It is the contention here that all but four of Sapir's
types can be analysed as CVC reduplication with an ablaut of
the stem vowel to [ʌ]. If the ablaut is a morphemically
conditioned rule of the phonology, a set of stems that do
not ablaut the stem vowel can be accounted for as exceptions
to this ablaut rule. This class of exceptions in effect
creates a class of roots that do not ablaut the vowel of the
plural morpheme. The following illustrate this class of ex-
ceptions;

2. x̲op^{h}x̲o:p^h x̲o:p^{h}x̲o:p^{h}x̲o:p^h hummingbird

3. ĉox̲o:?   ĉox̲ĉox̲o:?   codfish

4. q́^{w}at:ʌm   q́^{w}at^{h}q́^{w}at:ʌm   river

Sapir apparently believed that the vowel of the stem
was reduplicated, and under certain circumstances it was
reduced to a schwa. This reduction, however, has to be con-
ditioned by root classes, since there are examples of
stressed schwas in the reduplicated syllable, and these are
surrounded by the same segments as the vowel in the stem.

5. héwʌqen^h   hʌúhewʌqʌn^h   swan

Reduction of the stem vowel can be analysed as operating in
nearly all of the stems that have a reduplicated plural.
The schwa resulting from the reduction (or ablaut) of the
stem vowel then assimilates to its phonetic environment.
There are also some changes in the consonants that explain
those cases that Sapir considered to be CV reduplication.
These latter changes, for the most part, occur among the
resonants.

   Looking just at the surface phonetics, the largest
group of stems repeats the first two consonants of the stem
and either reduces the vowel of the stem to schwa or repeats
a schwa of the stem. Examples where the first root vowel is
a schwa are:

6. mɪxał   mʌxmɪxał   bear
7. q̓a:ƛ´   q̓ʌƛ´q̓a:ƛ´   land otter
8. k̓o:do:t´   k̓^Wʌd:k̓^Wo:dot´   porpoise
9. sapaxos   sʌpsapaxos   horn
10. tumɪŝ   tʌmtumɪŝ   man
11. k̓^Wałt^h   k̓^Wʌlk̓^Wałt^h   dish

Examples where there is a schwa in the stem are:

12. xʌsʌm   xʌsxʌsʌm   box
13. ƛ´ʌms   ƛ´ʌmƛ´ʌms   house
14. ćʌma:lah   ćʌmćʌma:lah   index finger
15. mʌqsɪn^h   mʌqɨmʌqsɪn^h   nose

16. ɬʌq̓ʷ   ɬʌq̓ʷɬʌq̓ʷ   bow

17. t´ʌxʷʔʌmay?   t´ʌxʷt´ʌxʷʔʌmay?   huckleberrybush

The initial CʌC reduplication in Sapir's data is in some cases obscured by the fact that Sapir does not consistently write initial glottal stops. These glottal stops do appear at the beginning of the root when the reduplicated syllable is added.

18. á:sx̲ʷ   ʔʌsʔa:sx̲ʷ   hair seal

There are problematic cases where glottal stops are not copied in the reduplicated syllable, but these nevertheless appear as the second consonant in the stem.

19. x̲a:ʔwa   x̲ʌʊx̲a:ʔwa   fur seal

Obviously, if the explanation proposed here is to work, these must be accounted for. It simply cannot be the fact that glottal stops are ignored, since there are cases where the glottal stop is copied.

20. saʔanʰ   saʔsaʔanʰ   cohoe salmon

The cases with uncopied glottal stops are analysed here as having underlying glottalized resonants. Therefore, what Sapir transcribes in 'fur seal' above as [ʔw] is in fact [ẃ]. Then the glottalization is lost in the reduplicated syllable as happens in other Salish languages. This process is quite regular even in morphemes that are not plural.

There are also two morphophonemic processes that obscure the form of the reduplicated syllable. In Sapir's data there is an alternation of [m] and [n] with [b] and

[d]; this alternation does not appear in my data. However,
all Comox data show the alternation of [y] and [w] with [j]
and [g] respectively. Underlying [w]'s and [y]'s then cause
[ʌ] to become [o] and [ι]. There is a loss of the resonant
with compensatory lengthening of the vowel. These processes
then account for the apparent CV reduplication in

21. sa:?yaɬ   si:sa:?yaɬ   lake
22. he:gʸos   hó:he:gʸos   chief

All of these processes will be discussed in more detail in
the phonology section.   The only purpose here is to adum-
brate the phonological justification for saying that, con-
trary to previous treatments, the reduplicated plurals in
Comox are formed with a "CʌC" morpheme shape.

     One additional piece of evidence exists for proposing
this particular morpheme shape. There are no initial con-
sonant clusters in the language of the surviving speakers of
Island Comox.   Nor are there any among mainland speakers.
But in Sapir's data there are three words that have initial
consonant clusters.[8]

23. ƛ´pa:tiɬ   ƛ´ʌpʰƛ´ʌpa:tiɬ   basket bag
24. ƛ´pι:?ća:?   ćʌpʰƛ´ʌpι:ĉt)á:?   yellow-cedar
25. qʰtá:?abas   qʌtʰqʰta:?abas   wooden ball

In all of these cases the first two consonants are repeated
and a schwa is inserted between them in the reduplicated

--------------------   notes   --------------------
(8) It may also be the case that Sapir did not record the
    vowel since it would be a short unstressed vowel between
    voiceless consonants and consequently would probably be
    devoiced.

syllable. There is a rule in the phonology that simplifies initial consonant clusters by inserting a schwa after the initial consonant at a morpheme boundary. The above three singular forms would be exceptions to this rule. The important thing here is that when these three words are pluralized, the first two consonants are copied and a schwa is inserted between them in the plural morpheme.

iii. The Periphrastic Plural

The fifth and final method for forming the plural in Comox is paraphrastic. Comparing data from Mrs. Clifton with that of Sapir, we see that this form of the plural has increased. It was the preferred form of the plural on many forms for which Sapir gave a reduplicated plural. It is formed with the word for 'much', [qʌx̲].

1. qʌx̲ tʌ janxʷ   a lot of fish or fish (pl)

It is also possible to form a double plural with the suffix [-cʌlli] as in

2. qʌx̲cʌlli tʌ janxʷ   a great mass of fish

d. The Diminutive

The diminutive is formed through a regular morphological process of initial CV reduplication. The imperfect is also formed through initial CV reduplication. If both reduplicated forms were the same, their meanings would

have to be distinguished by the grammatical tag of the stem, i.e., whether noun, verb, etc. However, the forms generated by each process are different; therefore it is impossible to distinguish two different root types through initial CV reduplication. In any case, Mrs. Clifton was reluctant to diminutize verbal-type stems. When diminutive constructions were formed for her on commonly occurring predicates, her reaction was something like 'to do that a little, I suppose.'

Again, as with the reduplicated plurals, Sapir was able to elicit a large number of forms that I was not able to elicit. My own data differ considerably from that gathered by Sapir. The basic process is the same, but my data differ from his in the color of the vowel in the reduplicated syllable in a number of instances.

    t´ɛ:t´l^{W}ɩm young beaver (Sapir)

        versus

    t´et´ʌk^{W}omoɫ young beaver (Harris)

There are also differences in which vowels remain in the reduplicated syllable and in the presence or absence of long vowels. There are long vowels in Comox, but these are morphophonemic creations where a glide is lost, with compensatory lengthening of the immediately preceding vowel. However, I have not noted the long vowels that Sapir transcribed. There is a tendency for vowels to lengthen under high stress or pitch. A more complete discussion of these

differences will be presented in the phonology section.

Some examples of the diminutive from Sapir's data are:

1. x̲á:sʌba:y   x̲ʷá:x̲ʷsaba:y   soapberry bush

2. hɛ́:gʸos   héhegʸo:s   chief

3. ɬó:ʔbomʰ   ɬó:ɬoboʔmʰ   small clam

4. tá:q̓ʷah   tá:tʰq̓ʷa:ʔ   devil-fish

5. mítal:ɩ   mí:mɨtal:ɩ   beaver-tooth die

The diminutive is formed by reduplicating the first consonant and vowel of the stem, but in some cases that vowel is ablauted to a high front vowel. If the underlying stem either has no vowel immediately following the initial consonant or that vowel is a schwa, then a high front vowel appears in the reduplicated syllable. This is what happens in those three words with initial consonant clusters.

6. ƛ́pá:tiɬ   ƛ́é:ᵉƛ́pa:tɩ:ɬ   basket bag

7. ƛ́pí:ća:ʔᵃ   ƛ́í:ƛ́pɩ:ća:ʔᵃ
                                      yellow cedar bark blanket

8. qʰtá:ʔabas   qéqʰta:ʔabas   wooden ball

'Basket bag' however, is irregular since the [ɩ] that should appear in the reduplicated syllable should not be lowered to [e] in the phonetic context of that word.

A second process inserts a high front vowel where schwas appear in the surface form of the root. There are a few schwas in diminutivized words, but these are either created by reduction after the fronting rule has operated, or are underlying schwas. Some examples of these processes are:

(I). Forms that have an underlying schwa

9.	ta?ʌlιĉ	tιtʌlιĉ	circle
10.	tʌlek^y	tιtʌlek^y	hole
11.	sʌ?ʌn	sιsʌ?ɛnoɬ	cohoe
12.	t´ʌkom?	t´et´ʌk^{w}omoɬ	beaver

(II). Forms that have no vowel after the first consonant in the underlying form

13.	nʌx^{w}ιɬ	nιnx^{w}ιɬ	canoe
14.	q^{w}ʌnɛs	q^{w}ιq^{w}ʌnɛsoɬ	whale
15.	xʌpaÿ?	xɛxpaÿ?	red cedar
16.	xʌwŝιn	xιxgιŝιn	bone

'Bone' is given by Sapir as [xexιg^{y}ιŝι:n]. 'Bone' and
'cohoe' illustrate the fronting insertion rule (Rule 11).
Since the alternation between [w] and [g] occurs word ini-
tially and intervocalicly, both versions of 'bone' show that
a vowel has been inserted in the base form between the [w]
and [ŝ]. Some other forms from Sapir that demonstrate this
fronting insertion are:

| 17. | ɬʌq́^{w} | ɬí:ɬιq́^{w} | bow |
| 18. | xʌsʌm | xéxsι:m? | box |

The form for 'box' exhibits the third process as-
sociated with the diminutive. Nasals in the final syllable
are glottalized. The anticipation of this glottalization
accounts for the breaking of a final vowel by a glottal stop
(Rule 5).

19. λ´ʌms   λ´aλ´a?ʌmιs   house /λ´aλ´am̓ιs/

In words for the offspring of an animal, the diminutive
is combined with the suffix [-oł].   The process of
reduplication in the diminutive is also often combined with
the loss of the stem vowel. The stem vowel can be absent
for two reasons. The lack of an underlying vowel has al-
ready been illustrated. But there are cases where the stem
vowel has to be deleted. Some examples are:

20. kʸutʌn   kʸukʸtʌnoł   colt

21. yax̱ay?   yayx̱ay?   basket

22. t´ołał   t´ot´łał   bed

23. k̓ʷax̱ʷa?   k̓ʷak̓ʷx̱ʷa?   box

24. wax̱as   wawx̱asoł   frog

25. qaλ´ayyu   qaqλ´ayyu   gaff hook(borrowed)

26. jιŝιn   jιjŝιn   foot-leg

27. xʷελay?   xʷεxʷλay?   mountain sheep

Some additional examples of the diminutive are:

28. pʌĉ´u?   pipʰĉ´u?   solid work basket

29. t´ay?ŝ   t´it´ay?ŝ   blanket

30. xʷʌs   xʷixʷιs   black things

31. janxʷ   jʸajιnexʷ   fish

32. kʷʌpιtʰ   k̓ʷιk̓ʷpιtʰ   hill

e.   The Plural Diminutive

     There are two forms of the plural diminutive.

i. The Reduplicated Form

The plural diminutive in Comox is a doubly reduplicated form. In form it is a diminutized plural with the diminutive morpheme occurring in front of the plural morpheme.

1. small pack baskets   yι + y∧x̲ + yax̲ay?

                            dim   pl.   stem

It is also a diminutized plural in its formation. The spelling rule for both the diminutive morpheme and for the plural morpheme are pre-cyclic. But the plural rule must work before the diminutive rule (they may in fact be one rule that works from the innermost brackets out). Therefore, with three exceptions, one in Sapir's data (a borrowing from Kwakiutl)

2. kʸ(ae)ŝkʸ(ae)ŝ   kʸ(ae)kʸikʸa:ŝ   bluejay

and two in mine

3. tumιŝ   tutumta?∧mιŝ   man

4. ho?mho?m   hoh∧mho?∧moɬ   blue grouse

where the diminutive morpheme has been formed from the stem, the diminutive morpheme is formed from the preceding plural morpheme. Since the plural is always formed with a schwa, the diminutive morpheme is the doubly reduplicated cases always has a high front vowel in it.   Although unable to elicit as many forms as was Sapir, I have the following examples of double reduplication:

5. t´oɬaɬ   t´it´∧ɬt´oɬaɬ   bed

6. nʌxʷɪɫ   ninʌxʷnʌxʷɪɫ   canoe

7. qegʸas   qeqoqegʸasoɫ   deer

8. tʌlekʸ   tɪtʌltʌlekʸ   hole

9. jɪŝɪn   nɪjɪŝjɪŝɪn   foot-leg

10. mɪxaɫ   mimʌxmexaɫoɫ   bear

ii. Non-Reduplicated Form

Sapir gives a class of roots that do not doubly
reduplicate for plural diminutive. Instead of including one
of the usual plural morphemes, an [ɛ] replaces the vowel in
the diminutive morpheme for pluralization. There appears to
be no way to account for these phonologically. They will
have to be considered a special class of roots that behave
quite normally for single reduplication but do not doubly
reduplicate. He gives thirteen of these.

1. pé:ʔɪxa:y   pɛ́pe:ʔˡxa:y   alder

2. ƛ´ʌms   ƛ´ɛ:ᵋƛ´ʌms   house

3. mó?os   mɛ́:mo?os   head

4. ĉ´ɛ?a:do   ĉ´ɛ:ĉ´ɪn?a:mʰ   dog

5. xʷáxʷajo:?mʰ   xʷɛ:ᵋxʷʌjo:?mʰ   fly

6. qʷɪqʷá:ᵃt´ʌla:ᵃ?kʰ   qʷɛ:ᵋqʷá:ᵃt´ʌla:?kʰ butterfly

7. mʌ́qsɪn   mɛ́:mʌqsɪ:ˡn   nose

8. kʷá?am   kʷɛ́:kʷɪ?ɪ:m?   coiled basket

9. q́ʷát:ʌm   q́ʷɛ́:ᵋq́ʷat:ɪ:m?   river

10. tí:xʷsaɫ   tɛ́:ᵋtxʷsaɫ   tongue

11. q̓ʷʌʔɩx̲   q̓ʷɛːᵋq̓ʷajɩx̲   wood

12. sáːćʌm   sɛ́ːᵋsćɩʔmʰ   tyee salmon

13. sóːsɩːnʰ   sɛ́ːsossɩːnʰ   mouth

I have one example with the [ɛ] occurring in a plural morpheme in which the stem already has the meaning 'small'.

14. tihtoɬ   tɛltoɬ   small

This word does not exhibit the same process as the above, but the coding for the plural is the same. This process of vowel ablaut for plural diminutives also accounts for a class of exceptional plurals that Sapir gives. In their singular form they are diminutives and they take this form of the plural:

15. weʔwaːlos   wɛ́ːʔwaːlos   young man

16. éʔaːjamʔ   ɛ́ːʔaːjamʔ   young woman

17. k̓ʸéːⁱk̓ʸaːk̓ʸ   k̓ʸɛ́ːᵉk̓ʸaːk̓ʸ   crow

I did not elicit any members of this class.

f. Fully Reduplicated Stems

There is a class of stems that occur fully reduplicated. Some examples are:

1. ĉ´ʌmĉ´ʌmʔ   cold

2. ƛʌmƛʌm   wet

3. ṗeyṗeyʔ   thin

4. kʷʌskʷʌs   lungs

5. pʌkʷpʌkʷ   liver

6. $x^W \Lambda s x^W \Lambda s$ fat

7. $mu\hat{s}mu\hat{s}$ cow

8. $p\Lambda k p\Lambda k$ white

9. $ho:?mho:?m$ blue grouse

10. $k^y(ae)\hat{s}k^y(ae)\hat{s}$ bluejay

11. $q\acute{\varepsilon}n?qen?^h$ duck

12 $g^y\acute{i}:g^yi:$ panther

13. $q^wi:q^wih$ seagull

If the reduplication is without morphological sig-
nificance, these stems can be entered in the lexicon in
their unreduplicated form and then a phonolgical rule can
reduplicate them. This reduplication rule will be a minor
rule working on those stems specifically marked for it.
However, at least some of these stems have been observed in
an unreduplicated form.

14. $\hat{s}a?\Lambda m\iota t^h$ $t\Lambda$ $m\Lambda jas$ dried meat

15. $\hat{s}\Lambda m\hat{s}\Lambda m$ dry

But the priviledge of occurrence of these two forms of the
stem is unknown. Therefore, the reduplication may represent
a morphological process the significance of which is not
clear.

g. The Possessive Pronouns

Three of the possessive pronouns are particles oc-

curring before the noun possessed, and three are suffixed to the noun possessed. The entire paradigm is:

?ʌc	my	?ʌms	our
?ʌn / ?ʌs	you(sg)	-ʌp	your(pl)
-s	his,her,its	-s(ew?)	their

There are no sex distinctions in the possessive pronouns. There are two alternate forms for the second person singular with no distinction between them that I could detect. The particle [ew?] can be optionally added to the third person pronoun to make it plural. This is the same particle that can be added to the subject and object pronouns. The singular and plural distinction is not a necessary distinction in the third person; this particle can be used to make the distinction explicit. On the mainland, where this particle is not used (Davis 1970) the verb root is pluralized through reduplication, a process which is not used in Comox. I, also, have some forms where the second person plural is used to indicate the third person plural.

1. x^Waĉʌp yałatʌp   (with [ʌp])

          you (pl) didn't call them.

2. x^Waĉʌp yałatew?   (with [ew])

There are also some paraphrastic constructions using [óq^W] 'all' that can be employed to clarify the plurality of the third person.

3. ti oq́ʷ tʌq́ʷtas tʌ jɪnɪs:

   ?? all pull-it-they the teeth-their

   He pulled all their teeth.

When the possessed noun occurs with a determiner, the possessive particles that occur before the noun are attached to the determiner.

4. tʌc kʸutʌn   my horse

5. tʌn kʸutʌn   your horse

   tʌs kʸutʌn   your horse

6. tʌ kʸʌtʌns   his horse

7. tʌms kʸutʌn   our horse

8. tʌ kʸutʌnʌpʰ   your horse

9. tʌ kʸutʌnsew?   their horse

There is no distinction between types of possession noted in some other American Indian languages. Body parts, kinterms and alienable items all use the same possessive pronouns.

10. tʌc jɪnɪs   my teeth

11. tʌc ƛ´ʌms   my house

12. tʌc no?ɬ   My older brother

13. tʌc aystʌn   my siblings

14. tʌc nʌxʷɪɬ   my canoe

The one exception to the above is 'children', where there is a separate word used for one's own children. It means something like 'offspring in the family of the one referred to by the possessive pronoun.'

15. ĉi:ĉuy?   children (unpossessed)

16. tʌc tɛgʸexʷaɬ   my children

17. tʌn tɛgʸexʷaɬ   your children

   The possessive pronouns are used as pronominal sub-
jects, rather than the usual subject pronouns, with roots of
wanting or desire in embedded clauses, or with sentences ex-
pressing intention.

18. ʔʌc x̲aƛ´

    (my desire (is) (it))

    I want it.

19. ʔʌc x̲aƛ´ kʷʰ ĉ´aʔʌnu?

    (my desire (is) a dog)

    I want a dog

20. x̲aƛ´s

    (desire-his)

    He wants it

21. ʔʌc x̲aƛ´ kʊn amotʰ

    (my desire your staying home)

    I want you (sg) to stay home.

22. xuktʰ ʌkʷ ʔayyʌxʷs

    (nothing the catch-his)

    He didn't catch anything.

Example 18 expressed with subject-object pronominal suffixes
is:

23. x̲aƛ´ʌxʷʌs

(desire-it-he)

He wants it

In constructions that correspond to It's mine in English, a pro-form [na?], glossed as 'something', occurs.

24. ?ʌn na? ot^h

(your something).

It's yours

25 ?ʌc na?ʌ tʌ ƛ´a?ʌnu?

(my thing the dog)

The dog is mine

26. ?ʌc na?oɬ tʌ ƛ´a?ʌnu?

(my thing-past the dog)

The dog was mine

27. ?ʌc na?

(my thing)

mine

28. na?ʌs tʌ tumιŝ tʌ ƛ´a?ʌnu?

(thing-his the man the dog)

The dog belongs to the man.

Possession between nouns is indicated by using the possessive pronouns with possessed noun and the possessing noun following directly.

29. tih tʌ ƛ´a?ʌnas tʌ tumιŝ

big the dog-his the man

That man's dog is big.

30. xanatʌs ŝɨ ƛ´a?ʌnus x^wix^waylak ʌŝʌ mʌjas

    give-it-he the dog-his x^wix^waylak prep-the meat

    He gave the meat to Xwixwaylak's dog.

31. ƛ´e?ƛ´e? tʌ k^yutʌns ji:ƛ´s

    fast the horse-his imp-run-his

    The horse runs fast.

The last sentence more literally translated would be 'his
horse's running (is) fast.' Since NP's are ordered after
an initial predication, and object pronominal suffixes may
be either dative or direct objects, the presence of posses-
sion can lead to ambiguous sentences:

32. nʌpaƛ´ɩssassʌm tom tʌ ĉ´a?ʌnus x^wix^waylak

    send-he-fut tom the dog-his x^wix^waylak

    Tom will send Xwixwaylak's dog ot him.

    Tom will send his dog to Xwixwaylak.

h. Lexical Suffixes

    As in other Salish languages there are a group of suf-
fixes that have referential meaning. They refer to such
things as body parts, shapes and concrete objects, and are
part of the semantic derivation of a stem. They occur on
the stem before the inflectional suffixes. The referent of
the lexical suffix does not always have the same syntactic
relationship to the stem; this relationship remains to be
explored fully.

What follows is a list of the lexical suffixes that have been identified with some examples. The form to the right of the gloss of a suffix is the independent form with the same gloss.

i. Body Parts

(1) -ŝɪn   foot, leg   jɪŝɪn

   1. q́ʷasŝɪnĉ   I burnt my foot

   2. ƛ´eŝɪn   fast

   3. pa?aŝɪn   crane (one-legged)

(2) -o?ʌja   hand   ĉayʌŝ

   1. t´acemo:dja[9]   hand bleeds (boas)

   2. ƛ´ʌ?ó?ʌjʌ   fast hand

   3. qo?po?ʌjʌ   arm hair

(3) -ɬaɬ   neck   sáyɬaɬ

   1. q́ʷasɬaɬĉ   I burnt my neck.

   2. totxʷɬaɬ   necklace

(4) -naĉ   buttocks, bottom

   1. qʷʌmnaĉ   scabby bottom

   2. t´a?ʌsɛmnʌĉ   red bottom

(5) -sɪn   outside of the mouth sósɪn

   1. q́ʷasosɪnĉ   I burnt my mouth

   2. saxosɪn?ʌm   to shave

(6) -qɪn   inside of the mouth

-------------------- notes --------------------
(9) Boas' forms are listed in his transcription system.

1. qʷasqɪnĉ   I burnt my mouth.

(7) -os   face   mó?os

1. gʸa?ĉos   bald in the front of the head

2. kʷá?ʌlos   to be facing toward

3. ƛasos   hit with a fist in the face

This suffix more generally indicates round objects, in-
cluding the face. It is also used to indicate dollars.

4. paw?os   one dollar

5. saw?os   two dollars

6. ĉalasos   three dollars

7. mosos   four dollars

(8) -ɪĉɪn   back   ?ayĉʌn

1. x̲ʌwsɪĉɪn   backbone of a man

Boas in his notes lists [eĉ] as this suffix, but he gives no
examples.

(9) -aos   eye   qa?ʌwʌm

1. x̲opawosɪcʌm   I'm going to poke you in the eye.

2. peqaos   cataracts (white-eye)

3. ĉ´ɪĉ´x̲aos   eye disease (cooked-eye)

(10)   -eqʷan   top of the head

1. ĉa?ʌjiᐱmeqʷanĉ   I have an itchy head.

2. gʸa?ĉeqʷan   bald on the top of the head

(11)   -ɛqʷ   nose   mʌqsɪn

1. ĉa?ʌjeᐱmɛqʷ   to have an itchy nose

2. ƛʌsseᐱqʷsɪcʌm   I'm going to hit you on the nose.

3. tihhɛqʷ   big nose

(12)   -ews   body   gi:?ews

1. ćʌxʷewstʰ gʸʌ   Wash his body!

2. ja?qewstʰ gʸʌ   Rub his body!

(13)   ?a?a?ʌna ear   qowa?a?ʌna?

1. ɫa?q́ʷa?a?ʌnatʌn   earring

(14)   -ɛnans   breast, chest -ayenas (Boas)

1. xaćenas   breast bone (boas)

(15)   -e?qɛn   hair   máqɛn

1. xʷʌse?qɛn   black hair

ii. Objects

(16)   -ayi   container

1. lamayi   bottle(liquor(rum)-container)

2. jamayi   jar (jam-container)

This suffix is used more generally to indicate long or
cylindrical objects, since it can also indicate people:

3. pípa:?a   one person

4. sísa:?a   two people

5. ĉáɫa:yi   three people

6. mósa:yi   four people

7. séyaca:yi   five people

8. t´áxama:yi   six people

9. ćo:ĉisa:yi   seven people

10. ta?á:ĉia:yi   eight people

11. tíg^Yix^wa:yi   nine people

12. ó:pa:na:yi   ten people

(17)   -ʌgɩⱡ   canoe   nʌx^wíⱡ

1.   qʌx^wʌqɩⱡ   left side of a canoe

2.   ʔaʔʌjumʌgɩⱡ   right side of a canoe

Sapir gives the following examples of this suffix attached to the cardinal numerals.

3.   naĉ´á:g^Yɩⱡ   first canoe

4.   sá:bag^Yɩⱡ   second canoe

5.   ĉá:da:g^Yɩⱡ   third canoe

6.   mó:sa:uⱡ   fourth canoe

7.   séyaca:g^Yɩⱡ   fifth canoe

8.   t´áxama:g^Yɩⱡ   sixth canoe

(18)   -aw?tx^w   house, building

1.   ʔaxssaw?tx^w   rooming house

2.   janx^waw?tx^w   fish market

3.   ĉahamaw?tx^w   church

4.   sku?ʌlaw?tx^w   school house

5.   la?ʌmaw?tx^w   liquor store

6.   ĉɩⱡɩ^ʌmaw?tx^w   dance hall

Sapri gives the following examples of this suffix attached to the cardinal numerals:

7.   naĉax^wáʊtx^w   first house

8.   sá:?abaʊtx^w   second house

9.   ĉá:daʊtx^w   third house

10. mó:sautxᵂ   fourth house

11. séyacautxᵂ   fifth house

(19)   -iyʌkᵂ   field

    1.   ta?ʌgᵞakᵂiyʌkᵂ   a field of ferns

    2.   ƛʌkamιyʌkᵂ   a grassy field

    3.   qa?ʌyʌkᵂiyʌkᵂ   a swamp

    4.   sa?ʌyiyʌkᵂ   meadow, a clearing in the woods

    5.   q́aƛʌmeyʌkᵂ   wooded area

(20)   -?eć́ʌ   clothes   ?eć́am

    1.   ć́ʌć́ʌx̱ᵂa?eć́ʌ   wash clothes

(21)   -am?ʌm   dishes, containers

    1.   ć́ʌć́ʌx̱ᵂam?ʌm   wash dishes

(22)   -ay?   plant

    1.   ṕe?ix̱ay?   alder

    2.   t´ʌxᵂ?ʌmay?   huckleberry bush

    3.   t´e?ιmay?   wild cherry tree

    4.   x̱ᵂasʌm?ay?   soapberry bush

    5.   t´e?ʌneqᵂay?   salmonberry bush

    6.   tixᵂay?   yellow cedar

    7.   t´a?mxᵂay?   gooseberry bush

    8.   he?ιgᵞιnay?   strawberry vine

(23)   -oɫ   offspring

    1.   t´εt´ʌkomoɫ   beaver kit

    2.   mεmx̱aɫoɫ   bear cub

    3.   mʌmɨn?oɫ   young of an animal

4. $q^wéq^huse:mo\frac{1}{4}$ wooly grouse (Sapir)

(24)   -qop

fire(this probably should be [-$k^w\wedge p$], but I

have used Boas' transcriptions)

1.   qon∧lqop   ashes (boas)

2.   ti:haɬqo:p   large fire (boas)

3. $p^há:yaqup$ to blow up fire (Boas)

4.   he:g^yaqup   to pile fuel on fire (Boas)

(25)   -mex^w floor

1.   ć∧xomex^w the floor is scrubbed

This being the only example of this suffix in my data, its
identification must be considered tentative.

The next suffix appears to mean 'person', since it is
combined with 'short' and 'long' to mean 'short person' and
'long person'. but there is also suffix #16 that means
'person'. Perhaps this suffix means 'person' proper, rahter
than 'long object.'

(26)   -a?w∧   person

1.   ƛ´aqta?w∧   tall person

2.   ĉ´iĉ´aƛ´a?w∧   short person

All of the examples of the next suffix have been listed
below. Only a very tentative gloss has been assigned to it.
It seems to mean something like 'state'.

(27)   -ig^{y}an   state

1.   p∧p∧?e?ig^{y}an   pregnant

2. qʷayigʸan   to think

3. ʔahayigʸan   terrifically strong

4. xʷaʔλegʸan   half full (?)

5. ĉ´iĉ´iλ´egʸan   short person

6. qʌx̲egʸan   lie (verbal)

(28)   -iyιŝ   toward the position or direction of the root

1. jux̲osiyιŝc   I fell flat on my stomach.

2. ŝanaĉiyιŝc   I fell head down.

3. ʔakʷiyiŝcιm   I will go down the river.

4. kʷanaĉiyiŝc   I accidentally sit on the seat.

(29)   -uawoł   to go by means of

1. nexʷιyawołcʌm   I'm going to go by canoe.

(30)   -ta:ł   fathom

1. naĉ´a:υx̲ʷta:ł   first fathom

2. sʌ́mta:ł   second fathom

3. ĉa:dáxʷta:ł   third fathom

4. mo:sáłta:ł   fourth fathom

5. séyacałta:ł   fifth fathom

All of the examples with 'fathom' are taken from Sapir.

(31)   -jʌs   day

1. naĉ´axʷjʌs   one day

2. samjʌs   two days

3. ĉanaxʷjʌs   three days

The following pair have the same suffix and the ap-
parent gloss is 'door'.   But I have only these two forms
containing it.

(32) -ŝawom door   ʔemɩm

1. tʌqŝawom gᵞʌ   Close the door!

2. gᵞʌq́ŝawom gᵞʌ   Open the door!

There is a gray area between the derivational suffixes
and the lexical suffixes; the next two suffixes lie in that
gray area. They are both instrumentals. One of them ap-
pears to be native.   The first one, however, is borrowed
from Kwakiutl; it appears only on borrowings and is an in-
strumental suffix in Kwakiutl also.

(33)   -ayya   'instrumental'

1. ʔaƛayyu   gaff hook

2. xɩltayyu   saw

3. haniƛayyu   kettle

(34)   ʔamɩn   'instrumental'

1. k̓ɩt´aʔamɩn   gaff hook

2. sʌpʔʌmɩn   stick

3. sʌĉamɩn   adze

4. ʔɛx̠ʔamɩn   draw knife

5. ĉ´ít´qamɩn   knife

6. ɬaʔtamɩn   herring rake

The identification of the exact shape of this last suffix is
still somewhat problematic.

The following two seem to be a part of this series, but
the change in vowel color in the suffix is unaccounted for.

7. k̓oyokomɩn   fisherman

8. ɫókomɪn   bailer

The following pairs seem to indicate that there may be
a variation of this instrumental suffix that becomes a
resultative.

9. ʔɛx̲ʔamɪn   draw knife   ʔɛx̲amɪn   shaving

10. sʌĉa:mɪn   adze   sʌĉʌmɪn   wood chips

But the shape of 10, [ʌmɪn] is is no   different   than   what
would have to underlie 7 and 8. This problem remains to be
solved.

5. Some Embedded Structures

Three structures associated with NP's are discussed in
this section. All of these result from embedded structures.

a. Modification

Modification contrary to what Greenberg (1966:79,
Universal 5) claims for VSO languages in general, Comox noun
modifiers occur before the noun modified. In fact, I have
no examples where a modifier follows the nouns modified.
There are only two variations:

(1) The modifier occurs before the determiner in a noun
phrase.

1. pʌk̂pʌk tʌ ĉ´aʔʌnus

    his white dog

(2) The modifier occurs between the determiner and the noun.

2. tʌ pʌkpʌk ĉ´a?ʌnus

    his white dog

The first of these formations in fact is the predicating form of a simple sentence, with 'white' being the predicate.

3. pʌkpʌk tʌ ƛ´ʌms

    white   the house

    the house is white.

4. ?ay?ĉ ?(ae)t^h

    good-I cont

    I'm fine.

5. pʌkpʌkoɬ tʌ ƛ´ʌms

    white-past the house

    The house was white.

6. tih tʌ ĉ´a?ʌnus tʌ tumιŝ

    big the dog-poss the man

    That man's dog is big.

The scope of the data are too limited to tell whether the two different patterns of modification in fact represent two different derivations, but the form with the modifier first appears to be an embedded S, and the second form a derived NP. It is impossible to verify these formulations since 1 and 2 were elicited as separate independent con-structions.

In order to get the proper placement of modifiers, the second part of rule seven will generate a relative clause.

Case + (Deictic) + NP + S

Then a transformation will delete the identical NP and Case following the

Case + (Deictic) + NP + Pred + Case + NP

predicate of the relative clause, leaving the modifier following the NP.

Case + (Deictic) + NP + Pred.

Since, Comox does not obey a universal tendency for modifier placement in VSO languages, it will have to have an additional rule to move the modifier in front of th NP.

Case + (Deictic) + Pred + NP

An alternative formulation might give Comox a regressive deletion rule. Then the first example of an identical NP would be deleted. The choice is between an odd rule or an extra rule.

An example where more of the embedded sentence remains after identical NP deletion is:

7. mʌʔaxʷč̂ ŝʌ pʌpɛʔ namʔʌmsʌs to̲mas

    receive-it-I the letter write-detran-me-he tom

    I got a letter that Thomas wrote me.

    I got a letter from Thomas.

which would under go the processes outlined above. It would

be derived from something like

(receive (I)(the letter (write (Thomas)(the letter))))

    An example where a quantifier is used as a predicate is

9. qʌx̲ ŝɩ kʷʌnɩtan ƛaƛpxʷ

    lots the see-stative-it-I pocketknife

    I saw a lot of pocketknives.

The subject suffix on the embedded 'see' is from the em-

bedded paradigm. The [ŝɩ] used as a subordinating conjunc-

tion is the only element in the sentence that expresses past

time. It is the determiner that is used with objects that

no longer exist. The 'seeing' has ceased, although the

knives may still exist. It is unexplained why there is not

determiner preceding 'pocketknives'. The sentence is to be

contrasted with

10. kʷʌnɩthč̂ ŝʌ qʌx̲ ƛaƛapxʷ

    see-it-I the lots pocketknives

    I saw a lot of pocketknives.

Sentence 9 has 'lots' in focus, while 10 does not.

    It appears that if a noun is morphologically marked as

a plural, then its modifier agrees in number with the noun.

11. tihtih tʌ ƛ´ʌmƛ´ʌms

     big (pl) the houses

     big houses

This is also the case if the noun is only paraphrastically

plural.

12. ʌc x̲aƛ´ kʷʰ qʌx̲ tɛltol taʔʌgʸaqʷ

     my want the lots small (pl) fern

     I want lots of small ferns.

b. Quantifiers

     Quantifiers occur in the same positions as other

modifiers.

1. saʔa ĉ´aʔʌnu   Some two dogs

But as example 12 above shows when a quantifier and a

modifier co-occur, the quantifier comes first.

c. Nominalized Predicates

     There is a class of stems that are nominalized when

serving as predicates.

1. ʔʌc naʔʌ tʌ tih ĉ´aʔʌnu

     my thing the big dog

     That big dog is mine.

This is also possible for embedded sentences occurring under

argument nodes.

2. ĉ^yansʌm kʊn so

    what-fut the-your go

    When are you going?

They can be distinguished because they take possessive af-
fixes as their subjects. This class of roots includes:

    x̱aƛ´   want, wish

    q^wayig^yan think

    na?   belong

They never seem to appear as active predicates and would
contrast with sentences like

3. tumɩŝĉ   I'm a man.

    man-I

where 'man' serves as an active predicate.

B. Transformations

The order of application of certain of the copying and placement transformations is crucial if the order of the suffixes on the predicate is to be correct. The ordering of the transformations is the only thing that will insure the proper suffix order. With such an order established, transformations can be effected without reference to what has been placed on the predicate. The operations of the agreement transformations is simplified since agreement suffixes are placed ahead of the tense node.

With the amount of data available, it is not clear how to generate the transitive-detransitive distinction on the root. In this sketch I have taken the simple course of generating these suffixes in the phrase structure rules. However, this leaves as the purest coincidence the fact that the Benefactive is added only after the intransitive suffix. Therefore, as a purely ad hoc solution I have invented the Benefactive Preparatory Transformation, which replaces the elements generated in the phrase structure rules with the detransitive suffix if it is appropriate. It is only appropriate if the Benefactive is a pronominal referent and the direct object is a third person referent.

1. Object Copying

The first copying rule will add a copy of the 'object' to the predicate.   Transitivity in predicates in Comox is not overtly marked. In his treatment of Mainland Comox, Davis (1970) claimed that the [t] was the transitive suffix If this is the case, then there will have to be some very specific phonological rules that operate on the object suffixes and the preceding [t]. In his analysis there would be no third person transitive object suffix. When the first and seocnd person object pronouns, [s] and [sɩ] respectively, are present, there is no [t] preceding them. A phonological rule that operates only on these two forms would be necessary to explain the absence of the [t]. In the present analysis these rules would be unnecessary.

If we postulate that the underlying order of cases is: Agent-Dative-Benefactive-Instrumental-Object-Locative-Time There need be only two transformations adding agreement suffixes to the predicate (Harris 1976). The first Object Copying transformation will copy the person and number specifications of the second argument after the predicate as the 'object' suffix on the predicate.   The second rule copies the person and number specifications of the first argument as the 'subject' suffix on the predicate. The terms object and subject will have the purely syntactic definition of the first and second pronominal suffixes on transitive stems.   This analysis must also include the analysis of the

causative paradigm as the encoding of an embedded agent and the accidental object paradigm as having an instrumental subject (an unintentional cause).

This analysis reduces the number of agreement transformations from five (one for each paradigm) to only two.

2. Passive

The passive is formed in Comox by putting [ʌ] before the agent when it is an independent argument, and by adding a [-ʌm] to the predicate after the object suffixes.

1. t´og^{y}otʌm ʌtʌ t̲om

   Tom knows him.

2. x̲anasɪmsʌm ʌtʌ x^{w}ix^{w}aylak ʔʌŝi ĉ´aʔʌnu

   Xwixwaylak will give you a dog.

If there is no overt agent, the agent is translated as someone.

3. x̲anatʌmsʌm x^{w}ix^{w}aylak ʌtʌ ĉ´aʔʌnu

   Someone's giving Xwixwaylak that dog.

Each of the object paradigms has its own equivalent of the passive. However, I have examples with the other two paradigms only in the third person.

4. tʌx^{w}ʌnom ʌtʌ t̲omas ŝʌ x^{w}ax^{w}ajam?

   know-pass prep-the tom the story

   The story is known by Thomas.

This contrasts with

5. tʌxʷʌnexʷas tomɛs ŝʌ xʷaxʷajam?

   impt.-it-he Tom the story

   Thomas knows the story.

6. ƛ´aŝʌnom tom

   chase-pass tom

   Tom's been chased away.

There are two examples of this type of form in the causative objective paradigm and the glosses, although consistent with the passive interpretation, are not clear. This remains an area for further clarification, especially since these forms can be further derived.

7. ƛ´aqŝtom   They let him out.

'They' in this gloss has an indefinite meaning, the same as 'someone'.

There is one example of an embedded passive. It occurs as a result of focus.

8. hɪl ?ɛtʰ tʌ mʌmkxʷtʌm ʌtʌ janxʷ

   he ?? the imp-eat-it pass prep-the fish

   He's the one who's been eaten by the fish.

In my data I do not have passives with first or second person agents. I do not know whether these can occur or not. There are no subject suffixes added to the predicate if the passive has applied. Therefore, the passive and the subject copying transformation can be disjunctively ordered. The passive must be distinguished form the active detransitivized as in

9. x̱anat?ʌm xʷixʷaylak ʌtʌ ƛ´a?ʌnu

   give-it-detrans xʷixʷaylak prep-the dog

   Xwixwaylak's giving away that dog.

versus

10. x̱anatʌmsʌm xʷixʷaylak ʌtʌ ĉ´a?ʌnu

    give-it-detrans-fut xʷixʷaylak prep-the dog

    Someone's giving Xwixwaylak that dog.

In example 9 the object is marked with [ʌ]. In example 10, since there is no overt agent, only the object is preceded by [ʌ], for this is a three argument case in which a pro-form is the agent.

3. Yes/No Questions

   Yes-no questions are formed by adding [-a] to the predicate. It occurs as follows:

(1) After a root

   1. koyokomιnnaĉxʷ

      Are you a fisherman?

(2) After a detransitivized root

   2 qaɬ?ɛmmaĉʌp ?otʰ

      Are you(pl) working?

(3) After a transitive object

   3. sʌspʌtaĉxʷ

      Are you hitting it with a stick?

4. ĉiq́ata?

    Is he yelling?

(4) After the past tense suffix

5. xanasołaĉx^w ʌk^w ĉ´a?ʌnu

    Did you give me a dog?

There are instances where a determiner can occur in front of
the predicate. These will be discussed more fully later;
but when this is the case the question suffix also comes
before the subject clitic and both are before the predicate.

6. k^waĉx^wi xanat^h ʌk^w qaws

    Did you give him some spuds?

    These facts of placement can be accounted for by
ordering the yes-no question transformation after the pas-
sive and before subject copying. To get the order of ele-
ments correct this question suffix will have to be placed
before the tense of the predicate, then the past tense suf-
fix will be inserted before the yes-no question later.

4. Subject Agreement Transformation

    As indicated earlier, the subject agreement transforma-
tion copies the person and number specifications of the
first argument after the predicate and places these
specifications in the predicate complex. This second
person-number element in the predicate is call the subject
suffix and can correspond to several underlying cases.
Therefore, the agent and the subject are not always the same

thing. The suffix varies according to whether the predicate is transitive, detransitive or embedded. The transitive and detransitive vary only in the third person. The embedded forms appear to be shortened forms of the matrix forms.

Person	Singular				Plural			
	Trans	Intrans	Embed	Poss	Trans	Intrans	Embed	Poss
1.	c ˆan	c ˆan	n	c	ĉt	ĉt	Vt	Λms
2.	ĉx^W	ĉx^W	x^W	n,s	ĉΛp	ĉΛp	ʊp	Λp
3.	as	Ø	s	s	s(ew?)	Ø	Λs	s(ew?)

The subject suffix placement has been illustrated previously, but briefly reviewing it we have:

(1) After a root:

    1. koyokomınĉ   I'm a fisherman.

(2) After a detransitive:

    2. wo?wowomĉ   I'm signing.

(3) And after a transitive:

    3. sasapałĉan   I'm bathing him.

They do not appear with passives, but I have data only for third person passives. If they cannot appear in all persons, the subject agreement transformation would be blocked if the passive has applied. This means that the passive must be ordered before the subject agreement transformation.

5. Past Tense Placement

The past tense placement follows the subject agreement transformation. The past tense suffix, as indicated earlier, is [ʔoɫ] and it occurs after a stem.

1. pʌkpʌkoɫ ti ƛ´ʌms

   The house was white.

2. nanʔq̓ʔoɫ ʔ(ae)t^h

   The house was white.

After a root with an detransitivizing suffix:

3. maʔamkʋʔʌmoɫĉ

   I was picking berries.

After the passive suffix:

4. mʌkx^w tanapɩ ʔʌmoɫ ʌtʌ q^w ʌnɛs

   The whale ate you.

The data do not contain examples of the past tense suffix co-occurring with all of the different objective paradigms. It does occur after the non- causative direct object in:

5. x̲ʌypʌnomoɫoɫĉʌp

   You (pl) startled us.

It occurs after the dative:

6. x̲anaseʔoɫĉ ʔɨŝɨms ĉ´aʔʌnu

   I gave you our dog.

There are no examples of [-ʔoɫ] with the S-Dative or the Benefactive. The only examples with the Direct Object are with a third person singular subject.

7. ƛʌsostassoɬ ʔɛtʰ

He punched him.

In this case alone the past tense suffix comes after the subject suffix. Since presumably the future tense particle and the past tense suffix cannot co-occur, both can be generated from the same tense node. But they do not always appear at the same place in the predicate complex. It is, therefore, relevant to look at the occurrence of the future tense particle to decide which tense marker to move in order to produce the most efficient grammar.

6. Future Tense

The form of the future tense particle is [-sʌm] and it always occurs after the subject suffixes, although there are two morphophonemic operations that obscure this. Since the yes-no question suffix also occurs before the subject clitic, a yes-no question in the future will have an ordering:

    root-(obj-suff)-yes/no-subj-future

8. qaɬeʔʌmmaĉxʷxʌm ʔotʰ

work-ques-you (sg)-fut inceptive

Are you (sg) going to work?

Some examples with the future tense particle are:

(1)   After a simple root:

9. pʌkpʌksʌm ʔɛtʰ tʌ ƛʼʌms

    white future?? the house

    The house is going to be white.

(2)   After an detransitivized root:

10. xɩltʌʔʌmcʌm

    I'm going to saw.

This example involves one of the previously mentioned mor-
phophonemic operations

$$ ĉ + sʌm → cʌm $$

Example 10 can be contrasted with 11:

11. xixɩltʌʔʌmĉ

    I'm sawing.

without the future tense particle.   The other operation is

$$ ĉt + sʌm → ĉtʌm $$

as in

12. soĉtʌm ʌkʷ Courtenay

    We are going to Courtenay.

(3)   With a passive

13. x̲anasɩmsʌm ʌtʌ xʷixʷaylak ʔʌŝi ĉʼaʔʌnu

    give-you-pass-fut prep-the xʷixʷaylak prep-the dog

    Xwixwaylak is going to give you a dog.

(4) With a transitive

14. yɛmsιcΛm

   kick-you-I-fut

   I'm going to kick you.

(5) After a dative

15. x̲anasιssΛm ʔΛŝΛ qaws

   give-you-he-fut prep-the potatoes

   He will give you some potatoes.

(6) After a benefactive:

16. ƛ´oɫʔΛmsιcΛm ʔ(ae)t^h

   grow-you(bene)-I fut cont

   I'll grow it for you.

Since the past tense suffix also occurs after the subject suffixes in transitive forms, it is most efficient to move by transformation those cases of the past tense suffix that occur before the subject and yes-no question suffix. The Past Tense Placement Transformation will then do this.

It may be that the past tense suffix only occurs after the third person transitive subject. If this turns out to be the case, then this anomalous ordering might reflect the recent formation of the third person subject pronoun. Hoard (1971) has suggested that the third person subject pronoun may have been formed from the third person possessive pronoun. It would probably have developed from nominalized predicates that are possessed. However, the development is not straight forward, since in Comox the possessive suffix,

although of the same phonetic shape, [s], as the transitive subject, occurs after the past tense suffix in such situations, and not the other way around, which would be necessary to explain the present anomalous ordering.

To recapitulate, then the tense marker will be generated in the phrase structure rules following the root, and if the root is detransitive, dative, s-dative, non-causative transitive, or perhaps benefactive, the past tense will be shifted to a position before either the subject clitic or the yes-no question suffix. A schematization of the occurrence of the tense markers is:

```
root +      object +  subject +  past

                                 future


root +      dative

            benefactive (?)

            S-dative (?) +       past + subject

            non-causative (?)


root +      dative

            benefactive (?) +    subject + future

            S-dative (?)


root +      intrans + past +     subject


root +      intrans + subject +  future
```

7. Miscellaneous Structures

In this last section I will discuss several of the basic structures of Comox. The processes underlying these formations are not completely understood. They are presented to fill out the grammar of Comox.

a. Imperative

The imperative exists in Comox only in the second person. There is no morphological distinction between the singular and plural. There are no subject pronouns on the predicate. It is formed by adding [g$^y\wedge$] as a particle after the predicate. That it is a particle and not a suffix, is shown by two facts (1) [g^y] always appears with [g] even when following another consonant.

1. wo?wowom g$^y\wedge$ Sing!

Therefore, we must analyse a boundary as being present before the particle. (2) Voiceless stops word finally in Comox are aspirated. This happens between the predicate and the [g$^y\wedge$].

2. s$\wedge$qt^h g$^y\wedge$ Tie it up!

The object suffixes on the predicate are the same as in the non-imperative cases.

3. ƛakas g$^y\wedge$ Whisper to me!

b. Wh-Questions

Wh-questions have wh-words occurring at the front of the sentence. The following are the wh-words that have been isolated in Comox.

A. g^{y}at   who,which,what

  1. g^{y}at^h ᴋ^{wh} qaⱡat^h tʌ janx^w

      Who is working on the fish?

  2. g^{y}atg^{y}at^h

      Who is he?

  3. g^{y}at^h kʊn nan

      What's your name?

This parallels

  4. g^{y}at^h kʊms janx^w tʌ qaⱡatʌs t<u>o</u>m

      who our fish the work-it-he tom

      Whose fish is Tom working on?

Literally this would be 'Who/which of our fish is Tom working on?'

B. ĉ^{y}a   Which, what

  5. hek^{wh} ĉ^{y}a ʔʌn <u>x</u>aⱹ´ tʌ k^{y}uten

      Which horse do you want?

  6. ĉ^{y}a k^{w}ʌn ne?oⱡ qaⱡʌ?ɛm

      Where have you been working?

  7. hek^{wh} ĉ^{y}a?ʌn <u>x</u>aⱹ´ tʌ janx^w

      Which fish do you (sg) want?

This same question particle can be used to convey uncertainty, for it appears in a few examples used with a

subjunctive-like meaning.

8. ĉ^ya mʌkx^wtʌm ʌtʌ t<u>o</u>m

   Tom might have eaten it.

This is a passive. But it can also be used in an active sentence.

9. ĉ^ya ĉ^yuwonɪssʌs t<u>o</u>m

   Tom might have stolen it from me.

When questioning an activity one uses:

C. tam   doing?

  10. tatam t<u>o</u>m

   What is Tom doing?

  11. tam tʌ qaɬatʌs t<u>o</u>m

   What is Tom working on?

Thoughts are conceived of as an activity, as in:

  12. tam kʊn q^wayig^yan

   what are you thinking about?

  13. tatʌmĉx^w

   What are you doing?

Other question words are:

D. ḱex^w   how many

  14. ḱex^w kʊn <u>x</u>aƛ´

   How many do you want?

E. ĉ^yannʌm   how

  15. ĉ^yannʌmĉx^wsʌm kʊn so

   How are you going to go?

F. ĉ^Yamas   why

G. ĉ^Yansʌm   when

   16. ĉ^Yansʌm kʊn so

     When are you going?

H. ĉ^Yama?   how

I. ĉ^Yamŝɩn   where

   17. ĉ^Yamŝɩnĉx^Wsʌm

     Where are you going?

   18. ĉ^Yamŝe?ʌnoɬĉx^W

     Where have you been?

<u>Where</u> can also be formed with [ĉ^Ya] and the verbs to <u>stay</u>,
<u>live</u>, or <u>be</u>.

   19. ĉ^Ya kxʊ ne?oɬ

     Where have you been?

c. Negative

    There are two methods for forming negatives in Comox.
They can be formed with a predicate that takes a verbal
complement, [x^Wa], or they can be formed with [x̲ʊkt^h]
'nothing.'

   1. x^Wa?cʌm yaɬasɩn

     I'll not call you (sg).

[yaɬasɩn] is embedded, and has the suffix for the first per-
son singular used only on embedded transitive predicates.
This is the principal reason for interpreting [x^Wa] as a
predicate.

2. x̱ʋktʰ nʌpɩtʰ tʌ kʷaxʷa?

There's nothing in the box.

/x̱ʋktʰ/ is not just used for inanimate referents; there are also strings like:

3. x̱ʋktʰ ?amotʰ

He's not at home.

Literally 'No one (is) at home.'.

In the negative yes-no question, the negative predicate remains first and the question particle appears on the negative predicate.

4. xʷa?aĉxʷsʌm yaɬataxʷ

Aren't you going to invite him?

This is to be contrasted with:

5. xʷa?cʌm yaɬatan

I'm not going to call him.

The case is the same with the second type of formation.

6. x̱ʋktta ?ʌn ?ayyʌxʷ

Did you catch any?

(The double [tt] is the result of gemination that often occurs with the question suffix.)

d. Determiner Copying

Finally, there are instances where either the pronominal subject clitic of what appears to be a determiner is shifted in front of the predicate.

1. ĉi hojosɩn

   I finished eating.

2. ti pa? tʌc pʌn?ʌm

   The plants grow.

It is unclear under just what conditions this happens. I was unable to elicit any situations where the meaning was clear either to Mrs. Clifton or to me. However, these preposed determiners and pronouns seem nearly always to appear with the vowel [-i-]. This vowel in other situations is the stative morpheme, as in

3. g^{y}at´at^h g^{y}ʌ

   Lock it!

Versus

4. g^{y}at´ɩt^h

   It's locked.

In addition, the following pair occurs in the data.

5. ti q^{w}ʌl? łayɩŝ

   He's come ashore.

There is no tense marker in this. But this can be compared to

6. ti q^{w}a?ʌloł łayɩŝ

   He came ashore.

with the past tense particle. Example 5 is translated as completed, which is consistent with a stative interpretation. If the stative is the proper conditioner, then when a sentence is in the stative, either the subject clitic or a

copy of the determiner of the object argument can be placed
in front of the predicate with the stative morpheme.

7. ĉi ji:ƙʌs

    I'm crawling.

8. ti ji:ƙʌs

    He's crawling.

9. ĉti oq́ ji:ƙʌs

    We're all crawling.

10. ĉti ?ɛɬaw?

    We hurt ourselves.

Since there are only two determiners that appear before the
main predicate, either in my data or in the tales that Boas
gathered, all the meaning dimensions of the determiner
system are neutralized except for present-non present. Mrs.
Clifton volunteered the following pair:

11. kʷi qʷʌl?

    He came (but is not present now).

12. ti qʷʌl?

    He came (and is present).

Although I have no feminine determiners in my data, the
neutralization of the sex distinction can be seen in the
following from Boas:

13. ti cio:osem ɬaɬá:xae:

    The old woman looks up.

and of the distinction of existing-nonexisting in

14. kʷi mʌkxʷtʌm ʔʌŝi ĉ´aʔʌnu

The dog ate it.

There are some examples in the data where a [t] is added to the pronoun or determiner.

15. ĉιt^h pʌλewstoɬ

I've plucked it.

The [t] also occurs with intransitive predicates.

16. ĉιt^h ʔεtaʔʌnoɬ

I've already eaten.

And there are transitives where it does not occur.

17. ti mʌmkxʷtas tʌ ĉ´aʔʌnu? tʌ janxʷ

The dog is eating the fish.

The following pair occurs in my data. How they differ in meaning I do not know.

18. ti qʌy?

He died.

19. kʷit^h qʌy?

He died.

The [t] cannot be interpreted as a relative pronoun, since the embedded pronominal suffixes do not appear on the predicate in the following example.

20. kʷιt^h tahatasoɬ

He's already been fed.

Therefore, the meaning and priviledge of occurrence of this final [t] remains unclear at this time.

These shifted pronouns and determiners also interact both with the negative and the yes-no question. When they occur with the negative, the negative may either precede or follow them.

21. ĉɪtʰ xʷi yaɫasɪn

    I didn't call you.

22. xʷaʔĉ yaɫasɪn

    I didn't call you.

23. xʷaʔĉxʷi yaɫasaxʷ

    You didn't call me.

In yes-no questions, the question particle and subject pronoun occur after a determiner.

24. kʷaĉxʷi hojosɪn

    Have you finished?

25. kʷaĉxʷi yʌqtoɫ

    Have you bought that?

These last examples do not follow the previous patterns, since both what appears to be a determiner and a subject pronoun occur together. Much more work is needed in this area before it is clear what is happening.

Chapter IV

The Phonology

A. The Segments

Using a broad phonetic transcription, the following segments are recorded in either Sapir, Boas or my own data. The starred (*) segments do not occur in my data.

	Bilabial	Dental	Alveolar	Lateral	Palatal	Palatal/Velar	Velar	Rounded Velar	Uvular	Rounded Uvular	Glottal
Stops											
Plain	p		t			k^y	k	k^w	q	q^w	
Glottalized	p̓		t̓			$k̓^y$	k̓	$k̓^w$	q̓	$q̓^w$	?
Voiced	*b		*d			g^y	g				
Fricatives		*θ	s	ɬ	ŝ	x^y	x	x^w	x̲	$x̲^w$	h
Resonants											
Plain	m		n	l	y			w			
Glottalized	m̓		ń	*l̓	y̓			w̓			
Affricates											
Plain		*tθ	c	ƛ	ĉ						
Glottalized			ć	ƛ̓	ĉ̓						
Voiced			j								
Vowels											

	Short			Long		
	Front	Mid	Back	Front	Mid	Back
High	i	ɨ	u	i		u
	ɩ		ʊ	ɩ		ʊ
Mid	e	Λ	o	e		o
	ε		o̲	ε		o̲
Low	(ae)	Λ̲	a		a	

It is impossible to use the material gathered by Boas for phonological analysis since the following phonetic symbols are used ambiguously:

$$tl = ɫ, λ_w, λ´$$
$$k = \bar{k}, \bar{k}^w$$
$$k' = q, q^w$$
$$q = x, \underline{x}, x^w, \underline{x}^w$$

and he does not record glottal stops.

My own analysis will attempt to show that the underlying segments are as follows:

	Bilabial	Alveolar	Lateral	Palatal	Velar	Rounded Velar	Uvular	Rounded Uvular	Glottal
Stops									
Plain	p	t			k	k^w	q	q^w	
Glottalized	ṗ	t´			$\bar{k}$	$\bar{k}^w$	q́	$q́^w$	?
Voiced					**g				
Fricatives		s	ɫ	ŝ	*x	x^w	$\underline{x}$	$\underline{x}^w$	h
Resonants									
Plain	m	n	*l	y				w	
Glottalized	ṁ	ń	*l´	ý				ẃ	
Affricates									
Plain		c	λ	ĉ					
Glottalized		ć	λ´	ĉ´					
Voiced		**j							

Vowels

High	i		o
Mid		Λ	
Low	e		a

*occurs probably only in borrowings and/or onomatopoetic words. [l] can be analysed as an abstract underlying segment and was so historically.
**contrasts only on the surface.

A more thorough justification for this phonemic system follows in the discussion of the rules. I attempt now only to give a brief overview. There are no voiced stops in the phonemic inventory even though these do occur phonetically. In his analysis of Mainland Comox, Davis postulated underlying [j] and [g]; these are converted to [y] and [w] respectively by rule. This seems plausible, especially since some of the [j]'s correspond to [c] in related languages. My analysis (see discussion of rule 22) is that restructuring has taken place in Comox and all surface [j]'s and [g]'s are now underlying [y] and [w].

The account of the [b] and [d] is more complicated. They do not appear in my data. They are transcribed by Gibbs in 1861. Tolmie (1884) records a few. Boas did not record any in 1886, but in 1914 Sapir found some. Their occurrence was very irregular and in some cases in free variation. Alternations of [b] with [m] and [d] with [n] suggest that [b] and [d] are underlying nasals. Powell (1974) found that the alternation of glottalized nasals and voiced stops in Chemakuan varied with rhetorical style. The data that are well enough transcribed to permit analysis suggest that the voiced stop in Comox also alternated with glottalized nasals(See rule 17). There is second reason for postulating glottalized resonants in the language. Clusters such as [?m] also occur on the surface which must be analysed as underlying [m̓] (glottalized nasals) in order to regularize the

morphophonemics of the reduplicated plural. Since only a few glottalized nasals become voiced stops, the most efficient way to handle these is to make this rule a minor rule that only operates either on stems specifically marked for it or when the rhetorical style calls for it. However, the glottal stop also occurs with the other resonants and these also are analysed as glottalized resonants to regularized the reduplicated plural. Therefore, I postulate underlying glottalized resonants in Comox.

The [l] in Comox is rare, and in some cases obviously borrowed. The [l] in the sister languages of Comox, Pentlatch and Sechelt, corresponds to either [y] or [w] in Comox. This is the case both with the plain and glottalized variety. Whether or not [l] is included in the phonemic inventory is partly a theoretical question. It would be part of a 'co-existent phonemic system.' But it might also be a part of the native inventory. The [y]'s and [w]'s that come from [l] do not alternate with [j] and [g]. One could opt for a very abstract underlying phonology and call the [y]'s and [w]'s that do not alternate underlying [l]'s (see the discussion of rule 22).

The vowels cause many more problems than the consonants. The long vowels have been eliminated from the inventory. There are at least two sources for long vowels in Comox. First, and most obviously, there are long vowels that result from [ow] becoming [o:] and [iy] becoming [i:].

Second, there are long vowels that result from stress placement. Stressed vowels except schwa are half long and especially so when high word pitch or sentence intonation co-occurs with the stress. This was also observed by Davis. I have analysed this length as remaining even if the stress is shifted foreward. Many of the long vowels in Sapir's data can be accounted for by the process of lengthening under stress with a consequent stress shift. On the surface the stress occurs for the most part on the first syllable of a word. But stress is assigned first to the penultimate syllable of a word, then shifted foreward. In polymorphemic words where the stress cycle is operating, this shift can occur again to leave possible as many long vowels as one greater than the number of morphemes in the word.

These factors will account for the long vowels in the language, hence they are not included in the phonemic inventory.

The five underlying vowels have the following allophones:[1]

/i/

  [i]--Between high, non-glottalized consonants; between such a high consonant and a final word boundary. There are also certain grammatical environments where the tense form of the high front vowel is required.

--------------------   notes   --------------------
(1) These allophonic distributions have been determined for
    my data. They do not describe those of Sapir's data.

[e]--After a back or low consonant.

[ι]--elsewhere

/e/

[e]--(same as [i])

[ε]--elsewhere

/u/

[u]--(same as [i])

[o]--elsewhere

/a/

[(ae)]--Between high consonants.

[a]--elsewhere

/ʌ/

[i]--Before a [y].

[ι]--After a high consonant.

[ʊ]--Following a high rounded consonant.

[o]--Before a [w].

[o̲]--After a back rounded consonant.

[a]--Stressed before a back consonant.

On the surface the [e], [ι] and [ε] contrast. However, both the [ι] and [ε] have defective distributions. If each of these is made a separate phoneme, then the language has three front vowels, [i], [e], and [ε], two of which have defective distributions. However if the [e]'s are divided between [ι] and [ε], then both have complete distributions. The [o̲] has a very limited functional load and remains problematic. The [(ae)] occurs only rarely, and for the

most part only in borrowings from Kwakiutl.

With two rules, most of the schwas can be eliminated from the underlying forms. Contrary to what occurs in other Salish languages, there are no initial consonant clusters on the surface in Comox. Since many of the first vowels are schwas, or vowels that can be derived from schwa by regular assimilation rules, these vowels can be eliminated from the underlying forms and then inserted by an epenthesis rule. This is quite regular.

The second rule, however, is less regular. It will insert a schwa between two obstruents in the same morpheme. The end result of these two rules is 1) that some underlying forms have no vowels, and 2) the only surface clusters in morphemes involve glides. The absence of vowels in underlying forms might seem unacceptable, but words with no vowels in them occur on the surface in Bella Coola. However, if a schwa is present in some underlying forms, the morphophonemics of the diminutive and imperfect are more regular. Therefore, a schwa is included in the underlying inventory.

On the next page is a chart of the phonemic consonant and phonetic vowel inventory with the feature notation indicated. The features used are those of Chomsky and Halle (1968).

Consonants

	p	ṕ	t	t́	c	ć	λ	λ́	ĉ	ĉ́	k	ḱ	kw	ḱw	q	q́	qw	q́w	?	s	ł	ŝ	x	xw	x̲	x̲w	h	m	m̓	n	n̓	y	y̓	w	w̓	l	l̓
Sonorant	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	+	+	+	+	+	+	+	+	+	+
Syllabic	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−
Consonantal	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	−	+	+	+	+	+	+	+	−	+	+	+	+	−	−	−	−	+	+
Coronal	−	−	+	+	+	+	+	+	−	−	−	−	−	−	−	−	−	−	−	+	+	+	−	−	−	−	−	+	+	+	+	−	−	−	−	+	+
Anterior	+	+	+	+	+	+	+	+	−	−	−	−	−	−	−	−	−	−	−	+	+	−	−	−	−	−	−	+	+	+	+	−	−	−	−	+	+
High	−	−	−	−	−	−	−	−	+	+	+	+	+	+	−	−	−	−	−	−	−	+	+	+	+	−	−	−	−	−	−	+	+	−	−	−	−
Low	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	+	−	−	−	−	−	−	−	+	−	−	−	−	−	−	−	−	−	−
Back	−	−	−	−	−	−	−	−	−	−	+	+	+	+	+	+	+	+	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	+	+	+	+
Round	−	−	−	−	−	−	−	−	−	−	−	−	+	+	−	−	+	+	−	−	−	−	−	+	−	+	−	−	−	−	−	−	−	+	+	−	−
Nasal	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	+	+	+	+	−	−	−	−	−	−
Lateral	−	−	−	−	−	−	+	+	−	−	−	−	−	−	−	−	−	−	−	−	+	−	−	−	−	−	−	−	−	−	−	−	−	−	−	+	+
Glot. Constr.	−	+	−	+	−	+	−	+	−	+	−	+	−	+	−	+	−	+	+	−	−	−	−	−	−	−	−	−	+	−	+	−	+	−	+	−	+
Continuant	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	+	+	+	+	+	+	+	+	−	−	−	−	+	+	+	+	+	+
Delayed Rel.	−	−	−	−	+	+	+	+	+	+	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−

Vowels

	i	ι	e	ε	ae	u	ʊ	o	o̲	a	ɨ	Λ	Λ̲
High	+	+	−	−	−	+	+	−	−	−	+	−	−
Low	−	−	−	−	+	−	−	−	−	+	−	−	+
Back	−	−	−	−	−	+	+	+	+	+	−	−	−
Round	−	−	−	−	−	+	+	+	+	−	−	−	−
Nasal	−	−	−	−	−	−	−	−	−	−	−	−	−
Tense	+	−	+	−	+	+	−	+	−	−	−	−	−
Front	+	+	+	+	+	−	−	−	−	−	−	−	−

Figure 1.   Comox Distinctive Features

First, they specify that [ɫ] should be [-high] since it is alveolar. However, it acts like a high consonant in the assimilation rules for Comox. They define high segments as those where the body of the tongue is raised from its neutral position. It might be that the articulation of the Comox [ɫ] raises the body of the tongue to create the friction that occurs with the lateral articulation; I do not know if this is in fact its manner of articulation. Some examples of the raising influence of [ɫ] are:

1. ɫe^ɫe^k̓ʷʌm   sewing (H)

where the [ɛ] is raised to an [e] and

2. ɫɨmɫo̱ʔbomʰ   small clam (S)

where the first [ɨ] is a raised form of [ʌ].

Second, Chomsky and Halle specify that both [ʔ] and [h] are [-back] and [+low]. They define back sounds as those where the body of the tongue is retracted from its neutral position. Since the articulation of both [ʔ] and [h] does not involve the tongue, but rather only the vocal folds, these sound should be [-back] by the definition. However, in Comox both of them act in assimilation rules like back consonants causing vowel lowering as in

3. ʔémɪn   road (H)

4. héyoĉɪs   paddle (H)

where an [ɪ] is lowered to [e].[2] They in fact act like pharyngeals.

---------------------- notes ----------------------
(2) This lowering also happens in Clallam (Thompson and Thompson).

Third, both the [w] and [ẃ] show peculiarities. The morphophonemic alternate of [w], [g], acts like a high consonant, but the [w] itself does not.

5. wowom g^{Y}ʌ   sing (H)

If [w] were a high consonant, we would expect that the [o] would become [u] in the first syllable. But the [w] in this particular form corresponds to an [l] in Pentlatch

6. ló:lom   sing (B)

This would indicate that there are two types of [w]'s with two different types of influence. In fact this might be an argument for making some [w]'s underlying /l/'s.

Among vowels, the feature tense is not needed for the underlying inventory but is needed at the surface and is therefore included.

In the analysis that follows, the aim has not been to identify the surface contrasts but to maintain the canonical shape of every morpheme. Therefore the phonology is best investigated in the context of some body of morphology where alternations are abundant. After identifying an alternation in one morphological context, independent support is sought for its existence in another morphological system. Unfortunately such independent justification is not always available.

In Comox the process of reduplication is present in at least four morphological systems. Reduplication, therefore, presents a large body of data with numerous alternations on

which to base the phonology. This body of data will be the focus of what follows. Where possible I have provided independent justifications for the phonological rules that are proposed.

B. The Rules

Some of these rules have been extrinsically ordered. Evidence for this ordering is cited where necessary. Where no evidence exists, the rules are assumed to operate in random sequential order. The principal morphological areas accounted for by these rules are the reduplicated plural, the reduplicated diminutive, the doubly reduplicated diminutivized plurals, the reduplicated imperfects, and the vowel of the root type suffix. In addition there are rules that account for the distribution of the vowels and a few rules that operate to mark boundaries. A complete listing of the rules is provided in Appendix B.

Two elements of phonological theory are assumed. First, rule features account for sporadic exceptions. Where forms are exceptional, but nevertheless are an identifiable subset of the language, minor rules will work only on these arbitrarily defined (non-phonetic) subsets. This is the case in Comox for a rule of stem vowel deletion. Second, the cycle will apply on the innermost bracketing of a word, and rules in the cycle will be applied again as each successive bracket is erased until the outer boundaries of a word

have been reached. Not all of the rules in the phonology will be in the cycle.

The first few rules are precyclic. For the most part they copy segment matrices for morphemes formed through reduplication. These rules must be precyclic since they copy segments in a form which would not be present later when the reduplicated morpheme is the focus of the rules. There are three distinct processes with initial reduplication; the plural, the diminutive and the imperfect. Each of these also may involve an ablaut of the vowel in the reduplicated morpheme. This vowel variation can be handled in at least three different ways: (1) make a single spelling rule sensitive to the type of morpheme being reduplicated and then vary the vowel, (2) have the reduplicated morpheme spelled out by the same rule and then have separate rules vary the vowels, or (3) make each morphological process invoke an individual rule. Since I know of no evidence that would necessitate choosing one of these, for clarity of exposition I have each process invoke an separate rule.

1. The Plural Spelling Rule

Rule one of the phonology will copy the first two non-syllabic segments of the stem and the vowel between them, if one is present, to form the reduplicated plural morpheme. The syntax has generated something like (plural + (Nom)).

On lexical look-up the plural has been replaced with $C_1V_1C_2$. The spelling rule is then applied. Rule 9 will insert a schwa both in the plural morpheme and in the stem if none was present in the underlying form. Rule 12 will ablaut the copied vowel to a schwa (See Rule 9 for sample derivations.).

1. q^{W}ύsʌm   q^{W}ʌsq^{W}ʌsʌm(pl)   /q^{W}sm/ wooly grouse (S)

On the surface a vowel is nearly always present in the stem. At present there are no initial consonant clusters in Comox, although Sapir found three words with word initial clusters. But many of the initial vowels in Comox are schwas. These can be simply eliminated by the inclusion of a rule that inserts a schwa after the first consonant of a stem following morpheme, word and sentence boundaries, but not at affix boundaries. Therefore, there will be alternations in the diminutive between a stem having a vowel and not having a vowel. Examples of this will be given when the insertion rule is discussed (Rule 9).

Although there are no initial clusters on the surface, at this stage of the phonology there will be many underlying forms with initial consonant clusters. Some forms illustrating the copying rule are:

2. só:pʌdaĉ   sʌp^{h}so:pʊdaĉ(pl)   /sop+naĉ/ tail (S)
3. x̱á?a: x̱á?x̱a?a:(pl)   /ĉayaŝ/ big clam (S)
4. ĉá:yaŝ   ĉí:ĉa:yaŝ(pl)   /ĉayaŝ/ hand (S)
5. x̱á?ʌg^{Y}ał   x̱ʌwx̱a?ʌg^{Y}ał(pl)   /x̱aẃał/ backbone of a fish (H)

6. ɬʌx̱   ɬʌx̱ɬʌx̱(pl)   /ɬʌx̱/   bad (H)

7. t´óɬaɬ   t´ʌɬt´oɬaɬ(pl)   /t´oɬaɬ/ bed (H)

The working of the rule on obstruents [-sonorant] is il-
lustrated by 'tail', 'backbone', 'bad' and 'bed.' 'Hand'
illustrates that the rule must operate on [-syllabic] seg-
ments like [y] and [w]. In 'hand' the [y] causes the [ʌ] to
become a long [i:] (cf Rule 16). 'Big clam' illustrates
that a glottal stop is copied by the rule, and that the rule
must copy all [-syllabic] segments. However, there are
forms where a glottal stop is not copied.

8. t´á:qʌtʰ   t´ʌq̇t´aʔq̇ʌtʰ(pl) /t´q̇t/   mountain (H)

9. tá:ʔagʸaxʷ   totá:ʔagʸaxʷ   /taẃaxʷ/(pl) fern (s)

These cases are accounted for by Rule 14 and are discussed
later. The actual form of the rule is:

$$[C_1V_1C_2]_{pl} ==>> [\alpha] \begin{bmatrix} +syll \\ \beta \end{bmatrix} [\psi] \Big/ \_ \_ \_ + [\alpha] \begin{bmatrix} +syll \\ \beta \end{bmatrix} [\psi]$$

2. The Imperfect Spelling Rule

The second rule spells out the imperfect morpheme. The
imperfect is formed by initial CV reduplication. There are
three variations of this form that must be accounted for.

First, even if the underlying form of the vowel is lax,
the reduplicated vowel is always tense. This is the case
for [ɩ], [ɛ], and [o̱]. If on the surface the root vowel is
a schwa, then there may be no vowel present in the under-

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lying representation so none is copied (this vowel is inserted by the initial cluster separation rule (Rule 9). However, the vowel position is nevertheless marked as tense as the following forms show.

1. k^wúmŝɩn   kúkʊmŝɩn   /k^wʌm+ŝɩn/ up away from the water (H)

2. ḱ^wʌ̂s?ʌm   ḱ^wúḱ^wŝa?ʌm   /ḱ^wŝ/   count (H)

The [o] is a schwa that is rounded by the [k^w]. It is nevertheless tense in the reduplicated syllable. Some examples with other vowels are:

3. t´ín?ʌm   t´ít´ɩn?ʌm   /t´ɩn/   barbecue fish (H)

4. ?á:mot^h   ?á?amot^h   /?amot/ be at home (H)

However if no assimilation rules apply to the schwa, it is realized as a schwa.

5. pʌ́naŝ   pʌ́pnaŝ   /pnaŝ/ bury (H)

     Second, in some stems there is no vowel when the imperfect is added. Some examples, besides 'bury' and 'count' given above, are:

6. mʌk^wx^wt^h   mʌ́mk^wx^wt^h   /mk^wx^w/ eat (H)

7. q́^wʌq?ʌm   q́^wóq́^wqa?am   /q́^wq/   chop (H)

8. ćʌk^wt^h   ćʌ́ćk^wʌ?ʌm   /ćk^w/   wipe (H)

All of these have a schwa as the stem vowel. Since in the underlying representation this vowel is not present, we can account for the absence of this stem vowel by blocking its insertion. It must be inserted after the reduplicated plural since it appears in the context. We can postulate a difference in boundaries between these two types of mor-

phemes. The syntax will generate the following:

    Plural -> [Pl. + [Stem]]

    Diminutive -> [Dim + Stem]

    Imperfect -> [Stem + root type + aspect]

The extra set of brackets in the plural accounts for the greater distance of this boundary. I am calling the boundary between either the imperfect or the diminutive and the stem an affix or clitic boundary (-). The boundary between the plural and the stem is a morpheme boundary (+). The initial schwa epenthesis rule will operate either at an initial morpheme boundary or a higher order boundary (i.e. word, sentence, etc.). This formalization of the absence of a stem vowel in the imperfect and diminutive would be very tidy if it worked with complete regularity, but there are some forms in which a schwa cannot be postulated as the source of the stem vowel, but the vowel is nevertheless deleted in the imperfect and diminutive.

9. qóɬom   qóqɬom   /qoɬ/   wade (H)
10. ĉ´ɛɬ   ĉ´ɛĉ´ɬ   /ĉ´eɬ/ rain (H)

The forms that have the vowel deleted will form a class with a minor rule operating on them to delete the stem vowel. There are also a few forms that will need this rule in the diminutive.

There are some cases where a schwa remains in the stem. These cases will have a schwa in the underlying form.

11. ćʌxʷtʰ   ćʌ́ćʌxʷʔʌm   /ćʌxʷ/ wash (H)

12. qʷʌlˊ   qʷʌ́qʷʌlˊ   /qʷʌlˊ/ come (H)

13. kʷʌʔát   kʷʌ́kʷʌʔát   /kʷʌʔ/ help (H)

Third, there are a few forms in the imperfect that have a glottal stop inserted after the vowel of the reduplicated morpheme.

14. x̱éʌnɩm   x̱éʔx̱eʌnɩm   /x̱iń/   growl (H)

15. nám?ʌm   ná?ʌnam?ʌm   /ńam/   write (H)

16. jʸaq̓ʷam   jʸa?jaq̓ʷam   /ýaq̓ʷ/ sweat (H)

These do not seem to form any class phonetically and, therefore, they will have to be handled as a special subset of the imperfect. There will be a minor rule that inserts the glottal stop on just those stems.

The spelling rule for the imperfect is:

$$[C_1V_1]_{imp} \implies [\alpha] \begin{bmatrix} +\text{syll} \\ \beta \\ +\text{tense} \end{bmatrix} / \_\_ \_\_ - [\alpha] \begin{bmatrix} +\text{syll} \\ \beta \end{bmatrix}$$

3. The Diminutive Spelling Rule

The spelling rule for the diminutive copies the first CV of the Stem and if the vowel is a schwa, another rule ablauts the schwa to a high front vowel in the reduplicated morpheme. Forms with no vowels will have a schwa inserted

in the diminutive by the epenthesis rule (Rule 9). Two
rules are used for this process for both formal and em-
pirical reasons. There are a few forms which cannot be
analysed as having either no vowel or a schwa in the stem
which nevertheless ablaut the stem vowel to a high front
vowel. These forms would have to be marked specifically for
this rule. Formally, if we allowed the spelling rule to
perform this function we would need a disjunctive environ-
ment for the rule.

The diminutive spelling rule must come after the plural
spelling rule. This ordering is necessary because the
diminutive morpheme precedes the plural morpheme on doubly
reduplicated stems. Since both of these rules are pre-
cyclic, the ordering of the cycle cannot be relied on to
have the plural spelled out before the diminutive.

The diminutive is formed on the basis of what comes
next to it in the stem. In fact the diminutive singular
often differs considerably from the diminutive of a
pluralized stem. Therefore the plural morpheme must be
spelled out before the diminutive. Some examples will il-
lustrate this.

1. t´ó:ʔmt^h   t´ótʌbι:t^h   t´ι:t´ʌmt´óʔbι:t^h paddle (S)

2. yá:xaι?   yáyxaι?   yi:yιxɨya:xaι? pack-basket (S)

3. tá:ag^Yax^w tá:tιg^Ya:x^w titotá:ʔag^Yax^w fern (S)

These examples illustrate that the vowel of the simple
diminutive plurals is an [ι]. This difference results from

the mode of formation of the diminutive. The diminutive is formed by reduplicating the first CV of the stem. If there is no stem vowel or if the stem vowel is a schwa, the diminutive ablaut rule (Rule 10) changes the schwa to a high front vowel in the diminutive morpheme. But the vowel of the plural morpheme has already been ablauted to a schwa. Therefore in the doubly reduplicated case the diminutive morpheme will always have [ʌ] in it. As in the imperfect, those stems with no vowel after the first consonant of the root in the underlying form do not have a schwa inserted in the root after diminutive reduplication.

There are actually three processes that encode the diminutive. In addition to the appearance of the high front vowel, the first non-glottalized resonant in the last syllable of the stem is glottalized. And thirdly, a high front vowel replaces some schwas in the stem.

Therefore to form the diminutive we need altogether four rules: (1) the spelling rule, (2) a diminutive ablaut rule, (3) a high front vowel insertion rule for the stem (Rule 10) and (4) resonant glottalization (Rule 5). All of these will be morphologically conditioned rules of the phonology. The latter two are discussed later. The diminu-

tive ablaut rule has not been included in this phonology. The actual form of the diminutive spelling rule is:

$$[C_1V_1]_{dim} ==>> [\alpha] \begin{bmatrix} +syll \\ \beta \end{bmatrix} /\_ \_ - [\alpha] \begin{bmatrix} +syll \\ \beta \end{bmatrix}$$

4. The Glottal Stop Insertion Rule

The minor rule that inserts the glottal stop after the imperfect morpheme can operate here. I know of no evidence to indicate where it should be ordered. Some examples in addition to those given earlier are:

| 1. | nιŝιm | nι?ιnxιm | /niŝ/ | swim (H) |
| 2. | wowom | wo?wowom | /wow/ | sing (H) |

The rule is:

$$\emptyset ==>> \begin{bmatrix} -son \\ -conson \\ +glot\ contr \end{bmatrix} /[\ \ ]_{imp} \_ - [+rule\ 4]_{stem}$$

5. Glottalize Final Resonants

The first resonant reading from right to left in the final syllable of a diminutive is glottalized. It must be the final syllable and not word final because of examples like:

1. ĉá:yaŝ   ĉiĉá:ʔyaŝ(dim)   hand (S)

The anticipation of the glottalization before the resonant
and after an [a] is a regular process in the language and
will be discussed in connection with rules 14 and 15.
'Small butter ball duck' might be an example where this
process is applied to an [l].

2. té:ltol'   small butter ball duck (S)

Since this process also applies to [h], [h] has been clas-
sified as a resonant.

3. sá:ʔbah   sáʔsʌbaʔa(dim)   mussel (S)

4. qá:ʔqah   qɛ:ʔqa:ʔa(dim)   rush mat (S)

5. tá:q́ah   tá:tʰq́ʷa:ʔa(dim)   devil-fish (S)

Some other examples are

6. ɬó:ʔobomʰ   ɬó:ɬoboʔmʰ(dim)   small clam (S)

7. ḱóyokobɩ:n   ḱó:ḱoyokobɩ:ń(dim)   fisherman (S)

8. kʷáʔam   kʷékʷɩʔɩ:ḿ(dim)   coiled storage
                                          basket (S)

9. xʌsʌm   xéxsɩ:ḿ(dim)   box (S)

10. q́ʌsʔʌda:y   q́é:q́asʔada:ʔy(dim)   buckskin shirt (S)

The rule is:

$$\begin{bmatrix} +son \\ -syll \\ +dim \end{bmatrix} \quad ==>> \quad [+glottal\ contr.]/\underline{\quad}(V)(C)\#$$

The rule is applied only once from right ot left. In all of
the cases observed, it is sufficient that it be applied only

on the first two resonants.

6. Penultimate Stress

The next rule stresses the penultimate vowel of the underlying form. If there is only one vowel in the underlying form, then it is stressed. If there are no vowels in the underlying form, then no stress is applied. This rule is included to account for Sapir's data more than for my own. It can help to explain many of the long vowels in his data.

I do not record as many long vowels as Sapir did. But in his data there are many long vowels both stressed and unstressed. It must also be remembered that Sapir's informant was regularly a speaker of Nootka, a language with many long vowels. However, I do not know if the long vowels in his data are the result of interference. After all the vowels that can be predicted are removed from the Comox forms, there are not many vowels in the underlying forms. Two epenthesis rules are necessary: One breaks up initial consonant clusters (Rule 9); the second inserts a schwa between non-initial [+continuant] and [+consonantal, -syllabic] segments in the same morpheme (Rule 27). This would leave morpheme internal clusters with only [y], [w], [?], or [h] and a consonant in any order. There are some real and some apparent exceptions to this cluster separation rule. Some real exceptions are:

1. mʌ́qsɩhʰ   nose (S)

2. ƛʌ́ʌms   house (S)

3. ƛʌ́á:ʔaɬʔo:ʔmʰ   wolf (S)

4. ćá:mʊqɬ   cloud (S)

5. t´ó:mtʰ   paddle (S)

6. tó:tʰxʷlaɬ   necklace (S)

7. ƛʌ́áɬsami   strong (S)

8. ƛʌ́pxʷ   break (H)

9. q́ʌtxʷ   burn (H)

10. té:xʷsaɬ   tongue (H)

I have recorded pairs such as

11. má:snotʰ ~ má:sʌnot to cheat or fool (H)

Three consonant clusters in Sapir's corpus are word initial.
Some clusters are generated after the application of this
rule or occur across a syntactic boundary. A morpheme boun-
dary is signaled by aspiration on voiceless stops in my
data. Therefore 'necklace' (from Sapir's data) may not be
an exception since [ɬaɬ] is a suffix meaning 'neck.' The
string [xʷ] may be a stem-extender in 'neck', 'break' and
'burn.'

When the above exceptions to this rule are compared to
their diminutive formations, we see that the following are
not exceptions to the diminutive epenthesis rule.

12. ƛʌ́ʌms   ƛʌ́ʌƛʌ́á:ʔamɩ:s(dim) house (S)

13. ćá:mʊqɬ   ćá:ćɨmʌqɩ:ɬ(dim)   cloud (S)

14. t´ó:ʔmtʰ   t´ót´ʌbɩ:tʰ(dim)   paddle (S)

Many long vowels in Sapir's data can be accounted for by a process of glottal anticipation. If a glottalized consonant occurs after a [-high] vowel, the glottalization is anticipated either as a glottal stop clipping the vowel or as laryngealization of the vowel. Many of these Sapir writes as long vowels with a raised echo vowel. He also has examples with a full glottal stop present as in

15. tá:ʔagʸɩn   salmon spear (S)

16. tá:ʔagʸaxʷ (kʷ)   fern (S)

In the case of

17. ƛ´á:ᵃq́ʷa:i   /ƛ´q́ʷay/   fish-gill (S)

The underlying vowel is a schwa that has been inserted by the initial cluster separation rule. In the diminutive, this stem vowel is not present (For more discussion, see rule 14).

18. ƛ´í:ƛ´q́ʷa:i   little fish-gill (S)

After the epenthesis rules have operated, the assimilation rules will account for the color of the vowels at the phonetic level. Long vowels then are those that are stressed at the time of the lengthening rule (Rule 6) and those that result from lengthening before a glide (Rule 26). The following pairs illustrate the relationship between the underlying and surface forms.

19. t´ʌkom̓ʰ   /t´kʷm̓/   beaver (S)

20. kʊma:qɪnʰ   /kʷmaqɪn/   sea-lion (S)

21. qʷʌdɪ:s   /qʷn̓ɪs/   humpbacked whale (S)

The actual form of the penultimate stress rule is:

[+ syllabic] ==>> [1 stress]/__C(0 10) (V)(C)#

The rule will apply first in the environment _CVC#.   Then
other possible forms tried for the case where there is only
one vowel present.

7.   Third Person Object Vowel

When the third person object suffix /-t/ is added to a
root, the root vowel is copied in front of the suffix. This
suffix has been interpreted by Davis (1970) as being the
transitive marker; and in citation forms it appears to be
such. However, when subject suffixes are added, it stands
for the third person. Since a [t] does not appear before
the first person and second person singular object suffixes,
the concept of transitivity has become fused with the direct
object suffixes in these persons, or there must be a unique
set of morphophonemic rules that apply only to these suf-
fixes. Some examples where this rule operates are:

1. séqɛtʰ   séseqɛt   /seq+t/   dug hole (H)

2. júsot̲ʰ   /jus+t/   push over (H)

3. héʌqɛtʰ   /heq+t/   push horizontally (H)

4. ʔéʌmɪtʰ   /ʔim+t/   step on (H)

5. kʷéŝɪtʰ   /kʷeŝ+t/ count (H)

6. míʌq̇ɛtʰ   /miq̇+t/   soak (H)

7. ƛ´áy(ae)tʰ   /ƛ´ay+t/ hold on (H)

8. ƛʌxʷotʰ ~ ƛʌxʷtʰ /ƛxʷ+t/ spit (H)

9. púhot   /puh+t/   blow (H)

10. hóso̲tʰ   /hus+t/   say (H)

11. x̲ópo̲tʰ   /x̲op+t/   poke (H)

The following are roots where no vowel appears in citation
forms. The forms for the imperfect are also given.

12. yʌqtʰ   yí:^qaʔʌm   /yq+t/   buy (H)

13. qʷʌx̲tʰ   qóqʷxatʌs   /qʷx̲+t/   clean (H)

14. mʌkxʷtʰ mʌmkxʷtʰ   /mkxʷ+t/ eat (H)

15. hʌkxʷtʰ háhkxʷtʰ   /hk+t/   hang it up (H)

16. ćʌq̇tʰ   ʌćq̇tas   /ćq̇+t/   hit with a rock (H)

17. sʌṕtʰ   sʌsṕʌtaĉxʷ /sṕ+t/   hit with a stick (H)

18. łʌktʰ   łʌłktʰ   /łk+t/   jab (H)

In these examples there is no vowel between the object suf-
fix and the root. These roots all have initial schwas. In
the imperfect there is no initial stem vowel. In forms
where the underlying vowel of the stem is a schwa, then a
schwa also occurs before the suffix.

19. hájʌtʰ   háhajʌtʰ   /hʌy+t/   chase (H)

20. kʷʌʔatʰ   kʷʌkʷʌʔatʰ /kʌʔ+t/   help (H)

In forms where the stem vowel cannot be analysed as a schwa,
the stem vowel remains in the imperfect.

21. ?ájamat^h   ?á?ʌjamat^h   /?ayam+t/ change it (H)

22. ćá?at^h   ćáća?ʌm   /ća?+t/   chew (H)

23. póho̲t^h   pópoho̲t^h   /puh+t/   blow (H)

All of these facts can be accounted for by making the rule put a copy of the vowel of the root before the object suffix. If none is present, then there will be no vowel in citation forms.

With the introduction of this last set of data for the third person objective suffix, it is clear that three disparate facts can be accounted for by having underlying initial consonant clusters which do not occur on the surface. First, the root vowel in some diminutives is sometimes missing. This occurs in the roots where the root vowel can be analysed as being a schwa. This schwa could be inserted by rule. In these cases the vowel of the reduplicated morpheme is [ɩ], [cɩ + stem]. Second, the stem vowel is absent with the imperfect. This occurs on roots where the vowel in the imperfect morpheme is a schwa, [cʌ + stem]. And third, there is no vowel before the third person object suffix in citation forms where a schwa occurs as a stem vowel.

The exact form of the copying rule is:

$$\emptyset \implies \begin{bmatrix} + \text{ syll.} \\ \alpha \\ \beta \\ \psi \\ \cdot \\ \cdot \end{bmatrix} \bigg/ \# \text{ C l} \begin{bmatrix} + \text{ syll.} \\ \alpha \\ \beta \\ \psi \\ \cdot \\ \cdot \end{bmatrix} \text{ C l } \underline{\quad} - [+\text{object}]$$

8. Lengthen Stressed Vowels

The next rule lengthens vowels that are stressed. Although this rule along with compensatory lengthening before glides will account for many of the long vowels in Sapir's data, it will not account for all of them. The derivations following the next rule will demonstrate some exceptions. The remaining long vowels remain problematic.

Strictly speaking the penultimate vowel could have been lengthened by Rule 6 by simply lengthening the penultimate vowel instead of stressing it. But there must be a rule that shifts stress to word initial position, since in some cases the stress is shifted to the reduplicated syllable. This shift rule will be morphologically conditioned (see discussion of Rule 28). When stress is shifted, the vowel remains lengthened. The actual form of this lengthening rule is:

[+ stress] ==>> [+ long]

9. Initial Cluster Separation

A schwa is inserted after the first consonant of a morpheme initial consonant cluster. There are only three words with word initial consonant clusters in mono-morphemic words; all of these occur in Sapir's data. I was not able to elicit these words. In my own data the only initial

clusters result from grammatical prefixes composed of a single consonant; therefore, these clusters have a boundary in them and are only surface clusters. An example is the temporal case marker, [s-].

1. sjásoɫ   /s+yas+ʔoɫ/ yesterday(H)

The roots with initial clusters will have to be exceptions to this rule.

The cycle begins with Rule 8. This rule can be applied a number times in the course of the derivation of a word. The limiting factor will be the boundary present before the morpheme. The rule does not operate after the affix boundary that follows the diminutive or imperfect morphemes. This will account for the fact that some roots do not have an initial vowel after these morphemes, although these same roots do have a vowel after their first consonant following the plural morpheme. In a reduplicated plural the stem will have a schwa inserted on the first application of the rule:

$$[CC + [CC]_{stem}]_{pl} ==>> [CC + C\Lambda C]$$

On the second application in the second cycle, a schwa will be inserted in the plural morpheme.

$$[CC + C\Lambda C] ==>> C\Lambda CC\Lambda C$$

The actual form of the rule is:

$$\emptyset \implies \left[\begin{array}{l} + \text{ syll.} \\ - \text{ back} \\ - \text{ front} \\ - \text{ round} \end{array}\right] \Big/ \quad + C\ 1 \underline{\quad} C\ 10$$

a. Sample Derivations

Below are two sample derivations to illustrate the sources of schwa. First a form with no underlying schwas.

1. /t´k^{W}ḿ/   beaver (S)

Diminutive	Plural Diminutive	Rule
C$_1$V$_1$-t´k^{W}ḿ	C$_1$V$_1$-C$_1$V$_1$C$_2$+t´k^{W}ḿ	After Lexical Insertion
	C$_1$V$_1$-t´k^{W}+t´k^{W}ḿ	Plural Spelling (1)
t´-t´k^{W}ḿ	t´-t´k^{W}+t´k^{W}ḿ	Dim. Spelling (3)

First Cycle

	t´-t´k^{W}+t´∧k^{W}ḿ	Initial Cluster (9)
t´-t´k^{W}ιḿ	t´-t´k^{W}+t´∧k^{W}ιḿ	Dim. Vowel Insert. (10)

Second Cycle

t´∧t´k^{W}ιḿ	Initial Cluster (9)
t´∧t´k^{W}ι:ḿ	Long Final Vowel (11)
t´-t´∧k^{W}t´∧k^{W}ιḿ	Plural Ablaut (12)
t´ιt´k^{W}ι:ḿ	Dim. Ablaut (-)

tʼít́kʷː:ḿ tʼ-tʼʌkʷtʼʌƛʷ ɩḿ   Stress Shift (27)

tʼɛ́t́kʷ ɩ:ḿ   ɩ to ɛ (33)

Third Cycle

tʼʌtʼʌkʷtʼʌkʷ ɩḿ   Initial Cluster (9)

tʼʌtʼʌkʷtʼʌkʷ ɩ:ḿ   Long Final Vowel (11)

tʼɩtʼʌkʷtʼʌkʷ ɩ:ḿ   Dim. Ablaut (-)

tʼítʼʌkʷtʼʌkʷ ɩ:ḿ   Stress Shift (27)

tʼɛ́tʼʌkʷtʼʌkʷ ɩ:ḿ   [ɩ] to [ɛ] (33)

Predicted Forms

[tʼɛ́t́kʷ ɩ:ḿ]   [tʼítʼʌkʷtʼʌkʷ ɩ:ḿ]

Actual Forms

[tʼɛ́:ᵋt́kʷ ɩ:ḿ]   [tʼ ɩ:tʼʌkʷʰtʼʌkʷ ɩ:ḿ]

   Now a form with underlying schwas:

2. /kʷʌma+qin/   sea lion (S)

Diminutive	Plural Diminutive	Rule
C_1V_1-kʷʌma+qin	C_1V_1-$C_1V_1C_2$+kʷʌma+qin	After Lexical Insertion
	C_1V_1-kʷʌm+kʷʌma+qin	Plural Spell. (1)
kʷʌ-kʷʌma+qin	kʷʌ-kʷʌm+kʷʌma+qin	Dim. Spell. (3)
kʷʌ-kʷʌḿa+qin	kʷʌ-kʷʌm+kʷʌḿa+qin	Glottalize Resonants (5)
kʷʌ-kʷʌmá+qin	kʷʌ-kʷʌm+kʷʌmá+qin	Penultimate Stress (6)

kʷʌ-kʷʌmáqɪn   kʷʌ-kʷʌm+kʷʌmáqɪn   No Rules Apply

Second Cycle

kʷʌ-kʷʌmá:qɪn   kʷʌ-kʷʌm+kʷʌmá:qɪn   Leng. Stress Vowels (8)

kʷʌ-kʷʌʔmá:qɪn kʷʌ-kʷʌm+kʷʌʔmá:qɪn   Resegmentation (15)

                kʷʌ-kʷaʔmá:qɪn   Schwa Assim. (16)

kʷʌ-kʷʌʔma:qɪn kʷʌ-kʷʌm+kʷáʔma:qɪn   Stress Shift (27)

kʷʌ-kʷúʔma:qɪn   [ʌ] to [ʊ] (31)

Third Cycle

kʷɪkʷúʔma:qɪn   Dim. Ablaut (-)

kʷɪkʷú:ʔma:qɪn kʷʌ-kʷʌmkʷá:ʔma:qɪn   Leng. Stress Vowels (8)

kʷɪkʷúʔma:qɪ:n   Long Final Vowel (11)

kʷíkʷúʔma:qɪ:n kʷʌ-kʷʌmkʷa:ʔma:qɪn   Stress Shift (27)

                kʷʌ-kʷúmkʷa:ʔma:qɪn   [ʌ] to [ʊ] (31)

Fourth Cycle

                kʷɪkʷúmkʷa:ʔma:qɪn   Dim. Ablaut (-)

                kʷɪkʷú:mkʷa:ʔma:qɪn   Leng. Stress Vowels (8)

                kʷíkʷʊ:mkʷa:ʔma:qɪn   Stress Shift (27)

Predicted Forms

[kʷíkʷʊ:ʔma:qɪm]   [kʷíkʷʋ:mkʷa:ʔma:qɪn]

Actual Forms

$[k^w\acute{\iota}{:}kuma{:}q\iota{:}n^h]$　　　　　　　$[k^w\iota{:}kumk^w\acute{a}{:}^a\text{?}ma{:}q\iota{:}n^h]$

10. Diminutive Vowel Insertion

Rule 10 inserts high front vowels in the stem of a diminutive. A high front vowel is inserted between two consonants or between a glide and a consonant, but not between two glides. The form of a plural diminutive on a root with no underlying vowels would be:[3]

$$[C_{dim} + [CC]_{pl} + [CCC]_{stem}]$$

The initial cluster separation rule (Rule 9) does not act after the diminutive alone, but does next to the plural yielding:

$$[C + [CCC\Lambda CiC]]$$

with the present rule having been applied in the first cycle since the whole formation is a diminutive.

In the second cycle, the plural ablaut, rule 12, would insert a schwa in the plural morpheme giving:

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(3) In the plural diminutive the morphemes for the plural and diminutive are not in the correct order as generated by the phrase structure rules. In the present analysis they will have to be reversed on lexical insertion. Admittedly this is not elegant. It results from attempting to account for the presence or absence of the stem vowel with boundary conditions.

[C + [CʌCCʌCiC]]

In the third cycle, rule 9 will apply to the word initial cluster and the diminutive ablaut rule will change the inserted schwa to an [i]. Finally, rule 11 will lengthen the final vowel giving:

CiCʌCCʌCi:C

The following forms illustrate these processes:

1. ƛ´pι:ća:?a   ƛ´ι:ƛ´ʌpʰƛ´ʌpι:ća:?
                 /ƛ´pi/ća?/   yellow-cedar bark blanket (S)

2. lʌq́ʌs   lι:lʌq́lʌq́ι:s   /lq́s/
                 mountain-goat blanket (S)

3. q́áṕxʷay   q́ɛ:q́ṕxʷay   q́eq́ʌṕq́áṕxʷay /q́ṕ-xʷ-/ oak (S)

If the underlying root is CC ,then this rule will operate on the root itself.

4. (?)aƛ   (?)έ:?ε:ƛ   /?ƛ/   leggings (S)

5. q́á:ƛ´   q́ɛ:q́e:ƛ´   /q́ƛ´/   land otter (S)

6. ĉ´aqx   ĉ´ι:ιĉ´ι:eqx   /ĉ´q/   robin (S)

The following pair show that the insertion does not take place between two glides.

7. x̱á:wgʸas   x̱ax̱a:wgʸas   /x̱awwas/ grizzly bear (S)

8. q́ʷʌ?ιx̱   q́ʷa:?ʌjιx̱   /q́ʷaýx̱/   wood (S)

9. qé:?wx̱   qέ:qεgʸεx̱   /q́εẃx̱/
                 steelhead salmon (S)

A later rule (Rule 22) converts intervocalic [y] to [j], accounting for the alternation between these in the above forms.

In some diminutive forms the vowel in the final syllable of the root becomes long (see Rule 11).

10. (?)á:sx^W ?á:?ası:x^W /?asx^W/   hair seal (S)

'Hair seal' also illustrates that this rule must be more general than a later schwa epenthesis rule (Rule 27) since the latter rule does not insert a schwa between the [s] and [x^W].

To account for the above facts we write the rule:

$$\emptyset ==>> i/[- \text{syllabic}](1\ 10)\_\_[- \text{syllabic}](1\ 10)$$

Some additional examples are:

11. tí:ıx^W	titiyı:x^W	/t∧yx^W/	yellow cedar (S)
12. q∧́l'q́	qéq∧lı:eq́	/q∧lq́/	warrior (S)
13. t'o:/mt	t'ót'∧bı:t^h	/t'oḿt/	paddle (S)
14. q́^{W}át:∧m	q́ɛq́^{W}at:∧:m?	/q́^{W}atm/	river (S)
15. sá:ć∧m	sas:a:ćı:?m^h	/saćm/	tyee salmon (S)
16. łá ı dać̂t∧n	łałí:dać̂tı:n	/ły-nać̂-tn/ Woman's cedar bark skirt (S)	

11. Lengthen the Final Vowel in the Diminutive[4]

Rule 11 lengthens the final vowel of the root of a diminutive. Some examples are:

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(4) This rule is necessary only for Sapir's data. What few diminutives I was able to gather do not have the final vowel lengthened.

Comox

1. ćá:muqɬ   ćá:ćɨmʌqʷι:ɬ   /ćamʌqʷɬ/ cloud (S)

2. mʌqsιn^h   mímʌqsι:n^h   /mʌqsin/ nose (S)

3. ƛí:ʔʌm   ƛaƛi:ι?ι:m?   /ƛaým/ cockle (S)

4. páxay?   pip^hxe:?ι   /pxy creek (S)

5. qá:?ʊm^h   qéqawε:m?^h   /qẃm/ eye (S)

6. ƛ´ʌms   ƛ´oƛ´a:?amι:s   /ƛ´ʌms/ house (S)

7. sá?ijʌh   sasi:ja:?^a   /sayýah/ leaf (S)

8. sá:yaɬ   sisá:?ya:ɬ   /sʌýaɬ/ lake (S)

The rule must act only on roots because of

9. qʷʌsʌm   qʷeqʷhse:^moɬ qʷsm-oɬ/ wool grouse (S)

in which the final vowel does not lengthen since [-oɬ] is a

suffix meaning 'offspring'.

    There are also some exceptions:

10. sʌqʌk^wh   sí:sqek^w   /sqk^w/   war club (S)

11. sέ:qet^h   sí:ˡsqet^h   /siqit/   well (S)

    The actual form of the rule is:

$$[+ \text{syllabic}] ==>> [+ \text{long}]/ \_\_\_ C(1 \; 1)$$

12. Plural Ablaut Rule

    The ablaut rule for the plural is actually two rules.
One changes the vowel of the reduplicated syllable to schwa.
The other inserts a schwa in the plural morpheme if none
exists. By Rule 9 a schwa should have already been inserted
after the initial consonant of the reduplicated morpheme

formed from roots that have no underlying vowel This rule will apply vacuously to the forms where this has happened. However, the plural diminutive will have no vowel in the plural morpheme because the boundary between the plural and the diminutive would block its insertion. This boundary condition was necessary to account for forms where there is no vowel in the stem that is either a diminutive or imperfect. Having this rule insert the vowel in those cases detracts from the generality of the solution. However, the alternative is to have vowels in the underlying forms deleted by a rule. Since there is no phonological environment for the deletion, such a rule would use rule features and abandons completely a phonologically-based solution.[5]

In addition those few forms that do not change the vowel of the plural morpheme to a schwa cannot be accounted for if the spelling rule simply puts a schwa in the plural morpheme since the forms copy the vowel of the stem. To account for these forms the spelling rule must either have a disjunctive environment determined by non-phonetic features or a second spelling rule must be formulated.

I was not able to elicit as many reduplicated forms as was Sapir. The forms that I do have do not have as many complications as Sapir's data. Most of my data show transparent C∧C-reduplication:

------------------- notes -------------------
(5) I am happy with neither of these solutions.

1. só:man   sʌ́mso:man   /soman/   eyebrow (H)

2. pʌ́y?x̲ay?   pʌ́ypʌ́y?x̲ay?   /pʌ́ýx̲aý/   douglas fir (H)

3. ?émιn   ?ʌ́m?emιn   /?imin/   door (H)

4. kʷáɫtʰ   ǩʷʌ́:ɫkʷaɫtʰ   /ǩʷaɫt/   dish (H)

5. ɫúx̲ʌnos   ɫʌ́x̲ɫʌx̲anos   /ɫʌx̲-an-os/ dirty (H)

6. ƛʼʌms   ƛʼʌmƛʼʌms   /ƛʼʌms/   house (H)

7. tʌléǩ́ʸ   tʌ́lktʌleǩʸ   /tleǩ/   hole (H)

The few like

8. ǩóyokʷʰ   ǩʷi:ǩʷoyokʷ   /ǩoyokʷ/   fish hook (H)

9. kʷá:?ʌnay   kʷʌnkʷa?ʌnay   /kʷan/   lid (H)

10. qa?ʌwom   qó:qa?ʌwom   /qaẃom/   eye (H)

that are not CʌC-reduplication will be discussed later.

In Sapir's data, however, there appear to be at least
two classes of roots, one of which simply repeats the first
CVC of the stem, and a second which repeats the first two
consonants of the stem with a schwa between them. This
latter class is far and away the larger of the two. There
are many ways to account for these data. I have tried to
capture the fact that the majority of the roots in Comox
form their plural through reduplication with the vowel of
the plural morpheme being a schwa. The small number of
forms that do not ablaut the vowel in the plural will be ex-
ceptions to this rule.

The rule is:

$$\begin{Bmatrix} [+ \text{ syllabic}] \\ [\ \emptyset\ ] \end{Bmatrix} ==>> \begin{bmatrix} - \text{ high} \\ - \text{ low} \\ - \text{ back} \\ - \text{ tense} \end{bmatrix} \Big/ + C \underline{\hspace{3cm}} C +$$
$$[+ \text{ plural}]$$

The exceptions to the first part of this rule con-
stitute a class of roots that do not ablaut the vowel in the
reduplicated syllable. The following are taken from Sapir:

11. x̲ó:pʰx̲o:pʰ   x̲ó:pʰx̲ó:pʰx̲o:pʰ   /x̲op/
                                  humming bird (S)

12. ćox̲ó:ʔ   ´x̲ćox̲o:ʔ   /ćox̲oʔ/   codfish (S)

13. q́áṕxʷai   q́aṕq́á:ṕɛxʷai   /q́aṕ-xʷ-ay/ oak (S)

14. ʔáwa:kʷʰ   ʔaʊʔáwa:kʷʰ   /ʔawakʷ/   tobacco (S)

15. q́ʷát:ʌm   q́ʷátʰq́ʷt:ʌm   /q́ʷatʌm/   river (S)

16. q́ákʷʰ   q́ákʷʰq́akʷʰ   /q́akʷ/   board (S)

17. x̲á:ʊgʸas   x̲áʊx̲a:ʊgʸas   /x̲awwas/   grizzly bear (S)

18. qá:ʔʊmʰ   qáʊqa:ʔʊmʰ   /qʌẃm/   eye (S)

19. aƛ   ʔáƛʔaƛ   /ʔaƛ/   leggings (S)

In my own data 'grizzly bear' is not exceptional,
[x̲ʌʊx̲aʊgʸas]. Although 'oak' is exceptional in the plural
under this analysis, it is regular in the plural diminutive,
[q́eq́ʌṕq́áṕx̲ʷa:ι]. This leads me to believe that the plural
of oak might be a transcriptional error. In my data 'oak'
is [q́ʌṕxay?]. 'Eye' in the diminutive plural is
[qeqoqa:ʔoḿʰ] which is what would be expected through as-
similation of the schwa to the following [w] in the second
syllable, assuming that [ʔu] constitutes an underlying /ẃ/.

'Tobacco' also is regular in the diminutive plural [ʔeʔʌʊʔáwa:kʷʰ]. Another form

20. ó:ɬqaɩʔ   ʔáɬʔoɬqaɩʔ   snake (S)

cannot be accounted for by making it an exception to the ablaut rule, but it is nevertheless regular in the diminutive plural, [ʔe:ʔʌɬʔoɬqaɩʔ].[6]

13. Delete Final Glottalization

If the final consonant of the reduplicated syllable is a glottalized resonant, then the glottalization is deleted.

1. qé:ʔwʌx̲   qʌʊqé:ʔwʌx̲   /qiw̓x̲/ steel-head salmon (S)

   /qiw̓x̲/   /qʌw̓+qiw̓x̲/

2. táʔʌlɩĉ   tʌltaʔʌlɩĉ   /tɩlˊɩĉ/ circular (H)

3. qáʔᴧwom   qó:qaʔᴧwom   /qaw̓om/ eye (H)

4. kʷá:ʔʌnay   kʷʌnkʷaʔʌnay   /kʷañay/ lid (H)

In order to justify this rule I must first establish that there are underlying glottalized resonants in the language. All of the arguments for the existence of glottalized resonants rest on the attempt to establish a canonical form for the reduplicated plural. All of the above forms along with:

5. máʔtˊay   mʌtˊmaʔtay   /matˊay/ horse clam (H)

------------------   --------------------
                          notes
(6) I was not able to re-elicit these exceptions. Therefore I do not know if these are the results of a varying transcriptional practice, transcriptional errors or true exceptions. I have taken all of Sapir's data seriously, not dismissing any of it.

6. t´á:ʔᵃq̓atʰ t´ʌq̓t´á:ʔᵃq̓atʰ /t´aq̓at/ mountain (S)

serve to illustrate a problem for the spelling rule. Glottal stops are apparently ignored by the spelling rule. If glottal stops never appeared in the reduplicated syllable, then either the spelling rule could be fixed, or the feature specification of the glottal stop could be fixed so they would not be copied. But this is not the case. Glottal stop is copied initially in:

7. ʔáwa:kʷʰ   ʔaʊʔáwa:kʷʰ   tobacco (S)

8. ʔáyyʌ   ʔʌ́yʔayyʌ   house (H)

and medially in:

9. sáʔanʰ   sáʔᵃsaʔanʰ   cohoe salmon

10. p̓éʔx̱ay̓?   p̓éʔp̓eʔx̱ay̓?   alder (H)

11. nó:ʔɬ   noʔᴧnoʔɬ   older brother/sister (H)

If it is not ignored in the above forms, then why is it ignored in the first group of forms above? A possible answer is that the glottal stop is 'not present' at the time the spelling rules operate (i.e. in the underlying form). Its appearance then would either be epenthetic or be generated from surrounding consonants. In a number of cases the glottal stop that is not copied occurs before an underlying resonant (y,w,m,n,l). It is not clear in all of these cases that a resonant is present since there are processes that obscure their presence, but they can be posited as underlying segments. The proposal being adopted here is to analyze these resonants as underlying glottalized resonants

which are afterward separated from their glottalization, a process that is not limited to resonants alone. This same process accounts for the cases like 'mountain' and 'horse clam' above. More examples will be given when this is discussed later (see Rule 14). Briefly, however, the glottalization of a glottalized consonant is anticipated as a glottal stop following a non-high vowel. But at the time that the spelling rule operates the glottal stop is not a separate segment.

The spelling rule copies the glottalized resonant or consonant as it would any other consonant. Then the glottalization on a resonant in the reduplicated morpheme is removed. When this glottalization is deleted, the proper output is generated. Some examples illustrating this process with [y] and [w] are:

12. sá?ijʌ^h sí:sa?ijʌh   /saýyah/   leaf (S)

13. sá:?yɬ   si:sá:?yaɬ   /saýaɬ/   lake (S)

14. qá:?ya^h qé:qa?ya^h /qaýah/   water (S)

15. x̲á:^{a}?wa   x̲ʌ̲x̲a:?wa   /x̲aẃa/   fur seal (S)

exceptions in Sapir's data are:

16. ƛí:?ʌm^h ƛí:?ƛi:?ʌm^h /ƛʌýʌm/   cockle (S)

17. qɛ:ńqɛn^h duck

The actual form of the rule would be:

$$[+ \text{son}] ==>> [-\text{glottal constriction}]/[+\text{syllabic}] \underline{\hspace{2cm}} + $$
$$[+ \text{plural}]$$

In Sapir's data there are some examples where a glottal stop that is not copied in reduplication has a vowel following it. Sometimes Sapir writes these vowels above the line of segments, indicating them to be echo vowels after the glottal stop. However, in some cases these vowels are written as full segments.

18. x̲á:ʔajaiŝ   x̲é:x̲á:ʔajaiŝ   /x̲ʌýayx̲/   stone (S)

There are other cases where he writes a re-articulated vowel above the line of segments, but without an intervening glottal stop

19. sá:^{a}ba^{h} sʌmsá:^{a}ʔba^{h} /saḿah/   mussel (S)

20. tá:^{a}q̓^{w}a^{h} tʌq̓tá:^{a}q̓^{w}ah   /taq̓^{w}ah/   devil fish (S)

21. ƛ´á:^{a}q̓^{w}a:i   ƛ´ʌq̓^{w}ƛ´a:^{a}q̓^{w}a:i /ƛ´q̓^{w}ay/   fish-gill (S)

In these cases after the glottal stop is copied, it would either be weakened or deleted, leaving a long vowel. Cases like

22. q̓á:asa^{h} q̓ʌsq̓a^{a}sa^{h} /q̓s-ah/$^{(7)}$ sea otter (S)

23. mi^{ɛ}x̲a:ł   mʌxmi^{ɛ}x̲a:ł   /mix̲ał/   bear (S)

cannot be interpreted as involving a glottal stop. I assume these are long vowels that are re-articulated.

-------------------- notes --------------------
(7) The root is shortened in the diminutive [q̓é:q̓e:ɛs] and therefore a boundary is indicated in the underlying form.

Another approach to uncopied glottal stops is to postulate more than one kind of glottal stop. There would be one type in

24. sá?an^h   sá?^asa?an^h   /s?an/   cohoe salmon (S)

and another type in

25. tá:?ag^yax^w totá:?ab^yax^w   /taw̓ax^w/ fern (S)

The copied glottal stops like those in "cohoe salmon" would be underlying pharyngeals. The uncopied glottal stops would be underlying glottal stops.

This proposal is feasible since pharyngeals are phonetically present in other Salish languages. Underlying pharyngeals would then be copied, and surface as glottal stops. The underlying glottal stop would not be copied. This solution, however, really disguises diacritics as phonetic segments. I suggest it here for whatever comparative value it may have.

Briefly recapitulating this discussion, glottal stops that are not copied by the plural spelling rule result from a following glottalized segment occurring after a non-high vowel. All glottalized resonants are copied by the spelling rule. If the segment is a resonant, the glottalization is deleted (rule 13). The glottal stop in the stem results from rules 14 and 15, and the vowel following the glottal stop from Rule 21.

a. Sample Derivation

The following is a derivation of the plural of "lid."

Output of Syntax and Lexical Insertion

CVC + /k^{W}añay/

Pre-cyclic Rules

k^{W}añ + k^{W}añay   Plural spelling rule (rule 1)

First Cycle

k^{W}añ + k^{W}áñay   Penultimate stress rule (rule 6)

k^{W}añ + k^{W}á:nay   Lengthen stressed vowels (rule 8)

k^{W}añ + k^{W}á:?nay   Resegmentation of glottalized resonants

                          (rule 15)

k^{W}añ + k^{W}á:?∧nay   Echo vowel after a glottal stop (rule 21)

Second Cycle

k^W∧ńk^{W}á:?∧nay   Plural ablaut rule (rule 12)

k^W∧nk^{W}á:?∧nay   Delete final glottalization (rule 13)

k^W∧nk^{W}a:?∧nay   Stress shift (rule 27)

The form actually recorded was:

1. k^W∧nk^{W}a?∧nay   lid (H)

The difference between the actual form and the generated form is the vowel length that is included for Sapir's forms. This form is from my corpus.

14. Glottal Stop Copying

Rule fourteen copies glottalization as a glottal stop preceding a glottalized segment following an open syllable containing a non-high vowel. Some examples are:

1. pá?ʌq̓ɛm   /paq̓em/   smoke (H)
2. kʷá?ƛˊɛm   /kʷaƛˊem/   mist (H)
3. tˊá?q̓ʌtʰ   /tˊaq̓ʌt/   mountain (H)
4. má?ĉˊɩn   /maĉˊin/   louse (H)

In the resonants this process involves resegmentation; a glottalized resonant becomes a glottal stop plus an unglottalized resonant. However, this is not the case with glottalized obstruents, since in some cases the stop is still glottalized after an echo vowel is inserted after the glottal stop. We can contrast

5. tá?^liĉ   /tʌlˊiĉ/   circular (H)
6. qá?^wom   /qʌẃm/   eye (H)

where glottalization is not detected on the [l] or [w] with

7. ma?ĉˊɩn   /maĉˊɩn/   louse (H)

where glottalization is still detectable on the glottalized consonant.

But these occur in the same environment and would appear to be part of the same process. If the same rule copies the glottal stop for both the resonants and the consonants, then a second rule will have to eliminate the glottalization from the resonants. And since this is the case we could just as efficiently write two rules, one for the

resonants and the second for the stops and affricates.

The glottalized resonants are furthered disguised by two other morphophonemic processes. One is an alternation between [y] and [j] and the other an alternation between [w] and [g] (discussed further at Rule 22):

8. ĉá?^ja?   ĉí:ĉa?^ja?(pl) /ĉaýa?/   grandmother (H)

this would parallel

9. ḱ^woyokŝ^h   ḱí:ḱ^woyok^{wh}   /ḱ^wʌyʌk^w/ fish hook (H)

And for the [w]

10. ṕég^ya:i   ṕo:^ʊṕég^ya:i   /ṕiway/   halibut (S)

would parallel

11. qa?^wom   qo:qa?^wom   /qʌẃm/   eye (H)

Recapitulating then, Rule fourteen will insert a glottal stop in front of a glottalized consonant when these are preceded by a [-high] vowel.

Rule fifteen will re-segment glottalized resonants, converting them into a cluster. Finally a rule will insert an echo vowel after this glottal stop.[8] The actual form of rule fourteen is:

$$
\emptyset \Longrightarrow \begin{bmatrix} - \text{ son} \\ - \text{ con} \\ - \text{ syll} \end{bmatrix} \Bigg/ \begin{bmatrix} + \text{ syll} \\ - \text{ high} \end{bmatrix} \underline{\qquad} \begin{bmatrix} + \text{ con} \\ - \text{ son} \\ + \text{ glot contr} \end{bmatrix}
$$
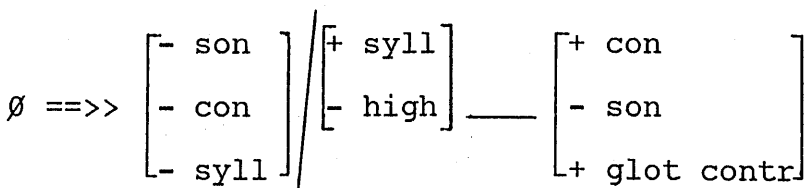
------------------- notes -------------------

(8) Sapir's form
     rush mat   qá:?aqa   qʌq^hqá:?aqa^h
     cannot be accounted for by this analysis.

15. Resegmentation of Glottalized Resonants

Rule fifteen, discussed in connection with the last rule, re-segments the glottalized resonants. The actual form of this rule is:

$$\begin{bmatrix} + \text{ son} \\ + \text{ glot constr} \end{bmatrix} ==>> \begin{bmatrix} - \text{ son} \\ - \text{ cons} \\ - \text{ syll} \end{bmatrix} \begin{bmatrix} + \text{ son} \\ - \text{ glot constr} \end{bmatrix} \Big/ \begin{bmatrix} + \text{ syll} \\ - \text{ high} \end{bmatrix} \underline{\quad}$$

16. Schwa Assimilation to a Glide

Schwas that are followed by [y], [w], [h], or [?] assimilate to the features high, front, and back. A later rule (26) then deletes the glide and causes compensatory lengthening of the vowel. Most examples of this rule before [y] and [w] are obscured because of rule 22, which converts intervocalic [y] and [w] to [j] and [g] respectively. Some examples with [y] are:

1. ĉá:yaŝ   ĉí:ĉa:yaŝ   /ĉayas/   hand (S)

2. ĉá:yʌs   ĉí:ĉa:yʌs   hand (H)

3. sayá:?ada   sí:saya:?ada   /sayańa/   neck (S)

4. sáyya?ʌnʌ   sí:sayya?ʌnʌ   neck (H)

These two forms are apparent exceptions to the y/j alternation (See the discussion at the end of the section on rule 22.), but they show the assimilation and glide deletion. Some examples with the alternation are:

5. sιjá:go:ʔpʰ sí:sιja:qo:ʔpʰ basket hat (S)

6. x̱á:ʔajaιŝ x̱é:x̱a:ʔajaιŝ stone (S)

Some examples with [w] are:

7. tá:ʔagʸaxʷ totá:ʔagʸaxʷ /taẃaxʷ/ fern (S)

8. gʸí:gʸi: gʸu:gʸí:gʸi: /wʌy/ panther (S)

9. ṕégʸa:ι ṕo:ᵘṕégʸa:ι /ṕʌwai/ halibut (S)

The plural of 'fern' is one of two examples Sapir gives where the [o] resulting from a following [w] is not long. I do not know whether these are true anomalies or simply mistakes.

Some cases with a glottal stop are:

10. sáʔanʰ sáʔsaʔanʰ cohoe salmon (S)

11. x̱áʔa: x̱áʔᵃx̱aʔa big clam (S)

12. x̱áʔaιdaĉ x̱áʔᵃx̱aʔaιdaĉ stump (S)

13. kʷáʔam kʷáʔᵃkʷaʔam coiled storage basket (S)

These forms could also be analysed as exceptions to the ablaut rule.

Some cases of the assimilation to an [h] are:

14. tí:ha:da:nʔ táhtι:ha:danʔ(pl) chief's wife (S)

15. hʌkxʷtʰ háhkxʷtʰ(imp) hang it up (H)

The actual form of the rule is:

$$
\begin{bmatrix} + \text{syll} \\ - \text{high} \\ - \text{low} \\ - \text{round} \\ - \text{back} \\ - \text{tense} \end{bmatrix} ==>> \begin{bmatrix} \alpha \text{ high} \\ \beta \text{ low} \\ \psi \text{ back} \\ \phi \text{ round} \end{bmatrix} \Big/ \underline{\hspace{1em}} \begin{bmatrix} - \text{con} \\ - \text{syll} \\ \alpha \text{ high} \\ \beta \text{ low} \\ \psi \text{ back} \\ \phi \text{ round} \end{bmatrix}
$$
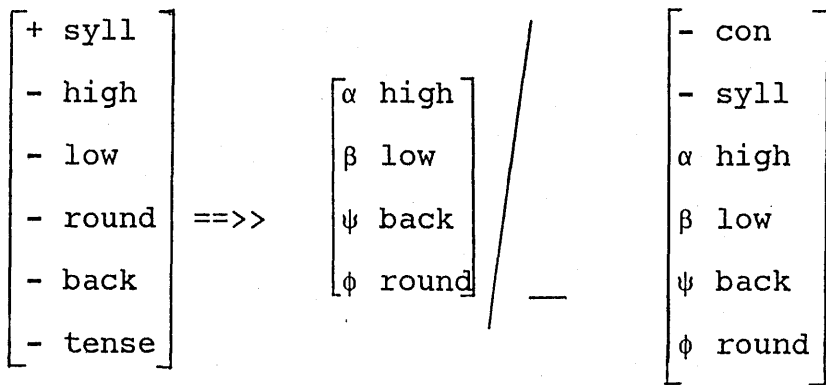
There are a class of exceptions in which the following [y] or [w] does not affect a preceding schwa.

16. héw^qen^h   h^uhew^qen^h   /hiwqin/   swan (S)

17. x̱á:ᵃ?wa   x̱^ux̱a:?wa   /x̱aẃa/   fur seal (S)

An exception involving [y] is:

18. q́ʷʌ?ιx̱   q́ʷʌιq́ʷʌ?ιx̱(pl)   /q́ʷʌýx̱/   wood (S)

    q́ʷa:q́ʷá:?ᵃjιx̱(dim)

The lack of assimilation of the schwa to the following [y] in the plural morpheme will be discussed in connection with Rule 22. The lack of assimilation of the schwa to the following glottal stop is unexplained since this does take place in the diminutive.

There are some forms given by Sapir that have an [a] in the reduplicated plural morpheme. Taken together they appear to constitute a small class that has an [a] in the plural or diminutive morpheme. They are however, problematic in several ways. Not all of these [a]'s can be the result of the present assimilation rule since they are not all followed by either low glides or back consonants.

When I elicited these forms, many had a schwa corresponding
to Sapir's [a]. But I was not able to obtain all the mor-
phological manifestations that Sapir gives, and therefore
was not able to check these forms fully.

These a-forms are accounted for in two ways: first, as
mentioned earlier, there is a class of exceptions to the
ablaut of the plural to schwa, and a class of exceptions to
the diminutive ablaut. A larger share of these exceptions
have [a] than would be expected in a random distribution.
In the diminutive the exceptions with a high front vowel in
the stem are indistinguishable from those that ablaut.
There are no exceptions with a low front vowel (this vowel
is perhaps avoided because one class of stems uses this
vowel for the diminutive plural). An [o] appears in eleven
cases. There are no schwas in the diminutive morpheme.
Finally, [a] appear in about twenty-two cases. Some ex-
amples are:

19. x̱á:ʊg^{y}as   x̱áx̱a:ʊg^{y}as(dim)   grizzly bear (S)

20. sá:ćʌm   sasá:^{a}ćι:ʔm^h(dim)   tyee salmon (S)

In many cases the stem vowel of the unreduplicated form is
not deleted entirely but is reduced:

21. x̱á:^{a}ʔwa   x̱á:x̱ʌwa:ʔ^a(dim) fur seal (S)

22. sá:^{a}ʔba^h sá:sʌba:ʔ^a(dim) mussel (S)

23. ɬáιdaĉtʌn   ɬaɬi:daĉtιn(dim)   woman's cedar
                                    bark skirt (S)

Similarly there are [a]'s that appear in the
reduplicated plural morpheme. Of these forms that I have

been able to elicit, several have a schwa in them cor-
responding to the [a] that Sapir records. Although these
are not regular formations in the plural, nevertheless they
have regular plural morphemes in the plural diminutive. The
following given by Sapir are analysed as exceptions to the
plural ablaut rule:

24. q̓ápx^waι   q̓apq̓á:p̓εx^waι   q̓ʌ́px^way? (H) oak (S)
25. ʔáwa:k^{wh}   ʔaʊʔáwa:k^{wh}s   ʔʌwakx^w (H) tobacco (S)
26. q̓^wát:ʌm   q̓^wát^hq̓^wat:ʌm   q̓^wʌtʌm (H) river (S)
27. q̓ák^{wh}   q̓ák^{wh}q̓ak^{wh}   board (S)
28. x̱á:ʊg^yas   x̱áʊx̱a:ʊg^yas   x̱awg^yas (H) grizzly bear (S)
29. aƛ   ʔáƛʔaƛ   leggings (S)
30. ƛ́áqe:^enaŝ   ƛ́áq^hƛ́aqe:^enaŝ   ƛ́ʌq̓óweŝιn (H) spring (S)
31. ƛ́áx̱aι?   ƛ́áx̱ƛ́axaι?   old man (S)
32. ƛ́áx̱ay?   ƛ́ʌ́x̱ƛ́axay?   old man (H)
33. páq:a:os   paq^hpaq:a:os   white-eyed (S)
34. páx̱aι?   páx̱paxaι?   pʌx̱áy? (H) creek (S)
35. qá:ʔʊm^h   qáʊqa:ʔʊm^h   eye (S)
36. qá?^ʌwom   qo:qá?ʌwom   eye (H)

A set of forms that shows the change of the stem vowel
to [a], but which does not have a following low glide is:

37. ĉ́eɬ   ĉ́a:ĉ́eɬ   rain (S)
38. qó:?^ʊq^waι   q^wa:qó:?^ʊq^wa   speaker (S)
39. ĉ́ʊ́:?^ιĉaιq^h ĉ́aĉ́ʊ́:?^ιcaιq^h   salt-water hunter (S)

In these forms the glide loss must have operated to give the
long [a]. The last form does not show the long vowel, and

would be an exception to this analysis. I have recorded the
other two forms with the glottal stop present:

40. ĉ´ɛɫ   ĉ´a?^ĉ´ɛɫ   rain (H)

41. qʷay   qʷa?qʷay?(talk) say (H)

There remain in Sapir's data some problematic cases
with [a] appearing in the reduplicated syllable, but the
reduplicated form itself is exceptional.

42. á:xʷ   ?a:?a:xʷ   snowflake (S)

Sapir lists this as a plural, but it may be an imperfect in-
terpreted as a plural. Other irregular forms with [a] are:

43. yíp:ι:xʷ   yá:yιpi:xʷ   hole (S)

44. ó:ɫqaι?ˡ   ?áɫ?oɫqaι?ˡ   snake (S)

45. ʎi:?ʌmʰ   ʎáʎi:?ιm̓ʰ   cockle (S)

46. kʷúja:kʷʰ   kʷaḳʷá?ᵃja:kʷʰ   trout (S)

17. Nasals Become Voiced Stops

In Sapir's data there are cases of an alternation
between voiced stops and the their homorganic nasals.

1. qɛ́:ńqɛnʰ qʌd:qɛ:ńqɛnʰ(pl) qeqʌ?ádo:ɫ dim duck (S)

2. sá:?baʰ   sʌmsá:?baʰ(pl)   mussel (S)

3. sá?anʰ   sí:s?adoɫ(dim)   cohoe salmon (S)

4. t´ó:?mtʰ t´ót´ʌbι:tʰ(dim) paddle (S)

There is one case of free variation.

5. ʎoyokobι:n ~ ʎoyokomι:d   fisherman (S)

The alternation of voiced stops with nasals presents a
historical conundrum. In 1857 George Gibbs elicited a Comox

wordlist at Nanaimo. This would not have been Comox speaking territory. His transcriptions are little more than adumbrations of what the words sounded like since there are many distinctions which he does not record. But he does record [b]'s and [d]'s along with [m]'s and [n]'s.

In 1884 Tolmie and Dawson published a list of Comox words gathered again "at Nanaimo in 1833 from Mary, wife of a Puntlatch Indian"(Tolmie and Dawson, p. 119). Although many of the words appear to be Comox, many others appear to be Cowichan.[9] Again the transcriptions are not accurate, but both [b]'s and [d]'s are recorded along with [m]'s and [n]'s.

In 1886 and 1887 Boas gathered some materials at the Comox reserve. He does not record any [b]'s and [d]'s, although he notes that the nasals have a distinctive mode of pronunciation; ". . . the [b] sound. . . is produced with half-closed nose by the Indians of the Strait of Fuca, in the State of Washington. . . The characteristic trait of the sound is a semi-closure of the nose similar to the effect produced by a cold in the head." (Boas 1911). Some of the nasals that Boas records correspond to [b]'s and [d]'s in Gibbs' list.

------------------------ notes ------------------------
(9) The following are clearly Cowichan:

	Cowichan	Comox	Given
chief	si?ém?	hég^{y}os	si:am
house	lélʌm?	ƛ´ʌms	lalum
belly	ƛ^{w}ʌl?ʌ	k^{w}á?ʌwa?	k^{w}ulla
chest	s?i:lʌs	?ʌyyɨnas	stzeilush

Nor was the material recorded by Sapir in 1911 gathered at a Comox speaking village site. Sapir records some [b]'s and [d]'s, but notes that they are variants of [m] and [n]. He says that [b] and [d] are most often heard inter-vocalically and sometimes word finally, while [m] and [n] are heard word initially.

In my own data gathered in 1970 and 1971 I have recorded no [b]'s and [d]'s. It would appear that this se-quence of transcriptional divergence cannot be understood as historical change. The following chart illustrates the transcriptional divergences.

Gloss	Gibbs	Tolmie	Boas	Sapir	Harris
man	tó-besh	enika		tó:ʔmɪŝ	túmɪŝ
father	ba:a:d	na:n	ma:n		ma:n
mother	neʎyh	ta:n	nikH		
Indian	kai-mehw	datsio	ʎaímiq		qáymix^w
head	bo-ohsh	utuhosh	mo:ó:c	mó?os	mó?os
hair	bah-ket		má:ʎe:n		máqɛn
forehead	eht'-Shud	sa-ykso	é:itcsɛn		ʔʌyĉsʌn
eye	tskah'-oom	ka-a-wo:m	ká:wu:m	qá:?ʊm^h	qá?ʌwom
nose	muk-shud	muk-shin	mɛʎsɛn	mʌqsɪn^h	mʌqsʌn
mouth	soh-sed	tho-thed	çó:çin	só:sɪ:n^h	sósɪn
teeth	djid'-diss	gi-geis	djínis	jídɪs	jínɪs
leg	jesh-jesh-id	shúnna	djícin	jíŝɪn	jíŝɪn
house	klub'-ush	lalum	tlɛms	ʎ´ʌms	ʎ´ʌms
canoe	duch-shentl		nɛquitl		nʌx^{w}íɬ

pipe	hwa-hanȼsa	sput-ma:la	wá:q̓atse:	waxá:[a]ćι	wá:x̱a?ći?
sun	tai-gib	si-ok-um	téɡᵞim	t´ɛɡᵞɛm	t´ɛɡᵞɛm
winter	tchem-i-tchem	soo-titsh	dj'im(cold)		ĉ´ʌmĉ´ʌm?
river	kwut'-tum	kut-um	x̓utɛ:m	q̓ᵂát´ʌm	q̓ᵂʌtʌm
dog	cha:a:-do	tzia-dho	tsiá:ano:	ĉ´ɛ?a:do	ĉ´á?ʌnu?

I have changed the transcriptional system of Sapir to one more current. The rest are as presented by the authors.

The voiced stops in Gibbs occur in the following environments.

1. Eleven word initially.

2. Twenty-five intervocalically.

3. Seven following an [h] with a following vowel.

4. Eighteen are word final and one is morpheme final.

There are a total of fifteen forms with [m] or [n].

6. nek'yh   mother (G)

7. muk-shud   nose (G)

8. klal-shahm'   warrior (G)

9. duch-whentl   canoe (G)

10. hwa-hant'-sa   pipe (G)

11. shee-ant'   sky (G)

12. tchem-i-tchem   winter (G)

13. kwut'-tum   river (G)

14. kluk-kum   grass (G)

15. taht'-schm   black (G)

16. chah'-chum   cold (G)

17. g'yant-e-g'yant   who (G)

18. tsum sha'-a   twenty (G)

19. kai-mehw   indian people (G)

20. tskah'-oom   eye (G)

Two forms have initial nasals, 'mother' and 'nose'. There
are four which are a part of clusters. Three of these
clusters have an [n] which does not correspond to any seg-
ment in forms recorded by any of the other people.

21. g'yant-e-g'yant (G) g^{y}at (H)   who

22. duch-whent (G)l   nʌx^{w}ɨɫ (H)   canoe

23. hwa-hant'-sa (G)   wá:xa?ći? (H)   pipe

I cannot find any form to correspond to 'sky', and therefore
I am not sure about its status. I have recorded 'twenty' as
[sʌmxa'?a]. All the rest of the forms have a final [m], and
two of these forms contain the same root, 'winter' and
'cold'.

For the most part the [b]'s and [d]'s in Tolmie and
Dawson are word final or intervocalic. There are also [m]'s
and [n]'s in these environments. There are two word initial
[d]'s:

24. de-a:ji   far (T)

25. deish-a:pe   here (T)

Boas seems to have seen the alternation as an idiosyn-
cratic method of pronunciation. Sapir says that he has not
regularized his transcriptions, but has tried to record what
he heard. I did not hear any [b]'s or [d]'s.

The distribution of [b]'s and [d]'s in both Sapir and in Dawson and Tolmie is different from that in Gibbs. They have them as intervocalic and occasionally word final, while Gibbs has them word initial also. Since the materials of both Tolmie and Dawson, and Gibbs do not appear to be too reliable, I will only attempt to account for the forms given by Sapir.

To account for the alternation in Sapir we need a rule that changes nasals to voiced stops. Since there are word-initial nasals, but no initial [b]'s and [d]'s, the most likely environment is between [+ syllabic] segments. There are, however, instances of nasals in this environment that do not alternate with voiced stops.

26. kúma:qɪn^h sea-lion (S)

27. ćá:mʊqɬ   cloud (S)

28. ƛ´ɨkʊɪnʌs   heart (S)

If we compare Sapir's transcriptions with mine, we see that in most cases I have recorded a nasal plus a glottal stop where he has recorded a voiced stop.

29. skin, pelt   ɬá:dak^{wh} Sapir

        ɬá?^{ʌ}nak^{wh} Harris

30. ear   q̓óa?a:da Sapir

        q̓ówa?a?^{ʌ}na Harris

If we view the combination of glottal stop plus a nasal in my transcriptions as a single segment, then the contrast between his transcriptions and mine would be between glot-

talized nasals and voiced stops. The distributions of glottalized nasals in Sapir would be as follows: The contrast between glottalized and plain nasals is neutralized in initial position with only plain nasals occurring there.   In word or morpheme final position there are both glottalized and unglottalized nasals and a few voiced stops. In medial position there are plain nasals and voiced stops. If the glottalized nasals occur after a [-high] vowel by Rule 15, they will have a glottal stop in front of them. This will give voiced stops preceded by glottal stops after non-high vowels.

31. sá:aʔba^h   mussel (S)

32. ĉ´éʔa:do   dog (S)

    The rule, then, to account for these forms would state that glottalized nasals become the homorganic voiced stop between [+ syllabic] segments. Sadly, though, this rule does not work with complete regularity. The data give the appearance that there was some instability in the nasals. Rule 15 will account for cases where long [a] precedes a voiced stop with no intervening glottal stop. With this formulation examples like:

33. sá:^aʔba^h   sʌmsá:^aʔba^h (pl)   mussel (S)

34. łó:ʔ^ʰbom^h   łɨmłó:ʔbom^h (pl)   small clam (S)

(which are apparent exceptions to the CVC reduplication process for the plural) become regular. The [ʔb] in both cases would be an underlying [ḿ], giving rise to the proper

form for the reduplicated syllable.

Some examples where an [m] is not glottalized and
therefore would not be expected to alternate are:

35. ĉ´ɪtʰqa:mɪn   knife (S)

36. síp̓ʌmɪ:n   shinny stick (S)

37. ƛ´áɬsa:mɪ   strong (S)

Both 'knife' and 'shinny stick' end in the same morpheme.
All [b]'s but one are intervocalic in the sense defined:

38. ćá:ĉ´ɪɬbaɪ   spruce (S)

However, the [aɪ] is a suffix meaning "plant." What effect
this boundary has is unclear.

There are some examples of [m̓]'s that do not alternate,
even though they are preceded by a glottal stop.

39. tó:ʔmɪŝ   tʌ́mto:ʔmɪŝ (pl)   man (S)

40. qó:ʔmaɪʰ   qúmqo:ʔmaɪʰ   snow on ground (S)

In these examples the [m] does not change to [b]. It will
have to be analysed as glottalized since the glottal stop
does not occur in the reduplicated syllable, as would be ex-
pected if it were an underlying segment in the word. These
words will have to be exceptions to the nasal alternation
rule.

The rule operates on [n] with less regularity than on
[m]. There are three cases of an n/d alternation, including
the case of free variation mentioned earlier. The other two
are:

41. qέ:ńqɛnʰ   qʌd:qɛ:ńqɛnʰ (pl)   duck (S)

42. t´έ:ʔdɛ:qʷaι   t´ʌnt´έ:ʔdɛ:qʷaι (pl)
                    salmon-berry bush (S)

'Salmon-berry bush' is regular according to this analysis. 'Duck' shows the alternation, but the environment is not correct. In addition Sapir writes the [d] as long. This length is a boundary phenomena for voiced consonants. (The rules for this and other boundary phenomena are dealt with in Rules 36-39.)

Some [d]'s that do not alternate with [n] are:

43. qʷʌdι:s   qʷʌd:qʷʌdι:s (pl)   humbacked whale (S)

44. jίdιs   jιdjιdιs (pl)   tooth (S)

45. ǩó:do:t´   ǩʷʌd:ǩʷó:dot´(pl)   porpoise (S)

If these [d]'s are underlying glottalized nasals, we would expect a [d] in the root. However we would expect an [n] in the plural morpheme. These forms as I have recorded them are:

46. qʷʌnɛs   whale (H)

47. jίnιs   tooth (H)

48. ǩʷoʔʌnot´   porpoise (H)

There are two examples of final [d]'s; one is glottalized:

49. kó:sʌd   star (S)

50. ƛoyokobιn ˜ mι:d   fisherman (S)

These forms as I have recorded them are:

51. kúsʌn?   star (H)

52. Ḱóyokomɩn   fisherman (H)

The forms with final voiced stops lie completely outside
this analysis since they cannot even be generated as excep-
tions to this rule. Whether they indicate an underlying [d]
with very limited distribution is unclear. But since there
are only four forms involved we let the analysis stand.

The [b]'s and [d]'s in Sapir's data have a more
restricted privilege of occurrence than those in either
Gibbs or Tolmie and Dawson. Most of the Tolmie and Dawson
data can be accounted for by generalizing the environment of
the above rule, making it operate after [+ syllabic] seg-
ments, instead of between them, and making it work on all
nasals. This, however, would not account for the two forms
with word-initial nasals.

In Gibbs the voiced stops would occur everywhere. The
forms with [m]'s and [n]'s would be exceptional lexical
items. Conversely, perhaps, there are no underlying nasals
and a minor rule converts voiced stops to nasals in some
morphemes. But any postulated historical development from
one of these formulations to the other would have to ignore
Boas' data.

J. V. Powell (1974) has found that a similar set of
phonetic phonomena in Quileute is related to rhetorical
style. In Quileute the glottalization of stops can be an-
ticipated in the preceding vowel, and the vowel may be rear-
ticulated after the glottal stop.

good,pretty	há:ĉ´ ˜	há?ĉ´ ˜	há?ᵃĉ´	/há:ĉ´/
whale	qʷá:ƛ´ʌ ˜	qʷá?ƛ´ʌ ˜	qʷá?ᵃƛ´ʌ	/qʷá:ƛ´a/
dirty	?pé:ƙ ˜	?pé?ƙ ˜	?pé?ⁱƙ	/pi:ƙ

This is parallel to the type of glottal copying and resegmentation that I have postulated for Comox. The cases are, in fact, exactly the same, since the glottal stop also alternates with a long vowel. However, Powell found that the long vowel appeared in monitored citation forms where the vowel received primary stress, and in casual speech the glottal stop appeared. He also found the following set of alternations before resonants.

uncle	ĉí?la ˜ ĉí:la
woods	ƚá?lowat<u>x</u> ˜ ƚá:lowat<u>x</u>
cradle	qá?yit ˜ qá:yit
meadow	ƚó?wot ˜ ƚó:wot

These would be parallel to the glottalized stops and affricates above. When the vowel is long, the resonant is not glottalized. And a third set is as follows:

almost	cá?das ˜ cá:das
tight	ĉí?ba ˜ ĉí:ba
mine	tá?d ˜ tá:d
fingernail	ƚá?bas ˜ ƚá:bas

He has postulated that these voiced stops are the result of former glottalized resonants.

The parallelism between the Quileute case and Comox is striking, especially since each analysis was done quite in-

dependently. I cannot show that in Comox the alternation between voiced stops and glottalized resonants is rhetorical; but if this rule were a rhetorical rule, it would be commensurate with the facts. This would explain why Boas chose to ignore it, labeling it an idiosyncratic pronunciation style, and why I have not found the alternation at all since the social milieu for the language has disappeared.

The actual form of the rule is:

$$\begin{bmatrix} + \text{ nasal} \\ + \text{ glottal constr} \end{bmatrix} ==>> \begin{bmatrix} - \text{ nasal} \\ - \text{ son} \\ - \text{ contin} \end{bmatrix} / [+ \text{ syll}] \_\_ [+ \text{ syll}]$$

18. Metathesis of Resonant and Glottal Stop

I have already argued (Chapter III) that the underlying shape of the past tense suffix is [-ʔoɬ]. When this suffix is added to a stem with a final resonant, then there is a metathesis of the resonant and the glottal stop, with an echo vowel inserted after the glottal stop.

1. kʸutaʔʌnoɬ   dead horse (H)

2. qʷaʔʌloɬ   He came. (H)

3. qáɬeʔʌmoɬĉ   I was working. (H)

This process might be handled in two ways. First, it would be possible to simply write a rule that metathesizes a resonant and a following glottal stop. But such rules are

rare, and in fact it might be possible to handle this process in a way that probably is closer to its cause.

In Comox glottalized resonants are separated from their glottalization when they occur after a [-high] vowel. We can take advantage of this more general process by simply causing a resonant and a following glottal stop to combine to form a glottalized resonant. If we order this rule before the resegmentation rule, the resegmentation rule would generate a resonant preceded by a glottal stop. But the resegmentation only takes palce after a non-high vowel. If we find that the metathesis process is more widespread than this, then we would need a separate rule. The metathesis process does in fact take place after high vowels.

4. mʌkxʷtanapı?ʌmoɬ ?ʌtʌ qʷʌnɛs

    eat-you-past by the whale

    The whale ate you. (H)

In this case there is a boundary between the high vowel and the resonant; but in

5. k̓ʷoyokome?ʌnoɬ tʌm

    fisherman-past tom

    Tom was a fisherman. (H)

a boundary is not present.

6. k̓ʷoyokomın   fisherman (H)

    We might interpret the [ı] in this form as the stative and order the stative ablaut rule after the resegmentation

rule. I have no evidence that this is in fact a stative, and this would appear to reaching for the solution. Therefore I write a separate metathesis rule, but point out that in the language there is evidence of how it must have arisen.

This rule will have to be ordered before the rule that changes [y] to [j] because of

7. qaɫe?ʌmoɫ sho?ʌjuɫ maheyaytʌn

   work-past time finished-past afternoon

   He worked this afternoon. (H)

where [sho?ʌjuɫ] is /s-hoy-?oɫ/. The metathesis must take place before the /y/ becomes a [j].

The rule is written in a form, not being limited just to the past tense suffix.

$$
\left[\text{+ son}\right]
\begin{bmatrix} - \text{ cons} \\ - \text{ syll} \\ - \text{ contin} \end{bmatrix}
\text{==>>}
\begin{bmatrix} - \text{ con} \\ - \text{ syll} \\ - \text{ contin} \end{bmatrix}
\left[\text{+ son}\right]
$$

19. Glottal Stop Deletion

A second rule is needed for the past tense suffix. If the past tense suffix occurs after certain consonants, the glottal stop is deleted. If this rule is ordered after the above rule, the resonants will have already been eliminated. I have found only one example in the data where this suffix is added after an [h].

1. tihhoɫĉxʷ

   big-past you

   You were big. (H)

Since the glottal stop is deleted, the exact formulation of
the rule will have to indicate that it applies after
[-sonorant] segments. The [h] will have to be [-sonorant],
contrary to Chomsky and Halle's proposals. Some examples of
the deletion are:

2. x̲anatoɫĉan ʔʌŝi ĉaʔʌnuʔ

   give-it-past-I the(absent) dog

   I gave him a dog. (H)

3. kʷaĉxʷ qʌmgʸxʷoɫ

   ʔ-ques-you(sg) meet-him-past

   Did you meet him? (H)

4. ƛʌsostassoɫ ʔɛtʰ

   hit face-him-he-past   ??

   He punched him. (H)

   The rule cannot be formulated to ignore all boundaries,
since this deletion does not occur in the plural where a
stem begins with a glottal stop.

5. ʔʌsʔó:sa:ʔi   huckleberry bushes (S)

So the rule will only operate at boundaries lower than the
morpheme boundary. Given the convention that if a boundary
is mentioned in a rule all lower boundaries will apply (in-
cluding no boundary) the rule is:

$$
\begin{bmatrix} - \text{ cons} \\ - \text{ syll} \\ - \text{ cont} \end{bmatrix} ==>> \quad \emptyset \quad / \quad [- \text{ son}] \ —
$$

20. Echo Vowel Insertion

The ablaut rule for the stative either changes the vowel after the final consonant of a stem to /i/ or inserts this vowel if none is present.

1. hʌkʷtʰ   to hang up (H)

    hʌkʷιtʰ   It's hanging.

2. pʌn?ʌm   to plant (H)

    pʌnιtʰ   It's buried.

3. ɬeĉ´etʰ gʸʌ   Comb his hair! (H)

    ɬeĉ´ιtʰ   It's combed.

4. ćʌx̱ʷ   wash (H)

    ćʌx̱ʷιtʰ   It's washed.

This vowel will then be adjusted by the phonetic environment. This is unlike the vowel in the imperfect morpheme where the vowel has to be tense.

The rule will be:

$$
[+ \text{ syll}] \quad ==>> \quad \begin{bmatrix} + \text{ high} \\ - \text{ tense} \\ + \text{ front} \\ - \text{ low} \end{bmatrix} \Big/ \begin{bmatrix} \text{C 1} \\ + \text{ stative} \end{bmatrix} \_\_ \ +
$$

21. Echo Vowel after a Glottal Stop

Rule twenty-two inserts a schwa after a glottal stop if it is followed by a [-syllabic] segment. Some examples are:

1. qaɬe?ʌmoɬĉ

    /qaɬim + ?oɬ + ĉ/

    I was working. (H)

2. ti qʷa?ʌloɬ ƛ'aq́

    /qʷal + ?oɬ/

    He came out. (H)

    The form of the rule is:

$$\emptyset \implies \begin{bmatrix} - \text{ high} \\ - \text{ low} \\ - \text{ back} \\ - \text{ front} \end{bmatrix} \bigg/ \begin{bmatrix} - \text{ cons} \\ - \text{ syll} \\ - \text{ cont} \end{bmatrix} \underline{\quad} \begin{bmatrix} - \text{ syll} \end{bmatrix}$$

22. Voiced Glides Become Obstruents

There are examples in Comox of alternations involving the other two voiced obstruents in the language, [j] and [g]. The [g] alternates with [w] and the [j] alternates with [y]. Sapir recognized this relationship. There are both contemporary alternations and comparative evidence establishing the relationship between these segments. For the w/g alternation we have the following:

1. x̱ʌʊ̂ŝɪn^h bone(S) x̱é:x̱ɪg^{Y}ɪsɪ:n^h diminutive

2. ʔɛɫaw hurt (H)

ʔɛɫag^{Y}x^{W}ĉx^{W}sʌm

hurt-him-you-fut

You'll hurt him.

3. tow? ice(H) tá?ʌg^{Y}ɪt^h It's frozen.

less explicitly the alternation appears in:

4. hé:g^{Y}os chief(S) hó:he:g^{Y}os chiefs

Here the reduplicated plural morpheme would be [hʌw-]. With
the rounding of the schwa, the loss of the [w] and compen-
satory lengthening of the vowel, we would have the phonetic
shape of the plural morpheme.

Some comparative evidence from Salish is:

	Comox		Pentlatch (10)
chief	hég^{Y}os	chief	hé:wus
body	gi:eus	body	wé:yus

A borrowing that shows the same correspondence is:

Comox deer qé:g^{Y}as Kwakiutl deer qé:was

Because of the correspondence this appears to be borrowed.
However, there appears to be a cognate in skagit:(11)

sqíg^{W}ʌc

For the alternation of [y] and [j] we have the fol-
lowing:

5. hoy finish ĉi: hó:jx^W I finished.

------------------- notes -------------------
(10) Sapir 1915: p.8.
(11) Kinkade, personal communication.

6. jux^wat^h   vomit(H)   juyx^watamĉ   I feel like
                                                       I'm going to vomit.

7. k^wúja:k^wh   trout(S)   k^wi:k^wúja:k^wh   plural

8. sɪ:já:qo:ʔp^h basket hat(S) sí:sɪja:qo:ʔp^h plural

The plural morpheme in these last two forms is parallel to

8. kóyokobɪ:n   fisherman   k^wí:koyokomɪ:n plural

The schwa in the plural is raised and the glide is lost with

compensatory lengthening of the vowel. In a form like

9. xá:ʔajaɪŝ   xé:xa:ʔajaɪx   /xaýayŝ/   stone(S)

the glottal stop that is not copied in the reduplication

comes from an underlying [ý]. The long [i:] is then lowered

to [e:] by the influence of the following back consonant.

The process of compensatory lengthening also takes place in

the imperfect.

10. /yλʌ̂ŝ/   [jʌ̂λʌx]   crawl (H)

    /yʌyλʌx/   [jí:λʌx]   crawling (imp.)

11. /yiλ´/   [jɪλ´]   run (H)

    /yi + yiλ´/ [jí:λ´]   running (imp.)

The [i:] of the imperfect results from the merger of the

middle [y] with the vowel of the stem, if present and the

vowel of the imperfect. The schwa in 'crawl' has previously

by rule 16 become an [i]. The alternation is clear in:

12. x^wajʌtawɬ   They're fighting each other. (H)

13. x^wayx^wajʌtawɬ   They're fighting(a group). (H)

     Comparative evidence also shows the correspondence

between [y] and [j].

Comox(BH)	jó:uax	Se.,Pe.	ió:lax wave
Comox(BH)	sιjáqop	Se.	si:yá:kop basket hat
Comox(BH)	ja:x^W	Se.	ya:x^W melt

Davis has postulated an underlying [j] for mainland
Comox, which in some cases becomes [y]. He handles [w] in
an analogous way, postulating an underlying [g], which in
some environments becomes [w]. This formulation, however,
gives an asymetrical pattern to the obstruents of Comox, for
these are the only two voiced obstruents in the language.

In my formulation, all [j]'s are underlying [y]'s and
all [g]'s are underlying [w]'s. This solution preserves the
symmetry of the underlying consonant set, but it presents
other problems. The rule for the alternation of these seg-
ments says that [y] and [w], glottalized or not, become [j]
and [g] when they occur before a vowel. This means that
there should be only morpheme final [y] and [w] in the
language. But this is not the case. There are some [y]'s
and [w]'s that, although they satisfy the above environment,
do not alternate. These would constitute a class of excep-
tions to this rule. Some examples are:

14. x̱á:?wa   fur seal (S)

15. qówa?a?Λna   ear (H)

16. qá?Λwom   eye (H)

With [y]:

17. qá?eyΛ (S)   qá:?ya^h (H)   water

18. sá?eyał (S)   sá:?yał (H)   lake

19.   ĉáyʌs (H)   hand

In addition to these exceptions which should alternate but do not, there is another class of exceptions that, although they should not alternate, should cause assimilation of a preceding schwa, but they do not.

20. x̲ʌ́uŝɩn^h   x̲ʌ́ux̲ʌuŝɩn   bone (S)

21. héw^qen^h   hʌ́uhew^qen^h   swan (S)

22. qé:?w^x̲   qʌuqé:?w^x̲   steel-head salmon (S)

23. t´ay?ŝ   t´ʌyt´ay?ŝ   blanket (H)

24. ṕʌy?x̲ay?   douglas fir (H)

A word like 'fur seal' has to be analysed as having a [w̓] or one cannot get a canonical form of CVC for the reduplicated morpheme. Sapir postulated that the alternation did not take place after "V?", but if the glottal stop blocks the alternation, then it must be an independent segment. If it is an independent segment, then the formation of the reduplicated plural becomes irregular.

Some exceptions are borrowings.

25. ?ʌwák^wh   tobacco (English)(H)

26. sópayu   axe (Kwakiutl)(H)

27. waĉ   clock (English)(H)

There is nothing in the language in the way of an alternation that would lead to an explanation for these two classes of exceptions. The one clue in the language itself is that there are not many [l]'s , and many of those that do

occur are obvious borrowings. Sapir lists only the fol-
lowing:

28. qʌl:q́   warrior (S)

29. lʌ́q́ʌs   mountain-goat blanket (S)

30. tó:tʰxʷlaɫ   necklace (S)

31. mɩ́ta:li   beaver-tooth die (S)

32. wé?wa:los   young man (S)

33. mʌl´qʷʰ   fawn (S)

34. qʷɩqʷa:t´ʌla:?kʰ butterfly (S)

35. ṕa:?alać   skunk (S)

In my own data there are only obvious borrowings.

35. ?ápʌls   apple (English) (H)

36. sɛl   yardgoods (English "sell"?)

37. ɫɩ́?kila   bullet, lead

38. lámayi   (rum + container-suf) bottle, rum

39. lɩ́kʸʌle   key (French "le clef")

40. lays   rice (English "rice")

41. lá:pʌla:s   board (French "la planch")

Boas and Haeberlin (1927) have observed that [l] in the
other North Georgia languages often corresponds to either
[w] or [y] in Comox. Some of the data they list for the l/y
correspondence are:

42. paɩan?ai (Cx)   pʌlá:nai (Se)   fir

43. yi:ĉ (Cx)   liĉ (Pe)   full

44. q́á:is (Cx)   q́als (Se)   rope

45. xo:mié:ĉ (Cx)   sxó:mle:ĉ (Se)   salmon skin

and for the l-w correspondence:

46. qawúm (Cx)   qʌlóm (Se)   eye

47. wó:wo:m (Cx)   ló:lo:m (Pe)   sing

48. e:wusten (Cx)   é:lustʌn (Se)   ridgepole

49. koá:oa (Cx)   ƙoála (Na)   belly

    The phonetic influence on these changes is the vowels.
In those forms that have a rounded vowel either preceding or
following [l], it becomes [w]. The remainder of the [l]'s
become [y]. The following illustrates the 'elsewhere' en-
vironment.

50. ĉáyʌs (Cx)   ĉálaŝ (Se)   arm

    Since both Pentlatch and Sechelt have [l] in forms
where Comox has either [y] or [w], and since Sechelt and
Comox appear to be more closely related than Pentlatch and
Sechelt, it would have been necessary for Pentlatch and
Sechelt to develop an [l] in a period of conjunction without
Comox.   Therefore, it would appear that the proto-North
Georgia forms contained an [l]. In some cases this [l], in
fact, corresponds to a reconstructed proto-Salish [l].[12]

51. *qalá? ==> qá?eyʌ (Cx)   water

52. *cal´aɬ ==> sá?eyaɬ (Cx)   lake

This change took place both with glottalized and unglot-
talized [l], as 'lake' demonstrates. If the environments
for this change are correct, then it would seem that the l/w

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(12) Kinkade, personal communication.

change took place first and then the l/y change; the latter may have been part of a larger wave of l/y change in Salish, since this shift is also present in Squamish, Thompson and Clallam. Boas has observed that this change in the latter two languages takes place in forms where Comox has [w].[13] Therefore we might assume that this change had already taken place in Comox. This, however, would mean that the Comox were 'closer' to the Squamish than to the Sechelt, since the geography of the l/y change would seem to run up the coast, but did not penetrate Pentlatch and Sechelt.

As a part of the [l] shift in Comox, Boas and Haeberlin show that there are cases where the [l] eventually becomes a glottal stop in Comox, although it does show up as a [y] in the reduplicated form.

53. pá?a (H)   pá:la (Se)   one
54. sá?a (H)   sá:la (L.Fr)   two
55. t´á?q̓a?aq̓ (H)   stq̓á:laq (Se)   southeast wind

The reduplicated forms of 'one' and 'two' are:

56. pípa:?a   one
57. sísa:?a   two

The historical situation seems to be as follows: First, [y] became [j]. Second, [w] became [g], and the ordering of these two is not crucial; but both must have happened before the next two changes. Third, [l] next to a

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(13) Swadish has proposed the opposite ordering, with the
     l/y shift coming across the mountains, probably because
     of the geography (See the rest of the paragraph.).

rounded vowel became [w]. Fourth, the remaining [l]'s
became [y], and finally some of these [y]'s became [?]. The
environment for this last change is unclear. These are the
historical causes for the exceptions to the alternation of
w/g and y/j, and the failure of the non-alternating [w] and
[y] to cause assimilation of schwas. The question is how to
account for this lack of alternation in a contemporary
phonology.

If we satisfy Kiparsky's strong alternation condition,
we must simply leave the forms with non-alternating [y] and
[w] as exceptions to the assimilation and alternation rules,
since there are no observed alternations of [l] with [y] or
[w]. However, if we opt for a more abstract solution, then
we might write these non-alternating [y] and [w] as under-
lying [l]'s. A rule would be added to the phonology to
change the [l] to [y] or [w]. The borrowed [l]'s would then
be exceptions to this rule. This rule would have to be
added to the phonology after the assimilation rule (Rule 16)
and after the w/g--y/j alternation rule. Since these [l]'s
would not satisfy the assimilation rule, the schwas before
them would remain schwas, and the subsequent change of [l]
to [y] or [w] would leave surface [y] and [w] in the
language. Whether we accept the abstract solution or not,
the facts seem clear.

The actual form of the w/g--y/j alternation rule is:

$$\begin{bmatrix} + \text{ son} \\ - \text{ cons} \end{bmatrix} ==> [- \text{ cont}] / \underline{\quad} [+ \text{ syll}]$$

23. Voiced laterals Become a Glide

For the sake of completeness, I have included as rule twenty-three the change of [l] to [w] and [y]. All borrowings would have to be marked as exceptions to this rule. The fact that borrowings are exceptions may be a reason for not including [l] in the underlying inventory (See Hyman, 1970).

The actual rule is:

$$\begin{bmatrix} + \text{ son} \\ + \text{ cons} \\ + \text{ lat} \end{bmatrix} ==>> \begin{Bmatrix} \begin{bmatrix} - \text{ cons} \\ - \text{ lat} \\ + \text{ round} \\ + \text{ back} \end{bmatrix} \Big/ \begin{Bmatrix} \underline{\quad\quad} \begin{bmatrix} + \text{ syll} \\ + \text{ round} \end{bmatrix} \\ \begin{bmatrix} + \text{ syll} \\ + \text{ round} \end{bmatrix} \underline{\quad\quad} \end{Bmatrix} \\ \begin{bmatrix} - \text{ cons} \\ - \text{ lat} \\ - \text{ back} \end{bmatrix} \end{Bmatrix}$$

24. Lateral Fricative Is Deleted

There are examples in the data where [ɬ] followed by [s] is deleted. The examples occur when the past tense particle [-ʔoɬ] is added to a noun and the noun has the third

person singular possessive suffix [-s] added:

1. ʔoq́ᵂ tʌq́ᵂtʌm tɨ jɪnɪsʔos

    /jinis+ʔoɫ+s/

    all pull the teeth-past-3rd poss

    They all pulled his teeth out.

There are also cases where this cluster simplification does not happen. I am therefore including an optional rule to account for the cases that do appear. Davis found the same process in Mainland Comox.

There are two other simplifications in the language. When the future tense particle is added after the first person, the [ĉ] become [c] and the [s] of the future tense particle is deleted.

2. ʔeʔjamʔʌmsɪcʌm ʌtʌ jʌq́

    CV-ʔejám-ʌm-si-ĉ-sʌm

    imper-fix-detrans.-you-I-future 3rd-arg-the fence

    I'm going to fix the fence for you.

The second occurs when the future is added after the first person plural. In this case the [s] of the future is also deleted.

3. kaɫʔɛmĉtʌm ʔ(ae)tʰ

    kaɫʔeḿ-ĉt-sʌm

    work-we-future cont

    We are going to work. (We will work.)

These two deletions differ from the previous one in being progressive, while the [ɫ] case is regressive. A rule is

not written for the cases involving the future since is would apply to only one morpheme.

The rule for [ɫ] is:

$$
\begin{bmatrix} + \text{ cons} \\ - \text{ son} \\ + \text{ cont} \\ + \text{ lateral} \end{bmatrix} ==\!>> \emptyset \ / \ \underline{\quad} - \begin{bmatrix} + \text{ cons} \\ - \text{ son} \\ + \text{ cont} \\ + \text{ anterior} \end{bmatrix}
$$

25. Compensatory Lengthening of a Vowel

Rule twenty-five deletes a glide following a vowel that has the same specification for the features low, round, and front. This happens most often as result of rule 16, which assimilates schwas to the following glide. When the environment of the rule is satisfied, then the glide is deleted and the vowel is compensatorily lengthened. Some examples with [w] are:

1. ɫá:ᵃgʸɛ:t˙ᵃ   ɫó:ɫa:gʸɛ:t´(pl) /ɫaẃat´/ herring (S)
   ɫá:ʔegʸat´ (H)

2. ʔpégʸa:ι   ṗo:ṗégʸa:ι(pl)   /ṗwaẏ/ halibut (S)
   ṗʌgʸáy? (H)

Sapir gives two examples in which the lengthening does not occur.

3. tá:ʔagʸaxʷ   totá:ʔagʸaxʷ   /taẃakʷ/ fern (S)
   taʔʌgʸakʷ (H)

4. tá:ʔag^yɩn   totá:ʔag^yɩn   /taẃin/ salmon spear (S)

I do not know whether these are true exceptions or simply
mistakes; I was not able to elicit the plural forms. Some
cases with a following [y] are:

5. ĉá:yaŝ   ĉɪ́:ĉayaŝ   /ĉayaŝ/ <<== *ĉalaŝ hand (S)

6. sayá:ʔada sɪ́:saya:ʔada   /sayańa/ <<== *salańa neck (S)

Some examples where [j] appears on the surface are:

7. x̱á:ʔajaɩŝ   x̱é:x̱a:ʔajaɩŝ   /x̱aýayŝ/ stone (S)

8. sɩjá:qo:ʔp^h sɪ́:sɩja:qo:ʔp^h   /sʌyaqoṕ/ basket hat (S)

An example with [h] is:

9. háqɛt^h   há:qɛt^h   pant, breathe fast (H)

Examples with glottal stop:

10. tá:q́^wah   tá:t^hq́^waʔ(dim)   /taq́^wah/ devil-fish (S)

11. ƛ́á:^aq́^wa:ɩ   ƛ́ɩ́:ⁱƛ́q́^wa:ɩ(dim) /ƛ́q́^waɩ/ fish-gill (S)

In the first case the diminutive shows that there is an under-
lying [a], and in the second there is no vowel after the
first consonant. But since the glide assimilation rule
precedes this rule, the inserted schwa has become an [a] and
now the glottal stop is deleted, leaving a long vowel.

$$[- \text{cons}] \implies \begin{bmatrix} + \text{syll} \\ \alpha \text{ high} \\ \beta \text{ back} \\ \psi \text{ round} \\ \phi \text{ low} \end{bmatrix} \bigg/ \begin{bmatrix} + \text{syll} \\ \alpha \text{ high} \\ \beta \text{ back} \\ \psi \text{ round} \\ \phi \text{ low} \end{bmatrix} \text{---}$$
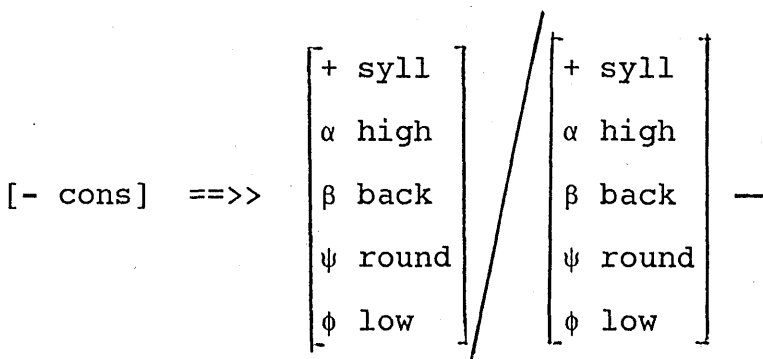
26. Cluster Separation

A cluster separation rule now inserts a schwa between non-initial segments in the same morpheme that are [+ consonantal]. The only morpheme internal clusters allowed are those involving a consonant and a glide. This rule makes it possible to eliminate most schwas from underlying forms.

This rule was originally written to try to generate the long vowels in Sapir's data. It does account for a number of long vowels in his data by having a penultimate stress that is later shifted. However, this analysis is not completely successful. For example, this solution will account for fifteen of the first twenty forms in the Sapir article. The underlying forms for the first twenty items given by Sapir are:

	Singular	Diminutive	Underlying	Gloss
1.	t´ʌkoḿ?h	t´ɛːt´kʷιḿ(dim)	/t´kʷm̓/	beaver (S)
2.	kúmaːqιnʰ	kʷíːkʊmaːqιnʰ	/kʷʌmaqin/	sea-lion (S)
3.	qʷʌdιːs	qʷéqʷʌdιːs	/qʷʌnis/	humpbacked whale (S)
4.	qʷʌsʌm	qʷéqʷʰseːʌmoɫ	/qʷsm/	woolly grouse (S)
5.	xóːpʰxoːp		/xop/	hummingbird (S)
6.	ćoxóː?	ćíːćoxoː?	/ćʌxo?/	*codfish (S)
7.	ƛ´ʌxʷaː?ⁱ	ƛ´íːƛ´ʌxʷaː?ˡ	/ƛ´ʌxʷaý/	dog salmon (S)
8.	sá?anʰ	síːs?adoːɫ / sísʌ?enoɫ (H)	/sʌ?n-oɫ/	cohoe salmon (S)
9.	q́wʌtːιːĉιnʰ	q́ʷɛːq́ʊtιːĉιnʰ	/q́ʷʌtiĉn/	humpback salmon (S)
10.	xá?aː	xexʌ?aː?	/xʌ?ah/	big clam (S)

11. ƛi:ʔʌmʰ   ƛáƛi:ɨ:mʔ   /ƛʌýʌm/   cockle (S)   (14)

12. x̲ʌpa:ʔⁱ   x̲éx̲pa:ʔˡ   /x̲p-ʔaý/   red cedar (S)

13. qó:ʔaʔⁱ   qʷíqo:ʔaʔˡ   /qʷʌẃ-ʔaý/ hemlock (S)

14. q́apx̌ʷaɩ   q́é:q́px̌ʷay   /q́px̌ʷ-ʔaý/ *oak (S)

15. ṕé:ʔɩx̲a:ɩ   ṕí:ṕx̲a:y   /ṕýx̲-ʔaý/ alder (S)

16. t´é:ʔɩba:ɩ   t´í:t´ba:y   /t´ým-ʔaý/ wild cherry bush (S)

17. ʔáwa:kʷʰ   ʔéʔawa:kʷʰ   /ʔawakʷ/   *tobacco (S)

18. q́ʷʌʔɩx̲   q́ʷa:q́ʷá:ʔajɩx̲ /q́ʷʌýx̲/   *wood (S)

19. x̲áʔa.ɩdaĉ   x̲ex̲ʌʔa.ɩdaĉ /x̲ʌʔay-naĉ/ *stump (S)

20. mʌqsɩnʰ   mímʌqsɩ:n   /mʌqsin/ *nose (S)

In those forms whose gloss is preceded by an asterisk, the presence or absence of a long vowel cannot be explained. Some exceptions to Rule 26 are:

21. mʌqsɩnʰ   nose (S)

22. ƛ´ʌms   house (S)

23. q́apx̌ʷaɩ   oak (S)

24. ćamqʷɬ   cloud (H)

25. t´ó:ʔmtʰ   paddle (S)

26. ĉʸaps   aunt/uncle (H)

27. ćé:^pʌnxʷ   blink (H)

28. mʌskʷ   blackcap berry (H)

29. ćʌmtɩn   woman's breast (H)

30. wals   bullfrog (H)

Although 'house', 'cloud', and 'paddle' are exceptions to this cluster separation rule, they are not exceptions to the

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(14) Sapir has this form with a [x̌], but other Salish languages have a [X́].

ι-insertion connected with the diminutive. This indicates
that these must be two different rules, and not that all
schwas are fronted to [ι] in the diminutive.

31. ƛ´oƛ´á:ʔamι:s   little house (S)

32. ćá:ćɨmʌqʷι:ɬ   little cloud (S)

33. t´ót´ʌbι:tʰ   little paddle (S)

Forms like 'wood' [q́ʷʌýx̱], in which the [y] corresponds to
Proto-North Georgian [*l], show that if [l] is included in
the underlying form, it must be converted to [y] or [w]
before this rule operates since no schwa appears between the
[ý] and the [x̱] on the surface [q́ʷʌʔιx̱].

The actual form of the rule is:

$$\emptyset \Longrightarrow \begin{bmatrix} + \text{ syll} \\ - \text{ high} \\ - \text{ low} \\ - \text{ back} \\ - \text{ tense} \\ - \text{ front} \end{bmatrix} \Big/ \quad [+ \text{ cons}] \underline{\quad} [+ \text{ cons}]$$
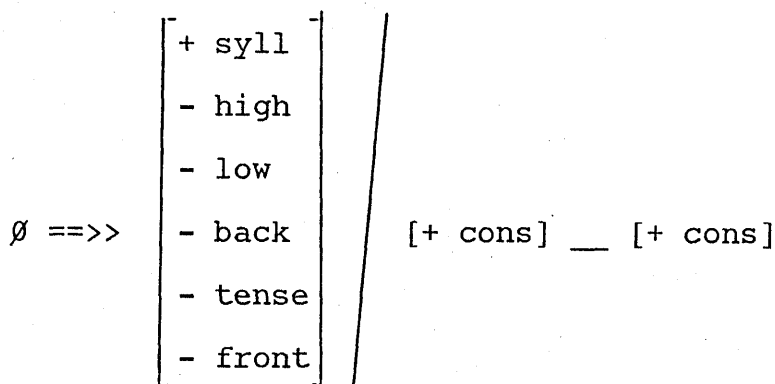
27. Stress Shifted to the First Syllable

Stress is now shifted to the first syllable of a word.
There are at least two sets of data that necessitate this
rule. First, most stems in Comox are stressed on the first
syllable. Since stress was previously assigned to the
penultimate vowel of the stem, a polysyllabic stem may have

stress improperly assigned. Rule twenty-seven shifts the stress to the first syllable of the stem. The penultimate assignment was made to lengthen that vowel. These vowels could have been lengthened directly, but there are cases where the stress does not shift, leaving the stress on the penultimate vowel. These can be accounted for by making them exceptions to the stress shift rule.. Some examples of non-initial stress are listed below:

1. sʌqʌk^{wh} /sqk^w/   war-club (S)

2. waxá:ćι   /wax̲aćι/   pipe (S)

3. ɬa:q́^{w}a:ιnop   /ɬq́^{w}aynop/   cedar-bark mat (S)

4. ĉ´aĉ´á:t´a:ń^h /ĉ´t´ń/   mouse (S)

5. sayá:ʔada   /ʔayańa/ <<== *salańa neck (S)

6. sιjá:qoʔp^h /syaqʌẃp/   basket hat (S)

'War-club' cannot be accounted for under this analysis.

Second this rule is used to shift the stress to a reduplicated syllable. This does not always happen. I am not able to discern any phonetic conditioning for this lack of shift. My own data are insufficient to permit any analysis. I was able to elicit only a few diminutive plurals. In Sapir's data there are many possible combinations of shift among the three possible reduplicated forms for each root. A root that shifts the stress in the plural may not shift it in the plural diminutive and vice versa. Most of the diminutives shift the stress, but not all of them. These different cases will have to be root classses

for each reduplication type, and roots will cut across these
types. Some examples will illustrate the different cases.

Stress shifts in the plural:

7. kʷáʔam   kʷáʔ^akʷaʔam   coiled storage basket (S)

8. yá:xaɩʔ   yíx̲ɨya:xaɩʔ   pack basket (S)

Stress does not shift in the plural:

9. ɬó:ko:mɩ:n ɬʊkʰɬó:ko:mɩ:n   bailer (S)

10. x̲ap̓   x̲ʌx̲á:p̓   baby basket (H)

Stress shifts in the diminutive:

11. míx̲a:ɬ   mí:mʌx̲a:ɬ   black bear (S)

12. x̲á:ʊgʸas   x̲áx̲a:ʊgʸas   grizzly bear (S)

Stress does not shift in the diminutive:

13. tʼá:ʔabʊxʷa:ɩ tʼi:tʼʌmʊxʷa:ɩ gooseberry bush (S)

14. tʼɛ́:ʔdɛ:qʷay tʼɛ:tʼdʌqʷa:ɩ salmon-berry bush (S)

Stress occurs on the first root vowel in the diminutive
plural:

15. qó:ʔaʔ^i   qʷɩqo:qó:^ʊʔaʔ^i   /qʷẃaý/ hemlock (S)

16. ɬá:^agʸɛ:tʼ ɬiɬoɬá:^agʸɛ:tʼ   /ɬaw̓ɛtʼ/ herring (S)

This is the largest class. Generally speaking, if the
stress does not shift in the plural, then it does not shift
in the diminutive plural.

Stress on the plural morpheme in the diminutive plural:

17. sɩjá:qoʔpʰ sɩsí:sɩja:qo:ʔpʰ basket hat (S)

18. sé:qetʰ   sɩ:sʌqʰse:^ɛqetʰ dug hole,well (S)

Stress on the diminutive in the diminutive plural:

19. p̓ég^{y}a:ι   p̓í:p̓o:p̓eg^{y}a:ι   /p̓iwai/   halibut (S)

20. ĉá:yaŝ   ĉíĉi:ĉa?yaŝ   /ĉayaŝ/ <<== *ĉalas hand (S)

This stress shift rule, in addition to being sensitive to the class membership of each root, will have to assign stress to the first syllable if no stress has been assigned. The rule will lower the stress on every other vowel. This will have to be the case for every root since two epenthesis rules have operated since the stress was assigned, and the stress may no longer be on the penultimate vowel. In roots that had only one vowel at the time of the first stress assignment, the stress may be anywhere in the root. The rule will have to search for this stress and lower it to a secondary level.

An example where there are no vowels in the underlying form is:

20. box /x̲sm/ x̲ʌsʌm x̲ʌsx̲ʌsʌm x̲éx̲sι:m? x̲ex̲ʌsx̲ʌsι:m?
The initial cluster would be broken up by the first epenthesis rule (Rule 9) and the second by Rule 26. Stress would then be assigned to the first syllable, giving the correct output.

28. Vowel Reduction

A vowel with tertiary stress is sometimes reduced to a schwa. This rule accounts for the occurrence of a schwa in some diminutive forms:

1. mí:x̱a:ɬ   mí:mʌx̱a:ɬ   black bear (S)

2. ó:sa:ʔˡ   ʔó:ʔʌsa:ʔˡ   huckleberry bush (S)

3. x̱áʔa: x̱éx̱ʌʔaʔa   big clam (S)

4. mátʼa:y   mɛ́:ʔmʌtʼaʔι   horse clam (S)

Since this does not happen in every case, those forms that
undergo this rule will have to be marked.

$$[+\text{ syll}] \implies \begin{bmatrix} -\text{ back} \\ -\text{ front} \\ -\text{ high} \\ -\text{ low} \\ -\text{ tense} \end{bmatrix} \Big/ \begin{bmatrix} \underline{\hphantom{xxxxx}} \\ 3 \text{ stress} \\ +\text{ rule } 29 \end{bmatrix}$$

29. Schwa to ι

    In Sapir's data there are several examples with a high
front vowel in the plural morpheme that cannot be accounted
for by other assimilation processes.

1. síp̓ʔʌmι:nʰ   síp̓sιp̓ʌmι:n   shinny stick (S)

2. sá:pa:x̱os   sípsa:pax̱os   horn (S)

                     sʌpsápax̱os (H)

3. só:sι:nʰ   sísso:sιnʰ   mouth (S)

4. tíxʷsaɬ   tístι:xʷsaɬ   tongue (S)

5. kó:sʌdʼ   kʷísko:sʌdʼ   star (S)

'Shinny stick' can be accounted for by making it an excep-
tion to the plural ablaut rule (Rule 12). I have recorded a
schwa in the plural for 'horn', and therefore it may be a

mistake in Sapir. The presence of the [s] in the plural of 'tongue' is also unaccounted for.

In order to generate the remaining forms, we must have a rule that fronts and raises a stressed schwa preceding [s] and not preceded by a [+back] or [+low] consonant. The prohibiting environment is illustrated in:

6. á:s$\underline{x}^W$?Λs?a:s$\underline{x}^W$ hair seal(S)

7. $\underline{x}\Lambda$sΛm $\underline{x}\Lambda$s$\underline{x}\Lambda$sΛm   box (S)

8. $\underline{x}^W$á:sΛba:ι $\underline{x}^W\Lambda$s$\underline{x}^W$a:sΛba:ι   soapberry bush (S)

This raising happens only in stressed syllables as is illustrated by:

9. $\star$´$\underline{t}$k^{W}ιnΛs   heart (S)

'Tail' illustrates that a preceding [s] is not the correct environment.

10. só:pΛdaĉ   sΛp^{h}so:pΛdaĉ   tail (S)

The rule is:

$$
\begin{bmatrix} - \text{ high} \\ - \text{ low} \\ - \text{ back} \\ - \text{ front} \\ - \text{ tense} \end{bmatrix} ==>> \begin{bmatrix} + \text{ high} \\ - \text{ low} \\ - \text{ back} \\ + \text{ front} \\ - \text{ tense} \end{bmatrix} / \begin{bmatrix} - \text{ back} \\ - \text{ low} \end{bmatrix} \underline{\hspace{1cm}} \begin{bmatrix} + \text{ cor} \\ + \text{ ant} \\ + \text{ cont} \\ - \text{ lat} \\ - \text{ nasal} \end{bmatrix}
$$

30. Schwa Becomes ι

Schwas following [+ high, -round] consonants ($\underline{t}$, y, ĉ, k, ŝ, j, g) become [ι].

Some examples of this rule operating are:

1. jíŝɪn^h   jíŝjɪŝɪn   /yʌ̂ŝn/ foot (S)

2. kʸɪt´   kʸít´kʸɪt´   /kit´/ little finger (S)

3. ĉ´ít^hqa:mɪn ĉ´ɪt^hĉ´ít^hqa:mɪn /ĉ´itq-ʔamin/ knife (S)

4. yá:x̱aɪʔ   yíx̱ɨya:x̱aɪʔ   /yx̱aý/ pask-basket (S)

The actual form of the rule is:

$$
\begin{bmatrix} + \text{ syll} \\ - \text{ high} \\ - \text{ low} \\ - \text{ back} \\ - \text{ front} \end{bmatrix} ==>> \begin{bmatrix} + \text{ high} \\ + \text{ front} \end{bmatrix} \Bigg/ \begin{bmatrix} - \text{ syll} \\ + \text{ high} \\ - \text{ round} \end{bmatrix} -\!\!-
$$

This rule must follow Rule 16 that rounds a schwa followed by a [w] because of:

5. jíg^ʸɪn^h   ju:jɪg^ʸɪn^h   song (S)

The schwa in the plural must be rounded before it is affected by the [j]. The form

6. ɬe^ʌɬe^ʌḱʷʌm sewing (H)

shows that [ɬ] must be a high consonant raising an [ɛ] to [e]. In the reduplicated forms we have:

7. ɬáɪdaĉtʌn   ɬí:ɬa:ɪdaĉtʌn woman's cedar-bark skirt (S)

8. ɬó̱ʔbom^h   ɬɨmɬó̱:ʔbom^h   small clam (S)

31. Schwa Becomes ʊ

If a stressed schwa is preceded by [+high, -glottal constriction, +round] consonant, (k^W, x^W), then it becomes [ʊ].

1. kúma:qɩn^h k^{W}í:kʊma:qɩ:n (Dim)   sea lion (S)

2. kúpʊmɩ:x^W k^{W}í:k^{wh}pɩ:t^h (Dim)   hill (S)

3. x^{W}á:toqoʔm   xʊt^{h}x^{W}a:toqoʔm (Pl)   falls (S)

That stress is a necessary factor can be seen from the contrast between the forms that Sapir and I have recorded for 'trout'.

Sapir   kúja:k^{wh}

Harris   k^{W}ʌjá:k^W

The actual form of the rule is:

$$
\begin{bmatrix} + \text{syll} \\ - \text{high} \\ - \text{low} \\ - \text{front} \\ - \text{back} \\ - \text{tense} \\ + \text{stress} \end{bmatrix} ==>> \begin{bmatrix} + \text{high} \\ + \text{round} \\ - \text{front} \\ + \text{back} \end{bmatrix} \Big/ \begin{bmatrix} + \text{cons} \\ + \text{high} \\ + \text{round} \end{bmatrix} \underline{\quad}
$$
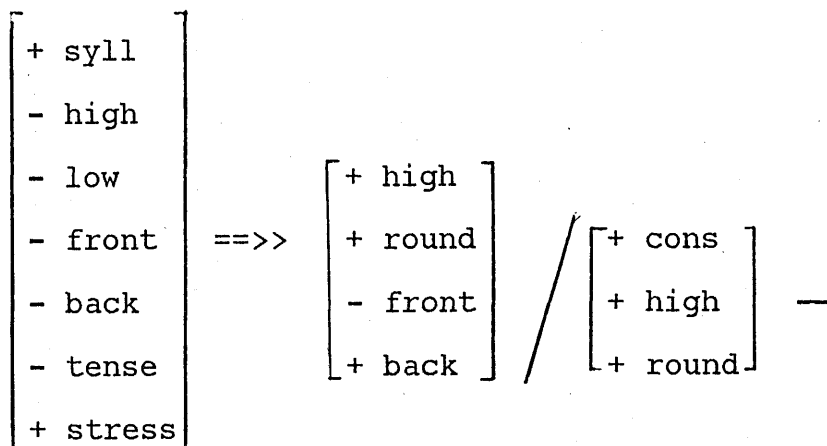
In Sapir's data the form

4. ɬó:ko:mɩ:n   ɬʊk^{h}ɬó:komɩn   bailer (S)

has the same vowel, but the [k] is not rounded. However, I recorded the same form as:

5. ɫó:ko:mɪn   ɫʌkɫó:ko:mɪn   bailer (H)

This would be regular.

32. [ɩ] Becomes [ε]

    An [ɩ] preceded by a back or low consonant becomes an
[e]. Back labialized consonants must be excluded.

1. qá:ʔya^h   qé:qa:ʔya^h   /qaýah/   water (S)

2. q́a:ɩk^wh   q́é:q́a:ɩk^wh   /q́ayk^w/   eagle (S)

3. x̲á:ʔajaɩ ŝ   x̲é:x̲a:ʔajaɩ ŝ   /x̲aýayŝ/   stone (S)

4. ʔémɪn   /ʔimɪn/   road (H)

5. héʋĉɩs   /hiwĉis/   paddle (H)

6. hég^yos   /hiwos/   chief (H)

The actual form of the rule is:

$$
\begin{bmatrix} + \text{ high} \\ + \text{ front} \\ - \text{ low} \\ - \text{ back} \\ - \text{ tense} \\ - \text{ round} \end{bmatrix}
==>>
\begin{bmatrix} - \text{ high} \\ + \text{ tense} \end{bmatrix}
\Big/
\left\{ \begin{bmatrix} - \text{ syll} \\ + \text{ back} \end{bmatrix} \atop \begin{bmatrix} - \text{ syll} \\ + \text{ low} \end{bmatrix} \right\}
\underline{\quad}
$$
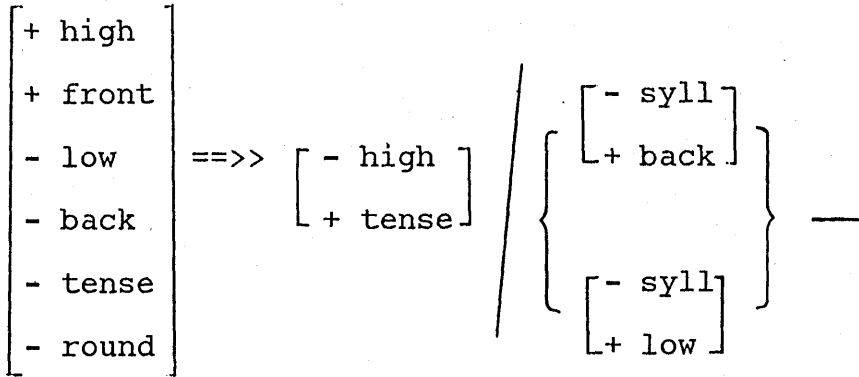
33. [ɩ] Becomes [e]

    A process apparently similar to the above but seemingly
phonetically unrelated lowers an [ɩ] to [e] when it occurs
between glottalized segments.

1. t´e:^t´ɩn?ʌmĉ

    imp-roast-intrans-I

    I'm roasting it. (H)

2. ṗé:?ɩx̱a:ɩ ṗe:ṗé:?ɩx̱a:ɩ /ṗʌýx̱ay/ alder (S)

'Roasting' is an imperfect, and without the influence of the
glottalized segments the vowel would be [i]. Glottalization
does not affect the backness or lowness of a segment in
Chomsky and Halle's feature system since glottalization does
not necessarily cause a lowering of the tongue body.   These
consonants are acting phonetically like pharyngealized con-
sonants. Their influence seems clear even though it creates
a phonetic paradox.   The Thompsons (1971) also found this
same process operating in Clallam.

     The actual form of the rule is:

$$
\begin{bmatrix} + \text{ high} \\ + \text{ front} \\ - \text{ low} \\ - \text{ back} \end{bmatrix} ==>> \begin{bmatrix} - \text{ high} \\ + \text{ tense} \end{bmatrix} \Big/ \begin{bmatrix} - \text{ syll} \\ + \text{ glot cons} \end{bmatrix} \underline{\quad} \begin{bmatrix} - \text{ syll} \\ + \text{ glot cons} \end{bmatrix}
$$

34. Raising Between High Consonants

     An [o], [ɛ], or [ɩ] tend to be raised to [u], [e], and
[i], respectively, when surrounded by high consonants (ĉ, k,
ŝ, ɫ, x, g, j, ĉ´, ꝁ, kw, ꝁw, xw, y, ý) or when preceded by
a high consonant and followed by a word boundary. Some ex-
amples are:

o/u

1. sk^wí?ⁱjuɬ   morning (H)

2. g^yí:gi: g^yu:g^yí:g^yi: (Pl) panther (S)

3. ĉuy   ĉí:ĉuy (Pl)   child (H)

4. pʌ?ĉ´ú   solid work basket (H)

5. ĉítx^wux^wʌn   blackberry (H)

ε/e

6. g^yá:dι:m   g^ye:g^yιdg^yá:dι:m (Pl Dim) slave (S)

7. k^wéŝιt^h   count (H)

8. tʌgéx^w   nine (H)

9. ɬé^ʌɬek^wʌmc   sewing (H)

ι/i

10. qʌjík^wi   early morning (H)

11. ĉíɬιm   dance (H)

12. ĉá:yaŝ   ĉiĉá:?^ayaŝ (Dim)   hand (S)

13. ĉ´eqx   ĉ´í:ĉ´ι:qx (Dim)   robin (S)

     This rule cannot be applied with complete regularity. For example:

14. jíŝιn   foot (H)

is an exception. It is unclear if these exceptions are always exceptional or if the rule is applied probablistically. There is no way in the rule format adopted here to indicate probablistic application of rules other than making a rule optional. Therefore in this grammar exceptions are marked as always being exceptional or the rule is made optional. There is not enough evidence from live situations to do

otherwise.

The writing of this rule in binary features poses another theoretical problem. This should be an assimilation rule, but it cannot be written in a way that a feature of one segment is transferred to another segment. In Chomsky and Halle's feature system a [-tense] vowel will become [+tense] between [+high] consonants; tenseness is affected by height instead of height being transferred.

In a scalar feature system the height of the vowels could be increased by one height level, making the rule more transparently an assimilation. Although scalar features have been proposed for phonetic articulation, their inclusion in a more abstract part of the phonology may be indicated here on purely formal grounds (i.e. to define an assimilation process as one where a feature of one segment is transferred to another segment). In this phonology scalar features have been used only for stress assignment. Their use for phonetic features could be introduced after Rule 28 where the rules for allophonic distribution begin. I have, however, ignored these formal considerations and used binary features in writing this rule.

$$\begin{bmatrix} + \text{ syll} \\ - \text{ tense} \end{bmatrix} ==>> \begin{bmatrix} + \text{ tense} \end{bmatrix} \bigg/ \begin{bmatrix} + \text{ cons} \\ + \text{ high} \end{bmatrix} \underline{\hspace{1cm}} \left\{ \begin{matrix} \begin{bmatrix} + \text{ cons} \\ + \text{ high} \end{bmatrix} \\ \# \end{matrix} \right\}$$

35. [ɩ] Insertion

Finally there are some rules that operate at boundaries. With the exception of Rule 36, these apply only to Sapir's data. An optional epenthesis rule is necessary to account for vowels that occur between the reduplicated syllable and the stem. It operates on the juxtaposition of a voiceless consonant and a voiced consonant in either order. The epenthetic vowel is always a high, lax central vowel.

1. mʌ́qɨmʌqsɩn^h noses (S)
2. mʌĉɨmá^{a}ĉ´ɩn^h lice (S)
3. ćʌmɨ́ća:muq^{w}ɬ   clouds (S)

The rule must be optional to account for forms like

4. ćʌ́mćʌma:la^h index fingers (S)

The actual form of the rule is:

$$\emptyset ==>> \begin{bmatrix} + \text{syll} \\ + \text{high} \\ - \text{back} \\ - \text{front} \\ - \text{low} \\ - \text{tense} \end{bmatrix} \Big/ \begin{bmatrix} - \text{syll} \\ \alpha \text{ voice} \end{bmatrix} \underline{\quad} \begin{bmatrix} - \text{syll} \\ -\alpha \text{ voice} \end{bmatrix}$$

36. Aspirate Word-final Stops

Unglottalized, voiceless stops are aspirated before a morpheme or word boundary.

1. $\lambda'áq^h\lambda'aqe:na\hat{s}$ springs (S)

2. $\lambda'áy(ae)t^h\hat{c}an$ I am holding on. (H)

3. $\l\Lambda\dot{q}t^h$ jab,stab (H)

The rule is written to account for my data. Sapir recorded a wider environment for the rule. The extra cases are discussed with rule 38.

37. Voiced Stops are Lengthened at a Morpheme Boundary

Voiced stops are lengthened before a morpheme boundary preceding a voiceless consonant. In my own data the only voiced stop is [g], and it does not occur in this environment. Therefore this rule is not exemplified in my data.

1. $\check{k}^w\Lambda d:\check{k}^wó:dot'$ porpoises (S)

2. $q^w\Lambda d:q^w\Lambda d\iota s$ humpbacked whales (S)

The blocking environment is illustrated in:

3. $jídj\iota d\iota s$ teeth (S)

38. Word-final Nasals are Aspirated

Word final nasals are aspirated.[15] All of the ex-

------------------- notes -------------------

(15) Sapir says of this aspiration,"Final vowels and m and n are also often followed by aspiration (-a^h and similarly for other vowels, m^h or less often b^h, n^h or less often d^h) though this was not consistently heard." (Sapir 1915: p.7)

amples of word final [n] are aspirated, but not all [m]'s
are.

1. $q^{w} \wedge s \wedge m$ woolly grouse (S)

Another possible solution is to analyse these aspirated
nasals as clusters. Since [h] is a glide, the cluster
separation rule would not affect them. But since aspiration
is a boundary phenomenon already, the aspiration solution
has been adopted even though this option involves generating
exceptional forms like 'woolly grouse.'

There are some forms where Sapir has written aspiration
on a word final [a]:

2. $tá:q^{w}a^{h}$ $tá:t^{h}q^{w}a:?^{a}$ devil-fish (S)

This aspiration is analysed here as an underlying [h]. This
solution is re-enforced by the fact that in the diminutive a
glottal stop appears in place of the [h] as a part of the
glottalization of glides and resonants in the diminutive.

A complete list of the phonological rules appears in
Appendix B.

APPENDIX A

The Phrase Structure Rules

R-1. S → Pred. + (Arg.)*   (p. 50)

        Order of Arguments = Ag, Da, Ben, Inst, Obj, Loc, Tm

R-2. Pred. → Stem + Root Type + Tense + Asp 1 + (Asp 2) (p. 84)

R-3. Aspect 1 → $\begin{cases} \text{Imperfect---}C_1V_1 \\ \text{Stative-----i} \\ \text{Perfect-----}\emptyset \end{cases}$ (p. 84)

R-4. Aspect 2 → $\begin{cases} \text{Inceptive-----?ot}^h \\ \text{Continuative--?(ae)t}^h \end{cases}$ (p. 85)

R-5. Tense → $\begin{cases} \text{Future----s}\wedge\text{m} \\ \text{Past------?o}\bar{\text{l}} \\ \text{Present----}\emptyset \end{cases}$ (p. 85)

R-6. Root Type → $\begin{cases} \text{Transitive----}\emptyset \\ \text{Detransitive--?}\wedge\text{m} \end{cases}$ (p. 85)

R-7. Argument → Case + (Deictic) + $\begin{cases} \text{S} \\ \text{NP + (S)} \end{cases}$ (p. 85)

R-8. Deictic → (Det) + (Demon) + (Poss)   (p. 87)

R-9. NP → $\left(\begin{cases} \text{Sg.} \\ \text{Pl.} \end{cases} \right)$ + Nom   (p. 89)

R-10. Nom → (Dim) + Stem + (Tense)   (p. 89)

Transformations

The Phonological Rules

The Precyclic Rules

1. THE PLURAL SPELLING RULE

$$[C_1V_1C_2]_{pl} ==>> [\alpha] \begin{bmatrix} +syll \\ \beta \end{bmatrix} [\psi]/\_ \_ \_ + [\alpha] \begin{bmatrix} +syll \\ \beta \end{bmatrix} [\psi]$$

2. THE IMPERFECT SPELLING RULE

$$[C_1V_1]_{imp} ==>> [\alpha] \begin{bmatrix} +syll \\ \beta \\ +tense \end{bmatrix} /\_ \_ - [\alpha] \begin{bmatrix} +syll \\ \beta \end{bmatrix}$$

3. THE DIMINUTIVE SPELLING RULE

$$[C_1V_1]_{dim} ==>> [\alpha] \begin{bmatrix} +syll \\ \beta \end{bmatrix} /\_ \_ - [\alpha] \begin{bmatrix} +syll \\ \beta \end{bmatrix}$$

4. GLOTTAL STOP INSERTION AFTER THE IMPERFECT

$$\emptyset ==>> \begin{bmatrix} -son \\ -conson \\ +glot\ contr \end{bmatrix} /[\quad]_{imp} \_ - [+rule\ 4]_{stem}$$

5. RESONANTS IN THE FINAL SYLLABLE OF DIMINUTIVE ARE GLOTTALIZED

$$\begin{bmatrix} +son \\ -syll \\ +dim \end{bmatrix} ==>> [+glottal\ contr.]/\_\_\_(V)(C)\#$$

6. STRESS THE PENULTIMATE VOWEL

$$[+ syllabic] ==>> [1\ stress]/\_\_C_0\ 10)\ (V)(C)\#$$

7. COPY THE VOWEL BEFORE THE THIRD PERSON OBJECT SUFFIX

$$\emptyset ==>> \begin{bmatrix} + \text{ syll.} \\ \alpha \\ \beta \\ \psi \\ \cdot \\ \cdot \end{bmatrix} \Bigg/ \# \; C \; 1 \qquad \begin{bmatrix} + \text{ syll.} \\ \alpha \\ \beta \\ \psi \\ \cdot \\ \cdot \end{bmatrix} \; C \; 1 \; \underline{\quad} \; - \; [+\text{object}]$$

<u>The Cycle Starts Here</u>

8. LENGTHEN STRESSED VOWELS

[+ stress] ==>> [+ long]

9. INITIAL CLUSTER SEPARATION BY SCHWA EPENTHESIS

$$\emptyset ==>> \begin{bmatrix} + \text{ syll.} \\ - \text{ back} \\ - \text{ front} \\ - \text{ round} \end{bmatrix} \Bigg/ + \; C \; 1 \; \underline{\quad} \; C \; 10$$

10. VOWEL INSERTION FOR THE DIMINUTIVE

$\emptyset ==>> i/[- \text{ syllabic}](1\;10)\underline{\quad}[- \text{ syllabic}](1\;10)$

11. LENGTHEN THE FINAL VOWEL IN THE ROOT OF THE DIMINUTIVE

[+ syllabic] ==>> [+ long]/ $\underline{\quad}$ C(1 1)

12. PLURAL ABLAUT TO SCHWA

$$\left\{\begin{matrix} [+ \text{ syllabic}] \\ [\; \emptyset \;] \end{matrix}\right\} ==>> \begin{bmatrix} - \text{ high} \\ - \text{ low} \\ - \text{ back} \\ - \text{ tense} \end{bmatrix} \Bigg/ + \; C \; \underset{[+ \text{ plural}]}{\underline{\quad\quad\quad\quad}} \; C \; +$$

13. DELETE GLOTTALIZATION ON FINAL RESONANT OF PLURAL MORPHEME

$$[+ \text{ son}] ==>> [-\text{glottal constriction}]/[+\text{syllabic}] \underline{\hspace{2cm}} +$$
$$[+ \text{ plural}]$$

14. GLOTTAL STOP COPYING AFTER A NON-HIGH VOWEL

$$\emptyset ==>> \begin{bmatrix} - \text{ son} \\ - \text{ con} \\ - \text{ syll} \end{bmatrix} \Bigg/ \begin{bmatrix} + \text{ syll} \\ - \text{ high} \end{bmatrix} \underline{\hspace{1cm}} \begin{bmatrix} + \text{ con} \\ - \text{ son} \\ + \text{ glot contr} \end{bmatrix}$$

15. RESEGMENTATION OF GLOTTALIZED RESONANTS

$$\begin{bmatrix} + \text{ son} \\ + \text{ glot constr} \end{bmatrix} ==>> \begin{bmatrix} - \text{ son} \\ - \text{ cons} \\ - \text{ syll} \end{bmatrix} \begin{bmatrix} + \text{ son} \\ - \text{ glot constr} \end{bmatrix} \Bigg/ \begin{bmatrix} + \text{ syll} \\ - \text{ high} \end{bmatrix} \underline{\hspace{1cm}}$$

16. SCHWA ASSIMILATION TO A FOLLOWING GLIDE

$$\begin{bmatrix} + \text{ syll} \\ - \text{ high} \\ - \text{ low} \\ - \text{ round} \\ - \text{ back} \\ - \text{ tense} \end{bmatrix} ==>> \begin{bmatrix} \alpha \text{ high} \\ \beta \text{ low} \\ \psi \text{ back} \\ \phi \text{ round} \end{bmatrix} \Bigg/ \underline{\hspace{1cm}} \begin{bmatrix} - \text{ con} \\ - \text{ syll} \\ \alpha \text{ high} \\ \beta \text{ low} \\ \psi \text{ back} \\ \phi \text{ round} \end{bmatrix}$$

17. NASALS BECONE VOICED STOPS

$$\begin{bmatrix} + \text{ nasal} \\ + \text{ glottal constr} \end{bmatrix} ==>> \begin{bmatrix} - \text{ nasal} \\ - \text{ son} \\ - \text{ contin} \end{bmatrix} \Bigg/ [+ \text{ syll}] \underline{\hspace{1cm}} [+ \text{ syll}]$$

18. METATHESIS OF RESONANT AND GLOTTAL STOP

$$[+ \text{ son}] \begin{bmatrix} - \text{ cons} \\ - \text{ syll} \\ - \text{ contin} \end{bmatrix} ==>> \begin{bmatrix} - \text{ con} \\ - \text{ syll} \\ - \text{ contin} \end{bmatrix} [+ \text{ son}]$$

19. GLOTTAL STOP OF PAST DELETED AFTER A CONSONANT

$$\begin{bmatrix} - \text{ cons} \\ - \text{ syll} \\ - \text{ cont} \end{bmatrix} ==>> \emptyset \left/ \begin{bmatrix} - \text{ son} \end{bmatrix} - \right.$$

20. STATIVE ABLAUT

$$\begin{bmatrix} + \text{ syll} \end{bmatrix} ==>> \begin{bmatrix} + \text{ high} \\ - \text{ tense} \\ + \text{ front} \\ - \text{ low} \end{bmatrix} \left/ \begin{bmatrix} & C \; l \\ + \text{ stative} \end{bmatrix} \underline{\quad} + \right.$$

21. INSERT AN ECHO VOWEL AFTER A GLOTTAL STOP

$$\emptyset ==>> \begin{bmatrix} - \text{ high} \\ - \text{ low} \\ - \text{ back} \\ - \text{ front} \end{bmatrix} \left/ \begin{bmatrix} - \text{ cons} \\ - \text{ syll} \\ - \text{ cont} \end{bmatrix} \underline{\quad} \begin{bmatrix} - \text{ syll} \end{bmatrix} \right.$$

22. VOICED GLIDES BECOME OBSTRUENTS

$$\begin{bmatrix} + \text{ son} \\ - \text{ cons} \end{bmatrix} ==>> [- \text{ cont}] \left/ \underline{\quad} [+ \text{ syll}] \right.$$

23. VOICED LATERAL BECOMES [W] OR [Y]

$$\begin{bmatrix} + \text{ son} \\ + \text{ cons} \\ + \text{ lat} \end{bmatrix} ==>> \left\{ \begin{matrix} \begin{bmatrix} - \text{ cons} \\ - \text{ lat} \\ + \text{ round} \\ + \text{ back} \end{bmatrix} \\ \\ \begin{bmatrix} - \text{ cons} \\ - \text{ lat} \\ - \text{ back} \end{bmatrix} \end{matrix} \right/ \left\{ \begin{matrix} \underline{\quad} \begin{bmatrix} + \text{ syll} \\ + \text{ round} \end{bmatrix} \\ \begin{bmatrix} + \text{ syll} \\ + \text{ round} \end{bmatrix} \underline{\quad} \end{matrix} \right\} \right\}$$

24. LATERAL FRICATIVE IS DELETED

$$\begin{bmatrix} + \text{ cons} \\ - \text{ son} \\ + \text{ cont} \\ + \text{ lateral} \end{bmatrix} ==>> \emptyset \left/ \underline{\quad} - \begin{bmatrix} + \text{ cons} \\ - \text{ son} \\ + \text{ cont} \\ + \text{ anterior} \end{bmatrix} \right.$$

25. DELETION OF A GLIDE WITH COMPENSATORY LENGTHENING OF VOWEL

$$[- \text{cons}] \implies \begin{bmatrix} + \text{syll} \\ \alpha \ \text{high} \\ \beta \ \text{back} \\ \psi \ \text{round} \\ \phi \ \text{low} \end{bmatrix} \Big/ \begin{bmatrix} + \text{syll} \\ \alpha \ \text{high} \\ \beta \ \text{back} \\ \psi \ \text{round} \\ \phi \ \text{low} \end{bmatrix} -$$

26. NON-INITIAL CLUSTER SEPARATION BY SCHWA EPENTHESIS

$$\emptyset \implies \begin{bmatrix} + \text{syll} \\ - \text{high} \\ - \text{low} \\ - \text{back} \\ - \text{tense} \\ - \text{front} \end{bmatrix} \Big/ \ [+ \text{cons}] \ \_\_ \ [+ \text{cons}]$$

27. STRESS SHIFT TO FIRST SYLLABLE

28. VOWEL UNDER TERTIARY STRESS BECOMES SCHWA

$$[+ \text{syll}] \implies \begin{bmatrix} - \text{back} \\ - \text{front} \\ - \text{high} \\ - \text{low} \\ - \text{tense} \end{bmatrix} \Big/ \begin{bmatrix} \overline{3 \ \text{stress}} \\ + \text{rule 29} \end{bmatrix}$$

29. SCHWA BECOMES [i] PRECEDING AN [S]

$$\begin{bmatrix} - \text{high} \\ - \text{low} \\ - \text{back} \\ - \text{front} \\ - \text{tense} \end{bmatrix} \implies \begin{bmatrix} + \text{high} \\ - \text{low} \\ - \text{back} \\ + \text{front} \\ - \text{tense} \end{bmatrix} \Big/ \begin{bmatrix} - \text{back} \\ - \text{low} \end{bmatrix} \ \_\_\_ \ \begin{bmatrix} + \text{cor} \\ + \text{ant} \\ + \text{cont} \\ - \text{lat} \\ - \text{nasal} \end{bmatrix}$$

30. SCHWA BECOMES [i] FOLLOWING A HIGH CONSONANT

$$\begin{bmatrix} + \text{syll} \\ - \text{high} \\ - \text{low} \\ - \text{back} \\ - \text{front} \end{bmatrix} \implies \begin{bmatrix} + \text{high} \\ + \text{front} \end{bmatrix} \Big/ \begin{bmatrix} - \text{syll} \\ + \text{high} \\ - \text{round} \end{bmatrix} -$$

31. SCHWA BECOMES [ʊ]

$$
\begin{bmatrix} + \text{ syll} \\ - \text{ high} \\ - \text{ low} \\ - \text{ front} \\ - \text{ back} \\ - \text{ tense} \\ + \text{ stress} \end{bmatrix} ==>> \begin{bmatrix} + \text{ high} \\ + \text{ round} \\ - \text{ front} \\ + \text{ back} \end{bmatrix} \bigg/ \begin{bmatrix} + \text{ cons} \\ + \text{ high} \\ + \text{ round} \end{bmatrix} \text{ ——}
$$

32. [ɩ] BECOMES [e] FOLLOWING A BACK OR LOW CONSONANT

$$
\begin{bmatrix} + \text{ high} \\ + \text{ front} \\ - \text{ low} \\ - \text{ back} \\ - \text{ tense} \\ - \text{ round} \end{bmatrix} ==>> \begin{bmatrix} - \text{ high} \\ + \text{ tense} \end{bmatrix} \bigg/ \left\{ \begin{bmatrix} - \text{ syll} \\ + \text{ back} \end{bmatrix} \atop \begin{bmatrix} - \text{ syll} \\ + \text{ low} \end{bmatrix} \right\} \text{ ——}
$$

33. [ɩ] BECOMES [e] BETWEEN GLOTTALIZED CONSONANTS

$$
\begin{bmatrix} + \text{ high} \\ + \text{ front} \\ - \text{ low} \\ - \text{ back} \end{bmatrix} ==>> \begin{bmatrix} - \text{ high} \\ + \text{ tense} \end{bmatrix} \bigg/ \begin{bmatrix} - \text{ syll} \\ + \text{ glot cons} \end{bmatrix} \text{——} \begin{bmatrix} - \text{ syll} \\ + \text{ glot cons} \end{bmatrix}
$$

34. [ɩ], [ɛ], AND [o] BECOME [i], [e], AND [u] BETWEEN HIGH CONSONANTS

$$
\begin{bmatrix} + \text{ syll} \\ - \text{ tense} \end{bmatrix} ==>> \begin{bmatrix} + \text{ tense} \end{bmatrix} \bigg/ \begin{bmatrix} + \text{ cons} \\ + \text{ high} \end{bmatrix} \text{——} \left\{ \begin{matrix} \begin{bmatrix} + \text{ cons} \\ + \text{ high} \end{bmatrix} \\ \# \end{matrix} \right\}
$$

35. [ɨ] IS INSERTED AT A MORPHEME BOUNDARY

$$
\emptyset ==>> \begin{bmatrix} + \text{ syll} \\ + \text{ high} \\ - \text{back} \\ - \text{ front} \\ - \text{ low} \\ - \text{ tense} \end{bmatrix} \bigg/ \begin{bmatrix} - \text{ syll} \\ \alpha \text{ voice} \end{bmatrix} \text{——} \begin{bmatrix} - \text{ syll} \\ - \alpha \text{ voice} \end{bmatrix}
$$

36. ASPIRATE A STOP AT A FINAL WORD BOUNDARY

37. VOICED STOPS ARE LENGTHENED AT A MORPHEME BOUNDARY

38. WORD FINAL NASALS ARE ASPIRATED

BIBLIOGRAPHY

KEY

AA- - - - American Anthropologist
AAR- - - Annual Archaeological Report
AAOJ- - - American Antiquarian and Oriental Journal
AL- - - - Anthropological Linguistics
APS-P- - American Philosophical Society Proceedings
BAAS- - - British Association for the Advancement of Science
CUCA- - - Columbia University Contributions to Anthropology
IJAL- - - International Journal of Linguistics
Lg- - - - Language
SJA- - - Southwestern Journal of Anthropology
VBGA- - - Verhandlungen de Berliner Gesellschaft fur Anthro-
          pologie, Ethnologie und Urgeschichte

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