

A KWAKIUTL PHONOLOGY

by

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ABSTRACT

This thesis is based on materials obtained from native speakers of Kwakiutl - a member of the Wakashan family - in Alert Bay, Campbell River, and Victoria, between May 1968 and March 1969.

The main text includes an inventory of taxonomic phonemes, followed by a section in which the contrasts are attested. Two further sections are devoted to a discussion of articulation and a treatment of the distribution of phonemes.

Appended to the main part of the thesis is a lexicon of 185 items based on the Thompson word list.

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INTRODUCTION

The Kwakwalla /k^wak^wa^la/ language, better known to most as Kwakiutl, is spoken on the west coast of mainland British Columbia, and the northern third of Vancouver Island. The language, together with the Nootka, Nitinat, Makah, Heiltsuk (Bella Bella), and Haisla (Kitimat) languages, comprise the Wakashan family which has not yet been related to any phylum of the North American Indian Languages.¹

The exact number of speakers of Kwakwalla cannot be stated at this time, since no survey has been taken. However, the older generation of fluent speakers is dying out and many of the younger are either unable or unwilling to use the language. It is evident that while many understand the language, they prefer to speak English.

The Kwakiutl people are to be found today on various reserves from Rivers Inlet in the north to Campbell River in the south, but the chief centres are at Alert Bay on Cormorant Island, Fort Rupert, Kingcome, Campbell River, Cape Mudge on Quadra Island opposite Campbell River, and Quatsino on the west coast of Vancouver Island.

Before the advent of the white man, the Kwakiutl travelled extensively during the summer, since they followed the fish to the various spawning grounds. During the winter, however, they would settle, often in groups of three or four tribes, at such locations as the Nimpkish River area and Fort Rupert. Here they devoted themselves to extensive potlatching and secret society activity.²

In the spring, all, or nearly all, of the tribes would meet at Knight Inlet to fish for the eulachon, or candlefish, which was, and still is, of prime importance in the Kwakiutl diet. It served as the source of "grease" which was used as both condiment and medicine.

With the arrival of the white man came the advantages -- and disadvantages -- of European society. The advantages included technical innovations such as power boats, Hudson's Bay blankets, and cookware. The disadvantages included disease and white man's failure to understand the culture of the Indians.

In 1835 the estimated population of the Kwakiutl was over ten thousand, but by 1880 they were reduced to three thousand, and by 1929 this figure was further reduced to 1,854. Since then the numbers have been increasing, and in 1964, the census recorded 2,444 Indians living on reserves within the Kwawkewlth Agency.³

The economic activity of the Kwakiutl is still centred around the fishing industry, with some trapping and logging on the side. The main cultural and administrative centre, which used to be Fort Rupert in the latter days of the fur trade, has now moved to Alert Bay. Under the leadership of Chiefs James Sewid and Henry Speck, the old arts, crafts, and dances are being revived there.

Recently, the Department of Indian Affairs has been transferring the few people in various isolated reserves to the major reserves such as Alert Bay and Fort Rupert, in order to reduce

costs, increase employment opportunities, and provide better medical and educational facilities. These moves are apparently resulting in a general levelling of dialects. The Nimpkish-Kwakiutl dialect is gaining predominance on the east coast of Vancouver Island and the Quatsino dialect on the west coast, although the people in the Campbell River area and those around Kingcome Inlet still prefer their own ways of speech.

The research for this thesis was conducted in Cape Mudge with the Lekwiltq, who still retain their dialect, and in Alert Bay, which now contains many dialects, the predominant one being k^wa'guł, or Kwakiutl Proper, hereafter referred to as Kwakiutl. The Kwakiutl and the Nimpkish, as a result of close contact over a period of many years, have amalgamated their dialects to the point where they can now be considered as speaking the same dialect.⁴

Because of the dialectal differences between Lekwiltq and Kwakiutl, as well as the availability of informants in Victoria, the study of the former was abandoned. Research into the language was begun in May and June of 1968 with the help of Mrs. D. Moon in Cape Mudge. The remainder of the summer was spent in Alert Bay with Mrs. Agnes Cranmer, a member of the Kwakiutl tribe and originally from Fort Rupert. In Victoria, further assistance was obtained from Mr. and Mrs. Thomas Hunt: Mrs. Hunt is from the Nimpkish tribe, and Mr. Hunt, brother of Mrs. Cranmer, from the

Kwakiutl. The research was conducted under the auspices of a Canada Council grant to Dr. G.N. O'Grady at the University of Victoria.

Besides the extensive research into the linguistic and ethnographic facets of Kwakiutl life done by Boas⁵ in the late nineteenth and early twentieth centuries, comparatively little work by other investigators is to be found. Two grammars and a dictionary were published around the turn of the century, all independently of Boas, and of each other.

The earliest published record of scholarly endeavour as regards Kwakiutl dates from 1877. This is a "Vocabulary of the Kwa'kiutl," by G. Gibbs.⁶ It was followed eleven years later by A. J. Hall's "A Grammar of the Kwakiutl Language,"⁷ which, although it is couched in traditional terms, is a good initial attempt at a description of the language. This was further followed by an independent, though somewhat less complete, treatment by R. de la Grasserie in his Cinq Langues de la Colombie Britannique (Paris, 1902).

Besides these works, there are three other minor publications. They are: Comparative Vocabularies of the Indian Tribes of British Columbia. by W.F. Tolmie and G.M. Dawson (Montreal, 1884); J.C. Pilling's "Bibliography of the Wakashan Languages," (1894)⁸; and "Glottalized Continuants in Navaho, Nootka, and Kwakiutl," by Sapir (1938).⁹

Of all the studies which were published, Boas' obviously had the most far reaching influence upon those who were to follow. It

is generally accepted that he produced a phenomenal, and more or less accurate, number of accounts of the languages on which he worked. Out of a total of 166 publications which Boas wrote between 1886 and 1945 on many aspects of Northwest Pacific culture, a full twenty are devoted specifically to the Kwakiutl language. These twenty range from brief articles on specific topics to a comparatively full grammatical treatment.

Since Boas' death, some ethnographic material has been collected, but virtually nothing has been published on the language itself. It was felt, therefore, that a new look at Kwakiutl would be of value for several reasons. In the first place, the language was changing in Boas' time, and has continued to change since then, both under the influence of English, and through normal linguistic change.

A second reason is that Boas' work reflects his era in that his ~~research~~ was, by and large, conducted before certain developments in descriptive linguistic theory. For example, Boas' writings were largely pre-phonemic; consequently his orthography is fairly narrow, being based on phonetic, not phonemic, differences. As a result, the contemporary linguist is faced with certain difficulties in reading Boas' transcriptions.

These facts clearly indicate the necessity of a new and different approach to the language, and this phonology is a beginning contribution to what is hoped will develop into a large body

of material on Kwakiutl. Undoubtedly, modifications will be made to some of the statements presented in this thesis as more data become available, and more research is done: but at least the statements have been made so that they can be revised. This can lead only to a better knowledge and description of the language.

Finally, a word of thanks is due to Mrs. Moon, Mrs. Cranmer, and Mr. and Mrs. T. Hunt for their invaluable assistance. Also, the help of the members of the Department of Linguistics is deeply appreciated, especially the time and advice of Dr. G.N. O'Grady.

FOOTNOTES

1. This classification is advocated by Sapir in Nootka Texts. (Linguistic Society of America, University of Pennsylvania, 1939) p.10; and by C.F. and F.M. Voegelin in their Map of North American Indian Languages which is based in part on Antropological Linguistics, Vol. 6, No. 6 (1964), and Vol. 7, No. 7 (1965), Languages of the World: Native American Fascicles One and Two. (Map Copyright by American Ethnological Society, 1966). Boas, in "Kwakiutl Grammar" Handbook of American Indian Languages, Part 1. (Bureau of American Ethnology, Bulletin 40, Washington D.C., 1911) and the Department of Indian Affairs in Traditional Linguistic and Cultural Affiliations of Canadian Indian Bands (Ottawa, Queen's Printer, 1964) assert, however, that Haisla and Heiltsuk are merely extremely divergent dialects of Kwakiutl, and that they should be classified, therefore, as Kwakiutl, and not separately.

For another view of classification into phyla, compare Harold E. Driver. Indians of North America. (Chicago and London, University of Chicago Press, 1961) who places the Wakashan Family in the Mosan Phylum along with Salishan and Chimakuan (p.576).

2. For an introduction to the life of the Kwakiutl Indians before the white man, see James E. Spradley, ed. Guests Never Leave Hungry: The Autobiography of James Sewid, a Kwakiutl Indian. (New Haven and London, Yale University Press, 1969).

3. These figures were taken from Guests Never Leave Hungry, op. cit., pp.7 and 12; and from the Department of Indian Affairs publication, op. cit.; and S.W.A. Munn, M.D. Kwakiutl House and Totem Poles at Alert Bay, B.C. (West Vancouver, Whiterocks Publications, 1961) p.8. Cf. Wilson Duff. The Indian History of British Columbia, Vol.1. (The Impact of the White Man) (Anthropology in British Columbia, Memoir No.5: Victoria, Provincial Museum of British Columbia, 1964) p.38.

4. Although the ranking of the tribes was always changing in earlier times, the following list, as elicited from Mrs. Cranmer, indicates the ordering as it was when she was younger. For a more detailed description, see F. Boas. Kwakiutl Ethnography. Edited and abridged by Helen Codere. (Chicago and London, University of Chicago Press, 1966) pp.38-41. At present, the importance of tribal ranking seems to be dormant, since potlatching has lost its significance as a means of establishing tribal status.

<u>NAME</u>	<u>PHONEMICIZATION</u>
Kwakiutl Proper	k'a'guł
Mamalillikulla	ma'maliqala

<u>NAME</u>	<u>PHONEMICIZATION</u>
Nimkish	nə'mʔgi's
Tlawitsis	ɬawi'čis
Tanakteuk	də'na'x̣da'x̣ʷ
Kwiksuteneuk	q'ɪ'q'əsutɪnux̣ʷ
Tsawataineuk	ʒawada'e'nux̣ʷ
Lekwiltōq	li'g'iɬda'x̣ʷ
Quatsino	q̣u'skimu'x̣ʷ
Awikino	ʔawi'kinu'x̣ʷ

It is also interesting to note here that the Lekwiltōq came only recently to the Cape Mudge area, pushing the Comox Salish southward. This can be discerned by the fact that the name for Campbell River, *a'ma'ʔda'x̣ʷ, and other names of the area, are Salish in origin, and cannot be analyzed in Kwakiutl. See also H.G. Barnett. The Coast Salish of British Columbia. (Eugene, University of Oregon Press, 1955) pp.24-25, and H.C. Taylor and W. Duff. "A Post-contact Southward Movement of the Kwakiutl," Research Studies, Washington State University, No.24. No.1 (1956).

5. See bibliography for works of Boas. A complete listing of his work is also to be found in Kwakiutl Ethnography, op. cit., and for an example of linguistic change, see especially F. Boas. "Note on some Recent Changes in the Kwakiutl Language," International Journal of American Linguistics, Vol.VII, Nos.1-2, pp.90-93.

6. G. Gibbs. "Vocabulary of the Kwa'kiutl," Contributions to North American Ethnology, Department of the Interior, U.S. Geographical and Geological Survey of the Rocky Mountain Region, Washington, 1877.

7. A.J. Hall. "A Grammar of the Kwakiutl Language," Proceedings and Transactions of the Royal Society of Canada, Ottawa, 1888.

8. J.C. Pilling. "Bibliography of the Wakashan Languages," Bulletins of the Bureau of American Ethnology, XIX. 1-70, Washington, 1894.

9. E. Sapir. "Glottalized Continuants in Navaho, Nootka, and Kwakiutl," Language, XIV: 248-74, 1938.

INVENTORY OF PHONEMES

1.0. Of the forty-four phonemes of Kwakiutl, thirty-seven are consonants,¹ six are vowels and one is a feature of length.

1.1. The consonant system involves four basic manners, and five positions of articulation. The five positional categories are further subdivided in terms of coarticulatory features.

The inventory comprises three series of stops (voiceless, glottalized, and voiced). These include a bilabial series /p, p̚, b/ and glottal stop /ʔ/. The system also involves articulatory oppositions of plain alveolar /t, t̚, d/ with both affricated /c, c̚, ʒ/, and laterally affricated alveolars /k, k̚, λ/, and of non-labialized velars and uvulars /k, k̚, g; q, q̚, g̚/ with their labialized counterparts /kʷ, k̚ʷ, gʷ; qʷ, q̚ʷ, g̚ʷ/. There is also a series of voiceless fricatives, including two alveolars /s, ʃ/. Other fricatives, besides /h/, involve the same velar and uvular oppositions as the stops. The five resonants, all of which are voiced, consist of two nasals /m, n/, one lateral /l/, and two semivowels /w, y/.

The nine categories of contrasting articulation are identified numerically on the chart below in the following manner:

Labial

1. Bilabial

Alveolar

2. Plain

3. Affricated

4. Laterally Affricated

Velar

5. Non-labialized
6. Labialized

Uvular

7. Non-labialized
8. Labialized

9. Glottal

1.2. The vowel system is characterized by a two-way distinction in tongue height, and a three-way distinction in fronting. All vowels can occur in combination with length.

1.3. The phoneme inventory is charted below:

Consonants:

	bi- lab	alveolar			velar		uvular		glot- tal
	1	2	3	4	5	6	7	8	9
<u>Stops</u>									
Voiceless	p	t	c	ç	k	kʰ	q	qʰ	ʔ
Glottalized	p̚	t̚	c̚	ç̚	k̚	k̚ʰ	q̚	q̚ʰ	
Voiced	b	d	ʒ	ʎ	g	gʰ	g̣	g̣ʰ	
<u>Fricatives</u>			s	ʃ	x	xʰ	χ	χʰ	h
<u>Resonants</u>	m	n		l	y	w			

Vowels:

High		i	e	u		
Low		e	a	o	plus or minus length.	

FOOTNOTES

1. An alternative solution would entail an increase in the number of consonants to forty-two. Sequences of resonant plus glottal stop could be set up as /m̥, n̥, l', w̥, j'/, but until further study is made, they are best left as clusters.

ATTESTATION OF PHONEMES

2.0. From a relatively extensive corpus, comparatively few minimal pairs were found. Where they are found they are used in this attestation, but, in most cases, it has only been possible to demonstrate contrasts occurring in analogous environments.

Each consonant phoneme is contrasted in initial and medial position. Only nineteen of the consonants occur word-finally, and examples of pairs of these are not presented here, but are left for discussion in 4.1.1.

2.1. Consonantal Contrasts2.1.1 Bilabial Contrasts¹

/p/

/p:/p̥/ paʎa 'flooding river' : p̥aʎa 'stretching out hands'
 lep̥ele't 'priest' : mu p̥əna 'doing (something) four
 times'

/p:/b/ pedi 'cougar' : bəgʷa'nəm 'man'

lep̥ele't 'priest' : səbəʒoʔi 'movie'

/p:/m/ p̥e'lʔnakw̥əla 'river rising' : məlχʎu 'goat'

χəpiʎ 'carpet' : čəma'la 'index finger'

/p:/w/ pedi 'cougar' : wəda'la 'it is cold'

haʔe paq̥ə ni sp̥aʔi 'hair of : si wa'yu 'paddle (n)'
 nostrils'

/p̥/

/p̥:/p/ as above.

/p̥:/b/ p̥əla 'to pluck feathers' : bəgʷanəm 'man'
mu p̥əna 'doing (something)' : səbəʒoʔi 'movie'
four times'

/p̥:/m/ paʔla 'stretching out hands' : maʔi 'two'
p̥i p̥akumas 'flock of birds' : mamaʔa 'white man'

/p̥:/w/ paʔa 'stretching out hands' : wala's 'big'
p̥i p̥akumas 'flock of birds' : siwayu 'paddle (n)'

/b/

/b:/p, p̥/ as above.

/b:/m/ maʔca 'ashamed' : baʔkʷum 'Indian'
ʔamaʔinxiʔi 'youngest brother' : ba baʔgʷəm 'boy'

/b:/w/ wedaʔla 'it is cold' : bəgʷanəm 'man'
ha biʔliq 'eyelid' : dəwiʔ 'rope made of yellow cedar
bark'

/m/

/m:/p, p̥, b/ as above.

/m:/w/ mi sa 'you smell (something)'. : wi sa 'youngest brother'
Name of Mrs. Hunt's
mother.'

ləʔmi 'they' : ʔi ʔwiʔ 'cedar bark mat'

/w/

/w:/p, p̥, b, m/ as above.

/w:/kʷ/ wiksaʔs 'how are you' : kwikʷ 'eagle'
ʒawaʔdi 'Knights Inlet' : ʔakʷaʔni 'elbow'

- /t:/č/ taq^ua 'octopus' : čəda q 'woman'
 da'gi'ta 'touching someone' : mi ča 'kissing'
- /t:/ʒ/ təx^usta'li:l 'to sit on floor' : ʒə^uwən 'coho salmon'
 k^utəla 'fish' : ʒa'ʒəm 'small species of coho salmon'
- /t:/x/ taq^ua 'octopus' : x^ua q^ua 'kneading bread dough'
 da'gi'ta 'touching someone' : x^ui'x^uala 'break wind
 noisily'
- /t:/x'/ taq^ua 'octopus' : x^uaq^u'ala 'sound of breaking stick'
 x^uitəm:l 'hat' : q^ua'x^ua 'six'
- /t:/λ/ teki 'stomach' : λixi't 'paddle under!'
 da'gi'ta 'touching someone' : qa'λa'yu 'fish hook'
- /t'/
- /t'/:t/ as above.
- /t'/:d/ təmsi't 'ringing' : dəmsxi' 'salt water'
 čət'i t 'cracked' : pədi 'cougar'
- /t'/:s/ təmsi't 'ringing' : səms 'mouth'
 čət'i t 'cracked' : tⁱsəm 'stone'
- /t'/:n/ t^ut^u 'stars' : nu'la 'older'
 mə'ta'na^u?i 'horse clam' : na'na 'you will get hurt'
- /t'/:c/ təmspa^u?ya 'telephone' : cən^ux^u'a^u?i 'fat'
 mə'ta'na^u?i 'horse clam' : mi'ca 'nickname of Herbert Martin'
- /t'/:č/ t^ut^u 'stars' : ču'la 'black'
 tⁱ'təba'yu 'shoes' : ča čada'qəm 'little girl'
- /t'/:ʒ/ təxt'a'q^u 'to eat dried berries' : ʒə^uwən 'coho salmon'
 xəntə'la 'to snore' : lə'nʒa'sa 'descend'

- /t̥/:/k/ t̥u'tu 'stars' : xuma 'very, much'
 g̥ʷənt̥a 'heavy' : qənxu 'when' (?)
- /t̥/:/k̥/ t̥i'ba'yu 'shoe' : k̥i'səla 'sun'
 t̥u'tu 'stars' : p̥i'p̥ax̥u'mas 'flock of birds'
- /t̥/:/λ/ t̥exi'la 'making a road' : λixi't 'paddle under!'
 t̥i't̥əba'yu'shoes' : λi'λə'lo'la 'relative'
- /d/
- /d/:/t, t̥/ as above.
- /d/:/s/ dəmsxi 'salt,salt water' : səms 'mouth'
 bi'da'ʔwa 'small' : k̥i'sa 'snow (vb)'
- /d/:/n/ du'q̥a'ɬa 'looking' : nu'g̥wa 'I'
 p̥ədi 'cougar' : ʔani's 'aunt'
- /d/:/c/ də'n̥x̥c̥ə'ʔwa'k̥ 'record player' : c̥ənx̥'a'ʔi 'fat'
 ɬi'ʔda'q 'women' : mi'ca 'nickname of Herbert Martin'
- /d/:/ɬ/ da'si't 'to dive' : ɬa'si't 'to stretch (something)'
 ɬi'da'q 'women' : mi'ɬa 'kissing'
- /d/:/ʒ/ da'si't 'to dive' : ʒa'si't 'to turn blue'
 ʒa'wa'di 'Knights Inlet' : wa'la'ʒi 'really big'
- /d/:/k/ di 'tea' : xi'k̥ʷəs 'lying (telling a ~)'
 da'da'ɬəwa'k̥ 'coat' : la'k̥ən 'I am going'
- /d/:/k̥/ du'x̥sista'la 'looking around' : k̥u'x̥'ʔi'da 'freezing'
 ɬa'ɬadaqəm 'little girl' : ha'na'k̥'a'ɬi 'hunter'
- /d/:/λ/ du'q̥wəla 'I see' : λu'q̥w̥əmxi't 'paddle to the right!'
 wi'dən 'where?' : ki'λəm 'fish net'

/s/

/s:/t, t', d/ as above.

/s:/n/ səms 'mouth' : nəm 'one'

k'isa 'snow (vb)' : q̄i'nəm 'many'

/s:/c/ sasɪwala 'back-paddle!' : casɪt 'to throw water on'

misa 'you smell (something)' : mica 'nickname of
Herbert Martin'

/s:/č/ si'x'ʔit 'paddle (vb)' : čik' 'seagull'

misa 'you smell (something)' : miča 'kissing'

/s:/ʒ/ sasɪwala 'back-paddle!' : ʒas'ʔit 'to turn blue'

ʒasawa 'blue' : ʒaʒəm 'small species of coho salmon'

/s:/x/ si'x'ʔit 'paddle (vb)' : xi'x'əs 'lying (to tell a ~)'

sasəm 'children' : la'xən 'I am going'

/s:/x'/ səms 'mouth' : x'əmqəyu 'female sawbill duck'

qu'su'x' 'that's yours' : pi'pax'u'mas 'flock of birds'

/s:/λ/ si'x'ʔit 'paddle (vb)' : λixit 'paddle under!'

q'asa 'crying' : qa λayu 'fish hook'

/s:/ɬ/ sasəm 'children' : ɬa'ɬku 'mallard duck'

ʒa'stu 'blue' : ču'ɬtu 'rum'

/n/

/n:/t, t', d, s/ as above.

/n:/m/ nana 'you will get hurt' : ma'ma'ɬa 'white man'

/n:/c/ nə'lkila 'going south' : cə'lxa 'hail'

nana'xmi 'answer!' : wa'caxča'na'ʔi 'wrist watch'

/n:/č/ nu'la 'older' : ču'ɬa 'black'

- /n:/ə/ na'na 'you will get hurt' : ča čadaqəm 'little girl'
- /n:/ɜ/ na'x^w?i t 'day break' : ʒa'x^wən'eulachen fish'
bəg^wa'nəm 'man' : ʒa ʒəm 'small species of coho salmon'
- /n:/ɤ/ na qa 'drink' : xa'q^wa 'kneading bread dough'
ganəm 'wife' : la'xən 'I am going'
- /n:/ʁ/ na'ʔi 'snow (n)' : x'a'ʔi 'grizzly bear'
ʔe'ʔwa'nu.čəxste'ʔi 'buttocks' : pi'paʔu'mas 'flock of birds'
- /n:/λ/ na'x^w?i t 'day break' : la'x^wəli ʔ 'stand up! (from lying position.)'
nana 'you will get hurt' : qa'la'yu 'fish hook'
- /c/
- /c:/t, tʰ, d, s, n/ as above.
- /c:/ə/ cənx^wa'ʔi 'fat' : čəna 'fast moving clouds'
mi ca 'nickname of Herbert Martin' : mi ča 'kissing'
- /c:/ɜ/ ca'x^wa 'leaking roof' : ʒa'x^wən 'eulachen fish'
cu'cuxcu'ngali s 'clouds getting darker' : ʔanu ʒu'x^w?i'da 'light, high cloud cover'
- /c:/ɤ/ ca'x^wa 'leaking roof' : xa'q^wa 'kneading bread dough'
dənxčə'wak^w 'record player' : hanxlanu' 'pot'
- /c:/ʁ/ ca'x^wa 'leaking roof' : x'a'q^wa 'copper, red'
wa'caxčana'ʔi 'wrist watch' : ha'na'x'əʔi 'hunter'
- /c:/λ/ ca x^wa 'leaking roof' : la x^wəli ʔ 'stand up! (from lying position.)'
mi'ca 'nickname of Herbert Martin: li'ləlo'la 'relatives'

/č/

/č:/t, t', d, s, n, c/ as above.

/č:/ʒ/ ča's'i't 'to stretch something' : ʒa s'i't 'to turn blue'
 ?wa'čən 'I am a dog' : ʒa'ʒəm 'small species of coho
 salmon'

/č:/ʒ/ čik' 'seagull' : ʒi'k'əs 'lying (to tell a ~)'
 ?wa'čən 'I am a dog' : la ʒən 'I am going'

/č:/ʒ/ ču'ʒa 'black' : ʒu'ʒ' 'ice'
 ?wa'čə 'dog' : ha'na'ʒa'i 'hunter'

/č:/ʒ/ čixila'gin 'hurting' : ʒixi't'paddle under ?'
 mi'ča 'kissing' : ki'ʒəm 'fish net'

/ʒ/

/ʒ:/t, t', d, s, n, c, č/ as above.

/ʒ:/ʒ/ ʒa q'a 'evening' : ʒa'q'a 'kneading bread dough'
 ?anu'ʒux'i'da 'light high : ?o'nu'ʒama'i 'cheeks'
 cloud cover'

/ʒ:/ʒ/ ʒa q'a 'evening' : ʒa'q'a 'copper, red'
 sa'yaʒəm 'small species of : ha'na'ʒa'i 'hunter'
 spring salmon'

/ʒ:/ʒ/ ʒa q'a 'evening' : la'ʒ'əli'i 'stand up (from lying
 position)'

/ʒ/

/ʒ:/t, t', d, s, n, c, č, ʒ/ as above.

/ʒ:/ʒ/ ʒa'q'a 'kneading bread dough' : ʒa'q'a 'copper, red'
 ʒ'u'mta'ʒən 'I am going to smoke' : ha'na'ʒa'i 'hunter'

/ʒ:/ʒ/ ʒa'q'a 'kneading bread dough' : la ʒ'əli'i 'stand up!
 from lying
 position)'

- /x/:/λ/ k'u'mta'χən 'I am going to smoke' : qa la yu 'fish hook'
 /x/:/ɪ/ χa q'a 'kneading bread dough' : ɪa'x'əla 'love'
 wəχəla 'you hear' : q'əɪa 'scratch (n)'
 /x/:/l/ χəpɪɪ 'carpet' : ləpələ't 'priest'
 ?o'ʒigɪka'ʔi 'died at sea' : ?o'ʒigili'ɪ 'something goes
 wrong in house'

/x'/

/x'/:/t, t', d, s, n, c, č, ʒ, λ/ as above.

- /x'/:/λ/ χ'u x' 'ice' : λu'q'əmxi t 'paddle right!'
 ha'na χ'a'ɪ 'hunter' : qa la'yu 'fish hook'
 /x'/:/ɪ/ χ'a'k'a ni 'elbow' : ɪa x'əla 'love'
 ha'na'χ'a ɪ 'hunter' : ma ma ɪa 'white man'
 /x'/:/l/ χ'a'ʔi 'Black bear' : la'ʔəm 'and then'
 ha na χ'a ɪ 'hunter' : na la 'day'

/λ/

/λ/:/t, t', d, s, n, c, č, ʒ, λ, x'/ as above.

- /λ/:/ɪ/ λa x'əli'ɪ 'stand up! (from : ɪa'x'əla 'love'
 lying position)'
 /λ/:/l/ λa'λa'ne'ʔe'ɪ 'woodpecker' : la'χən 'I am going'
 λa λa'ne'ʔe'ɪ 'woodpecker' : na'la 'day'

/ɪ/

/ɪ/:/s, χ, x', λ/ as above.

- /ɪ/:/l/ ɪa'x'a'ɪa 'it is difficult : laχa 'in'
 to do'
 ɪa x'a'ɪa 'it is difficult : ɪa'x'əla 'love'
 to do'

/l/

/l:/ /ɫ, ɫ', λ, ɭ/ as above.

2.1.3. Velar and Uvular Contrasts.

2.1.3.1. Contrasts in Manner of Articulation.

/k/

/k:/ /k̠/ kiləm 'fear' : k̠iləm 'tongue'

t̠eka 'dirt' : te̠ki 'stomach'

/k:/ /g/ kix̠a 'pass wind' : giɣ̠a 'steelhead trout'

t̠eka 'dirt' : saʔɣ̠əg̠a 'oblong platter'

/k:/ /x/ ku x̠sʔənt 'to break a stick' : xu'mʔs 'head'

nə'lk̠i'laɣ̠ 'going to town' : q̠'ə'l̠x̠i t 'plucking eyebrows'

/k:/ /y/² kix̠a 'break wind' : yix̠a 'Indian dance'

/k̠/

/k̠:/ /k/ as above.

/k̠:/ /g/ k̠i 'no' : gi'gi 'teeth'

ʔe'k̠i 'above' : ʔe'gi's 'sand'

/k̠:/ /x/ k̠ina'ʔi's 'chilly' : xi'n̠ɣ̠as 'nose'

te̠ki 'stomach' : t̠exi'la 'making a road'

/k̠:/ /y/ yak̠səm 'bad' : ka'k̠agala 'back paddle!'

/g/

/g:/ /k, k̠/ as above.

/g:/ /x/ gina'nəm 'child' : xi'n̠ɣ̠as 'nose'

ʔe'gi's 'sand' : ʔo'k̠e'xi'ʔi 'knees'

/g:/ /y/ giɣ̠a 'steelhead trout' : yix̠a 'Indian dance'

/x/

/x/:/k, k̥, g/ as above.

/x/:/y/ xɪ'nʒas 'nose' : yix̣'a 'Indian dance'

/y/

/y/:/k, k̥, g, x/ as above.

/ḳ/

/ḳ/:/ḳ/ ḳiḳ 'eagle' : ḳi'sa 'snow (vb)'

ʔaḳ'a'ni 'elbow' : waḳ'a 'brother'

/ḳ/:/g̣/ ḳa'xila 'smoking in ground' : g̣a'ʔs 'stop!'

ʔoḳ'exi'ʔi 'knee' : ʔu'g̣i'ʔwa'ʔli'ʔ 'front of house'

/ḳ/:/x̣/ ḳa'xila 'smoking on ground' : x̣a'ḳ'əna 'canoe'

na'ḳ'əla 'becoming' : ʒa'x̣'ən 'eulachen'

/ḳ/:/w/ as in 2.1.1. above.

/ḳ̥/

/ḳ̥/:/ḳ̥, w/ as above.

/ḳ̥/:/g̣̥/ ḳ̥a'ʔs 'sitting outside house' ; g̣̥a'ʔs 'stop!'

ba'ḳ̥'um 'Indian' : bəg̣̥'a'nəm 'man'

/ḳ̥/:/x̣̥/ ḳ̥a'sa 'crying' : x̣̥a'ḳ̥'əna 'canoe'

waḳ̥'a 'brother' : gix̣̥'a 'steelhead trout'

/g̣/

/g̣/:/ḳ, ḳ̥/ as above.

/g̣/:/w/ g̣a'ʔs 'stop!' : wa'las 'big'

ʔi'g̣'ənu 'egg' : si'wa'yu 'paddle (n)'

/g̣/:/x̣/ g̣a'ʔs 'stop!' : x̣a'ḳ'əna 'canoe'

/g^h/:/x^h/ da'dug^ha'la 'come alive' : yu'dux^həgi yu 'thirteen'

/x^h/

/x^h/:/k^h, k^h, g^h, w/ as above.

/q/

/q/:/q̇/ qaḡsi's 'trousers' : q̇asana^ʔi 'shirt'

xi'qa 'carve hole in wood' : ga'wiq̇a'nəm 'butter clam'

/q/:/ġ/ qa'nuḡ 'night' : ġanəm 'wife'

no'qa^ʔi 'heart' : no'ġa't 'wise man'

/q/:/ḡ/ qa'nuḡ 'night' : ḡa'ma'la 'fatherless child'

yıqa 'knitting' : yıḡa 'that one'

/q̇/

/q̇/:/q/ as above.

/q̇/:/ġ/ q̇i'nəm'many' : ġi'we'la 'long time on water'

ya'q̇ənta'la 'speech' : ġa'ġəmp 'grandparent'

/q̇/:/ḡ/ q̇i'nəm 'many' : ḡənta 'snore'

ga'wiq̇a'nəm 'butter clam' : yıḡa da 'that one (farther away)'

/ġ/

/ġ/:/q, q̇,/ as above.

/ġ/:/ḡ/ ġa'ġas 'grandparent' : ḡa'q 'bone'

ġa'galəḡ 'littleneck clams' : ṗə'lḡəla'sqəm 'Hudson Bay blankets'

/ḡ/

/ḡ/:/q, q̇, ġ/ as above

/q^w/

/q^w:/w/ as above.

/q^w:/q̣^w/ q̣^wəɪa 'flood tide hitting' : q̣^wəli[?] 'uncle'
rocks'

ʒa^wq̣^wa 'evening' : ʒa q̣^wa 'west wind'

/q^w:/g̣^w/ q̣^waɪ 'smoke rising' : g̣^waɪ 'finished'
ḳ^wa^wq̣^wa 'kneading bread dough' : ləg̣^wiɪ 'fire'

/q^w:/x̣^w/ q̣^waɪ 'smoke rising' : x̣^wa^wla^wyu 'fish knife'
ḳ^wa^wq̣^wumx̣^wi[?]t 'to blush' : la^wx̣^wəx̣^wa^wla 'standing on boat'

/q̣^w/

/q̣^w:/q^w, w/ as above.

/q̣^w:/g̣^w/ q̣^wa^wq̣^wəqsəm 'bread' : g̣^waɪ 'finished'
ḳ^wo^wq̣^wa 'tobacco' : ləg̣^wiɪ 'fire'

/q̣^w:/x̣^w/ q̣^wa^wla^wgo 'coming alive' : x̣^wa^wla^wyu 'fish knife'
ḳ^wa^wq̣^wa^wla 'sound of breaking stick' : la^wx̣^wəx̣^wa^wla 'standing on boat'

/g̣^w/

/g̣^w:/q^w, q̣^w/ as above

/g̣^w:/w/ g̣^waɪ 'finished' : wa^wlas 'big'
ləg̣^wiɪ 'fire' : la^wwi[?]ɪ 'standing inside house'

/g̣^w:/x̣^w/ g̣^waɪ 'finished' : x̣^wa^wla^wyu 'fish knife'
ləg̣^wiɪ 'fire' : la^wx̣^wəx̣^wa^wla 'standing on boat'

/x̣^w/

/x̣^w:/q^w, q̣^w, g̣^w, w/ as above.

/?/

/?/:/h/ ?a?ant 'herring eggs' : hanun? 'pink salmon'

/?/: with its own absence as follows:

ha?ma?i 'food' : ha'ma ni'k' 'scared speechless'

?o?k'e'xi?i 'knees' : ?o'k'xi?i 'knee'

2.1.3.2. Contrasts in Position of Articulation.

/k/

/k/:/k'/ kixəla'ga 'crow' : k'ix'a'li'i 'to fall inside house'

?awi?nako'la 'many villages' : na?na'k'əla 'dawn'

/k/:/q/ ku'xs?ənt 'to break a stick' : qu'sux' 'that is yours'

t'eka 'dirt' : t'əxtəqa 'dried berries'

/k/:/q'/ kix'a 'break wind' : q'əla 'flood tide hitting rocks'

t'eka 'dirt' : X'a'q'a 'copper, red'

/k/:/?/ ki'ləm 'fish net' : ?i'xmən 'I am fine'

?amaka 'to excrete' : ?ama?inxi?i 'that's the
youngest brother'

/k'/

/k'/:/k/ as above.

/k'/:/q/ k'ənu ?g'a'la 'noise made by : qə'nxu 'when' (?)
grouse'

pəl?nə'k'əla 'river rising' : naqelaxstala' lunch time'

/k'/:/q'/ k'əsk'əs 'bluebird' : q'əla 'flood tide hitting rocks'

X'a'k'a ni 'elbow' : X'a'q'a 'copper, red'

/k'/:/?/ k'ix?i'l's 'fall inside house' : ?i'xmən 'I am fine'

X'a'k'a'ni 'elbow' : ?a?ant 'herring eggs'

/q/

/q:/k, k^w/ as above.

/q:/q^w/ qilaka'sla 'welcome' : q^wi'sgila 'far away'
 λaqaʒu' 'to flatten' : λa q^wa 'kneading bread dough'

/q:/ʔ/ qa'nuλ 'night' : ʔani's 'aunt'
 na'qa 'drink' : na ʔi 'snow (n)'

/q^w/

/q^w:/k, k^w, q/ as above.

/q^w:/ʔ/ q^wi'sgila 'far away' : ʔi'xmən 'I am fine'
 λa'q^wa 'kneading bread dough' : λ'a'ʔi 'black bear'

/ʔ/

/ʔ:/k, k^w, q, q^w/ as above.

/ʀ/

/ʀ:/ʀ^w/ ʀi k^w 'totem pole' : ʀ^wi'sa 'snow (vb)'
 siʀa 'five' : waʀ^wa 'brother'

/ʀ:/ʀ^h/ ʀa'wa'yu 'knife' : ʀ^ha'λagola 'twenty-six'
 ʔo laʀa la 'really, very' : ya'ʀ^hənta la 'speech'

/ʀ:/ʀ^w/ ʀiləm 'tongue' : ʀ^wəli'ʔ 'uncle'
 ʔo laʀa la 'really, very' : λaʀ^wa la 'sound of breaking
 stick'

/ʀ^w/

/ʀ^w:/ʀ/ as above.

/ʀ^w:/ʀ^w/ ʀ^wi'sa 'snow (vb)' : ʀ^wəlsa 'rotten'
 ʀi'ʀ^wəs 'lying (to tell a ~)' : λaʀ^wa la 'sound of
 breaking stick'

/k̥/:/q̥/ k̥i'sa 'snow (vb)' : q̥i'nəm 'many'
 xi k̥əs 'lying (to tell a ~)' : q̥i'q̥a'q̥o'la 'a gathering'

/q̥/

/q̥/:/k̥, k̥̥/ as above.

/q̥/:/q̥̥/ q̥a'x̥ago'la 'twenty-six' : q̥'a'la'go 'coming alive'
 ya'q̥ent̥a'la 'speech' : q̥'a'q̥̥əq̥sem 'bread'

/q̥̥/

/q̥̥/:/k̥, k̥̥, q̥/ as above.

/g/

/g/:/g̥/ ge'ks'a'la 'south east wind' : g̥'e'ʔnako'la 'north'
 q̥'ela'gili'i' 'to come to life' : x̥a'g̥i'i' 'to kneel'

/g/:/g̥̥/ gi'we'la 'sitting on salt water' : g̥̥i'we'la 'long time on salt water'

gaga'da 'I am married' : ga'gas 'grandparent'

/g/:/g̥̥̥/ gi'we'la 'sitting on salt water' : g̥̥̥i'g̥̥e'la 'clothes'

ʔo'ʔigil'ʔs 'something goes wrong outside' : ʔo'nig̥̥i'i' 'inside corner of house'

/g̥̥̥/

/g̥̥̥/:/g/ as above.

/g̥̥̥/:/g̥̥̥/ g̥̥̥'e'ʔnako'la 'north' : g̥̥̥e'wa's 'deer'

yu'g̥̥a 'rain' : ga'ya'gas 'eyes'

/g̥̥̥/:/g̥̥̥̥/ g̥̥̥'a'ʔs 'stop!' : g̥̥̥̥'a'i' 'finished'

x̥a'g̥̥̥i'i' 'to kneel' : ləg̥̥̥i'i' 'fire'

/g/

/g:/g, g^m/ as above.

/g:/g^m/ ga'lgałemx 'littleneck clams' : g^ma'łg^ma'kali's 'Indian
Cove'

/g^m/

/g^m:/g, g^m, g/ as above.

/x/

/x:/x^m/ xu'm^ms 'head' : x^mə '(?) particle'

k'a'xila 'smoking in ground' : ła'x^məla 'love'

/x:/x^h/ xi'x^hi't 'burning' : xi'x^mi'x 'going to sweep'

łixi't 'paddle under!' : xi'x^hi't 'burning'

/x:/x^m/ xi'x^hi't 'burning' : x^mi'xa'la 'break wind noisily'

da'x^hi't 'to grab' : na'x^mi't 'dawn'

/x:/h/ xila'ci 'smoke house' : he'lu's 'great-grandfather'

/x^m/

/x^m:/x/ as above, and /w/ as in 2.1.1.

/x^m:/x^h/ x'a'k^məna 'canoe' : xa'ma'la 'fatherless child'

kix'a 'break wind' ; yixa 'that one'

/x^m:/x^m/ x'a'k^məna 'canoe' : x^ma'ła'yu 'fish knife'

ła'x^məla 'love' : ła'x^məli'ł 'stand up!(from lying
position.)'

/x^m:/h/ x'a'k^məna 'canoe' : ha'ʒəxsta'la 'noisy'

/x^h/

/x^h:/x, x^m/ as above.

/x̣/:/x̣ʷ/ x̣ə'lba'yu'rake' : x̣ʷə'lʒus 'tommy cod fish'

yix̣a 'that one' : yix̣ʷa 'Indian dance'

/x̣/:/n/ x̣a'ma'la 'fatherless child' : na'ma'nikʷ 'scared speechless'

/x̣ʷ/

/x̣ʷ/:/x, xʷ, x̣/ as above, and /w/ as in 2.1.1.

/x̣ʷ/:/h/ x̣ʷa'la'yu 'fish knife' : hala'kasla 'goodbye'

/n/

/h/:/x, xʷ, x̣, x̣ʷ/ as above.

/y/

/y/:/k, g, x/ as in 2.1.3.1.

/y/:/w/ yaksem 'bad' : wakʷa 'brother'

2.1.3.3. Contrasts in both Position and Manner of Articulation.

/k/

/k/:/kʷ/ ki'λəm 'fish net' : kʷi'sa 'snow (vb)'

gi'kaɬa 'tooth ache' : xi'kʷəs 'lying (to tell a ~)'

/k/:/q̄/ ki'λəm 'fish net' : q̄i'nəm 'many'

gi'kaɬa 'tooth ache' : q̄i'q̄a'q̄o'la 'a gathering'

/k/:/q̄ʷ/ ka'ʒəkʷ 'softened cedar bark' : q̄ʷa'sa 'crying'

t'eka 'dirt' : taq̄ʷa 'octopus'

/k/:/gʷ/ ka'ʒəkʷ 'softened cedar bark' : gʷa'da 'twenty-five cents'

gi'kaɬa 'tooth ache' : kʷənu'ʔgʷaɬa 'noise made by grouse'

/k/:/g/ kixʷa 'break wind' : gana 'youngest girl'

gi'kaɬa 'tooth ache' : ʔe'gas '(female) friend'

- /k/:/g̱/ ka'xka'nu 'frying pan' : g̱'a'i 'finished'
teka 'dirt' : ləg̱'i'i 'fire'
- /k/:/x̣/ ka'xka'nu 'frying pan' : x̣'a ḳ'əna 'canoe'
gi kaʒa 'tooth ache' : ʒa x̣'a ʒa 'it is difficult to do'
- /k/:/ç/ kiçəla'ga 'crow' : çəç'i't 'combing hair'
teka 'dirt' : yiça 'that one'
- /k/:/ç̣/ ki'χəm 'fish net' : ç̣'i'χa'la 'break wind noisily'
teka 'dirt' : yiç̣'a 'Indian dance'
- /k/:/h/ ka'xka'nu 'frying pan' : ha'nxka'nu 'pot'
- /ḳ/
- /ḳ/:/ḳ/ ḳi'ḳ 'totem pole' : ḳ'i'ḳ 'eagle'
teki' 'stomach' : təḳ'əla 'beating'
- /ḳ/:/q/ ḳiləm 'tongue' : qaləm 'rib'
ʔo'la ḳa'la 'really, very' : na'qa 'drink'
- /ḳ/:/q̣/ ḳi'sχən 'I am not' : q̣'i'sgi'la 'faraway'
ḳa'ḳaga'la 'back up!' : ḳa'q̣'a 'copper, red'
- /ḳ/:/ʔ/ ḳi'ḳ 'totem pole' : ʔi'ḳ 'good'
ʔe ḳi' 'above' : ʔi'ʔe'g̱as '(female) friends'
- /ḳ/:/g̱/ ḳa'wa'yu 'knife' : g̱'a'da 'twenty-five cents'
p̣ədəḳila 'getting dark' : nəg̱əmp 'in-law'
- /ḳ/:/g̱/ ḳi' 'no' : gi'we'la 'long time in salt water'
ʔo'la ḳa'la 'really, very' : g̱a'g̱as 'grandmother'
- /ḳ/:/g̱/ ḳa'ḳaga'la 'back up!' : g̱'a'ç̣'ni's 'dog salmon'
ʔe ḳi' 'above' : ʔo'niç̣'i'i 'inside corner of house'

- /k/:/x^w/
 ka'kaga'la 'back up!' : x^wa'k^wəna 'canoe'
 ka'kaga'la 'back up!' : la'x^wa'ʔa 'It is difficult to do'
- /k/:/x̣/
 ka'wa'yu 'knife' : x̣a'ma'la 'fatherless child'
 si'ka 'five' : yi'x̣a 'that one'
- /k/:/x̣^w/
 ka'wa'yu 'knife' : x̣^wa'la'yu 'fish knife'
 si'ka 'five' : yi'x̣^wa 'Indian dance'
- /k/:/h/
 ka'wa'yu 'knife' : ha'ma'nik^w 'scared speechless'
- /g/
 /g/:/k^w/
 gi'we'la 'sitting on salt water' : k^wi'k^w 'eagle'
 gi'gi 'teeth' : k^wə'sk^wəs 'bluebird'
- /g/:/q/
 gila 'grizzly bear' : qi'laka'sla 'welcome'
 da'gi'ta 'touching someone' : paqi'ʔi 'flat, smooth floor'
- /g/:/q^w/
 gila 'grizzly bear' : q^wə'ʔa 'flood tide hitting rocks'
 gaga'da 'married' : ʒa'q^wa 'evening'
- /g/:/k^w/
 gi'gi 'teeth' : k^wi's'ʔi't 'snow (vb)'
 gi'gi 'teeth' : k^wi'k^wəs 'lying (to tell a ~)'
- /g/:/q̣/
 gina'nəm 'child' : q̣i'nəm 'many'
 sa'ʔx̣^wəga 'platter (oblong)' : ga'wi'q̣a'nəm 'butter clam'
- /g/:/q̣^w/
 gila 'grizzly bear' : q̣^wə'li'ʔ 'uncle'
 gaga'da 'married' : ta'q̣^wa 'octopus'
- /g/:/x^w/
 ga'k^w 'child' : x^wa'k^wəna 'canoe'
 sa'ʔx̣^wəga 'platter (oblong)' : kix^wa 'break wind'
- /g/:/x̣/
 gi'x̣^wa 'steelhead trout' : xi'x̣^wʔi't 'will sweep'
 da'gi'ta 'touching someone' : na'x̣^wʔi't 'to drink'

/kʷ/

/kʷ/:/k, g, x/ as above.

/kʷ/:/q/ kʷi'kʷ 'eagle' : q̄i'nəm 'many'

kʷa'kʷa'ni 'elbow' : ya'q̄ənta'la 'speech'

/kʷ/:/q̄ʷ/ kʷə'skʷəs 'bluebird' : q̄ʷəli's 'brother-in-law'

kʷa'kʷa'ni 'elbow' : kʷa'q̄a'la 'sound of breaking stick'

/kʷ/:/g/ kʷa'xu'sto' 'smoke rising from : ga'ya'gas 'eyes'
woods in distance'

p̄ə'l'na'kʷəla 'river rising' : ga'ya'gas 'eyes'

/kʷ/:/gʷ/ kʷa'xila 'smoke' : gʷa'i 'finished'

ʔo'kʷexi'ʔi 'knee' : hegʷi'ʔgili 'from gʷa's~, stop that!'

/kʷ/:/x/ kʷa'xila 'smoke' : xa'ma'la 'fatherless child'

kʷa'kʷa'ni 'elbow' : yix̄a'da 'that one farther away'

/kʷ/:/xʷ/ kʷum'na'la 'noise made : xʷə'ta'la 'I am worried about'
by grouse'

/kʷ/:/h/ kʷa'xila 'smoke' : ha'ma'ni'kʷ 'scared speechless'

/kʷ/

/kʷ/:/k, g, x/ as above.

/kʷ/:/q/ kʷu'mta 'to smoke (a cigarette)' : qo'ma 'thumb'

wakʷa 'brother' : xəqa 'combing'

/kʷ/:/qʷ/ kʷi'sa 'snow (vb)' : qʷi'sgi'la 'far away'

wakʷa 'brother' : wa'qʷa 'color runs (i.e. in washing)'

/kʷ/:/ʔ/ kʷi'sa 'snow (vb)' : ʔixma'sa 'are you alright?'

wakʷa 'brother' : na'ʔi 'snow (n)'

- /k̥/:/g/ k̥i'x'a'na 'geoduck clam' : gi'we'la long time on salt
water'
- /k̥/:/g̥/ k̥i'sa 'snow (n)' : gi'ig̥'e'la 'clothes'
xi'k̥'əs 'lying (to tell a ~)' : hegi'gi'li 'from, g̥'a's ~,
stop that!'
- /k̥/:/x/ k̥i'x'a'na 'geoduck clam' : x̥əx̥'i't 'combing'
čək̥'a 'short' : yix̥a 'that one'
- /k̥/:/x̥/ k̥i'sa 'snow (vb)' : x̥i'x̥a'la 'break wind noisily'
xi'k̥'əs 'lying (to tell a ~)' : la'x̥'əx̥sa'la 'standing on
boat'
- /k̥/:/h/ k̥i'sa 'snow (vb)' : he'ʔlu's 'great-grandfather'
- /g̥/
- /g̥/:/k, k̥, x/ as above.
- /g̥/:/q/ g̥'a's 'stop!' : qa'a'la 'early'
x̥a'g̥'i'ɪ 'kneel' : paqi'ɪ 'flat, smooth floor'
- /g̥/:/q̥/ g̥'a's 'stop!' : q̥'a'ɪ 'smoke rising'
x̥a'g̥'i'ɪ 'kneel' : x̥a'q̥'a 'copper, red'
- /g̥/:/ʔ/ g̥'a's 'stop!' : ʔa'ant 'herring eggs'
x̥a'g̥'i'ɪ 'kneel' : x̥'a'ʔi 'bear'
- /g̥/:/q̥/ g̥'a'da 'twenty-five cents' : q̥ax̥'a 'six'
bæg̥'a'nəm 'man' : ga'wiq̥a'nəm 'butter clam'
- /g̥/:/q̥̥/ g̥'a's 'stop!' : q̥̥'a'sa 'crying'
nu'g̥'a 'I' : taq̥̥'a 'octopus'
- /g̥/:/x̥/ g̥'a'da 'twenty-five cents' : 'x̥a'ma'la 'fatherless child'
ba'bag̥əm 'small boy' : ga'x̥ən 'I come'

- /g^w:/x^w/ g^wa^wda 'twenty-five cents' : x^wa^wla^wyu 'fish knife'
 beg^wa^wnəm 'man' : la x^wəli^wi 'stand up!(from lying
 position)'
- /g^w:/h/ g^we^w?nako^wla 'north' : he^w?lu^ws 'great grandfather'
- /x^w/
- /x^w:/k, k̄, g/ as above.
- /x^w:/q/ x^wa^wk̄^wəna 'canoe' : qa^wa^wla 'early'
 ʔa^wx^wa^wʔa 'it is difficult to do' : ʔaqa^wʔu 'to make flat'
- /x^w:/q^w/ x^wa^wk̄^wəna 'canoe' : q^wa^wi 'smoke rising'
 ʔa^wx^wən 'eulachen' : ʔa q^wa 'evening'
- /x^w:/ʔ/ x^wa^wk̄^wəna 'canoe' : ʔama^wbida 'small'
 ʔa x^wəla 'love' : ʔa^w?i 'bear'
- /x^w:/q̄/ x^wa^wk̄^wəna 'canoe' : q̄a^wʔago^wla 'twenty-six'
 k̄^wi^wx^wa^wna 'geoduck clam' : q̄i q̄a^wq̄o^wla 'a gathering'
- /x^w:/q̄^w/ x^wa^wk̄^wəna 'canoe' : q̄a^wx^wsa^wla 'sitting on boat'
 ʔa^wx^w?a^wli^wi 'kneel down' : ʔa^wq̄a^wla 'sound of breaking
 stick'
- /x^w:/ḡ/ x^wa^wk̄^wəna 'canoe' : ḡa^wḡəmp 'grandmother'
 ʔa^wx^wən 'eulachen' : ḡa^wḡəmp 'grandmother'
- /x^w:/ḡ^w/ x^wa^wk̄^wəna 'canoe' : ḡa^wʔəli^ws 'moaning'
 ʔa^wx^wa^wʔa 'it is difficult to do': ləḡ^wi^wi 'fire'
- /q/
- /q/:/k̄, g, x, k̄^w, g^w, x^w/ as above.
- /q/:/q̄^w/ qi^wlaka^wsla 'welcome' : q̄^wi^wʔa^wʔa^wla 'be quiet!'
 na^wqa 'drink' : ta^wq̄^wa 'octopus'

- /q:/g̣/ qə'nku 'when' (?) : g̣'ənt'a 'heavy'
 paqi'ɪ 'flat, smooth floor' : ləg̣'ɪ'ɪ 'fire'
- /q:/x̣/ qa'la'yu 'fish hook' : x̣'a'la'yu 'fish knife'
 paqazu 'flat table' : la x̣'əx̣sa'la 'standing on boat'
- /q:/h/ qa'nuχ 'night' : hanu'n? 'pink salmon'
- /q̣/
- /q̣:/k, g, x, ḳ, g̣, x̣/ as above.
- /q̣:/q̣/ q̣a'ḳago'la 'twenty-six' : q̣'a'ɪ 'smoke rising'
 ga'wiq̣a'nəm 'butter clam' : q̣'i'q̣'əsuṭinux̣ 'tribe name'
- /q̣:/ʔ/ q̣a'ḳa 'five' : ʔa'əbu 'seven'
 ya'q̣ənṭa'la 'speech' : ʔa'ant 'herring eggs'
- /q̣:/g̣/ q̣a'ḳa 'five' : g̣'a'ɪ 'finished'
 pu'sq̣a 'hungry' : g̣'a'ɪg̣'a'ḳalis 'Indian Cove'
- /q̣:/h/ q̣a'ḳa 'five' : ha'ya'ḳa 'young men (distributive)'
- /g̣/
- /g̣:/k, ḳ, x, ḳ, ḳ, x̣/ as above.
- /g̣:/q̣/ g̣ana 'youngest girl' : q̣'ə'la 'flooding tide hitting rocks'
 g̣a'g̣as 'grandparent' : la'q̣'a 'kneading bread dough'
- /g̣:/q̣'/ g̣ana 'youngest girl' : q̣'a'sa 'crying'
 g̣a'g̣as 'grandparent' : q̣'a'q̣'axsɪ'ʒa'ɪ 'toes'
- /g̣:/x̣/ g̣ɪ'we'la 'long time on salt water' : x̣'i'ḳa'la 'break wind noisily'
- g̣a'lgaləmx̣ 'littleneck clams' : cəlx̣'a 'sour'
- /g̣:/ʔ/ g̣a'g̣as 'grandparent' : ʔa'ant 'herring eggs'
- /g̣:/h/ g̣e'wa's 'deer' : hē'lu's 'great grandfather'

/ɣ̣ʰ/

/ɣ̣ʰ/:/k, ḳ, g, ḳʰ, ḳʰ, g̣ʰ, q, q̣, g̣/ as above.

/ɣ̣ʰ/:/?/ ɣ̣ʰaˈlaˈyu 'fish knife' : ʔaləbuˈ 'seven'
 laˈɣ̣ʰəɣ̣saˈla 'standing on boat' : laʔəm 'and then'

/ʔ/

/ʔ/:/ḳ, g, x, ḳʰ, g̣ʰ, x̣ʰ, q̣, g, ɣ̣, q̣ʰ, g̣ʰ, ɣ̣ʰ/ as above.

/h/

/h/:/k, ḳ, g, ḳʰ, ḳʰ, g̣ʰ, q, q̣, g, q̣ʰ, q̣ʰ, g̣ʰ/ as above

2.2 Vocalic Contrasts.

Evidence of vocalic contrasts is presented below in three sections. In the first, short vowels are contrasted; in the second, oppositions among long vowels are attested; in the third, short vowels are contrasted with long vowels.

2.2.1. Short vowels contrasted.

/i/ pixoˈla 'anything floating'
 /e/ ṭeka 'dirt'
 /ə/ pəla 'pluck feathers'
 /a/ taq̣a 'octopus'
 /u/ ʔuʔḳeˈxiʔi 'knees'

2.2.2. Long vowels contrasted.

/iː/ piˈsa 'hard'
 /eː/ beˈt 'ten cents'
 /əː/ pəˈlɣ̣ela 'fog'

/aː/ paːʔa 'flooding river

/u/ puːsɔ̃a 'hungry'

/o/ poːɣpa 'butcher knife'

2.2.3. Short vowels contrasted with long.

/i:/iː/ pɪxoːla 'anything floating' : p̃iːsa 'hard'

/e:/eː/ ʔuːkˈexiːʔi 'knee' : ʔuːkˈeːxiːʔi 'knees'

/ə:/əː/ pəla 'pluck feathers' : pəːlɣəla 'fog'²

/a:/aː/ p̃adagiːʔ 'dark inside' : p̃aːʔa 'stretching out hands'

/u:/uː/ ʔuːkˈeːxiːʔi 'knees' : ʔuːkˈexiːʔi 'knee'

/o:/oː/ sagaːboːʔi 'women's underwear' : ʔoboːʔi 'chest'

FOOTNOTES

1. /w/ has been included in this section, despite its classification under labialized velars in 1.3., because of its labial characteristics. Other contrasts are also demonstrated in subsections of 2.1.3.

2. For a more detailed comment on /ə/ and on length and stress in general, see 3.3.

ARTICULATION

In general it can be stated that there is very little allophonic variation in the front consonants, but extensive variation is realized in many of the velar and uvular consonant phonemes, and in the vowels. For convenience here, those consonants, other than velar and uvular, with only one realization will be dealt with first, followed by those with more than one. The velar - uvular series is discussed separately, and then the vowels are treated. A final section is devoted to the articulation of the word, and stress in particular.

At this juncture, it is perhaps appropriate to introduce a more accurate statement regarding the voiced and voiceless stops, which could rather be considered as having a lenis - fortis distinction than one of voicing. Indeed, this can be further expanded to include the glottalized series, which is decidedly fortis in articulation. The voiceless series is moderately fortis, while the 'voiced' series is of a very lenis quality - the voicing itself often being lost in word-final position. In this environment, the question arises as to which series a given consonant belongs. For convenience, however, the terms 'voiced', 'voiceless' and 'glottalized' have been retained throughout this description with the understanding that 'lenis', 'moderately fortis' and 'fortis' (respectively) are implied.

3.1. Consonants

3.1.1. Consonants with one realization.

- /p,t/ voiceless aspirate stops [p^h,t^h]
 /c/ voiceless affricated alveolar stop [c]
 /ʔ/ voiceless glottal stop [ʔ]
 /p̚,t̚/ glottalized stops [p̚,t̚]
 /t̚/ glottalized affricated alveolar stop [t̚]
 /k̚/ glottalized laterally affricated alveolar stop [k̚]
 /ʒ/ voiced alveolar affricated stop [ʒ]
 /λ/ voiced laterally affricated alveolar stop [λ]
 /s/ voiceless alveolar grooved fricative [s]
 /ʃ/ voiceless alveolar lateral fricative [ʃ]
 /h/ voiceless glottal fricative [h]
 /n/ voiced alveolar nasal resonant [n]
 /l/ voiced alveolar non-nasal lateral resonant [l]
 /w/ voiced bilabial semi-vowel [w]
 /y/ voiced palatal semi-vowel [y]

3.1.2. Consonants with more than one realization.

- /b,d/ voiced stops [b,d,] often in free variation with their
 homorganic voiceless unaspirated counterparts:
 /bɛg^wa'nɛm/ 'man' : [bɛg^wa'nɛm] ~ [p^wɛg^wa'nɛm]
 /da's^ʔi't/ 'to dive' : [da's^ʔi't] ~ [t^wa's^ʔi't]
 /m/ voiced bilabial nasal resonant [m], which becomes voiceless
 finally after /ʔ/: /ma^ʔm/ 'blanket' [ma^ʔm]

/x/ voiceless laterally affricated stop [x] which is sometimes realized as [ɬ] in final position. It was suggested that this may be an instance of free variation between allomorphs rather than a phonetic phenomenon.¹ However, since there seems to be a general tendency toward lax pronunciation in word-final position, it is very likely to be a slurring of [x], so that the distinctive plosiveness can be described as being 'merged' rather than 'lost'. Thus, it is felt that this is a case of allophonic free variation, not allomorphic, despite the apparent phonemic overlap with /ɬ/. An example of this is: /bəg^wa'nəmx[?]i x/ 'I will be a man':
[bəg^wa'nəmx[?]i x] ~ [bəg^wa'nəmx[?]i ɬ]

3.1.3. The velar - uvular series.

A generality can be stated here concerning the allophonic distribution of the velar series of consonants. Labialized velars lose their labial characteristics before a high back rounded vowel [u]. Palatalized velar consonants lose their palatalization before a high front unrounded vowel [i]. For example: /k^wu'si[?]i/ 'potatoes' [ku'si[?]i] as opposed to /ku'xs[?]ənt/ 'to break a stick' [k^yu'xs[?]ənt], and /k^wuk^wumɪ/ 'grouse' [k^wuk^wumɪ]. Also, /ki[?]ləm/ 'fish net' [ki[?]ləm], as opposed to /kiləm/ 'fear' [k^yiləm].

This rule might be applicable also to the uvular series, although, at present, there is no evidence to substantiate this theory. The difficulty lies in the fact that the simple series /q, ɢ, g, ɣ/ differs from its velar counterpart in that the stops are

not palatalized; hence it is difficult to determine whether a word such as [qu'sux] is phonemically /qu'sux/ or /q^u'sux/, despite the fact that the former transcription has been used for the present time. More research at the phonemic and morphophonemic levels will undoubtedly shed greater light on this problem.

- /q/ voiceless uvular stop [q]
- /q̣/ voiceless glottalized uvular stop [q̣]
- /g/ voiced uvular stop [g]
- /q^w/ voiceless aspirated labialized uvular stop [q^w]
- /q̣^w/ voiceless labialized glottalized uvular stop [q̣^w]
- /g^w/ voiced labialized uvular stop [g^w]
- /x/ voiceless uvular fricative [x]
- /x^w/ voiceless labialized uvular fricative [x^w]
- /k/ voiceless aspirated palatalized velar stop with two allophones: [k^y] in all environments except before [i], and [k] before [i]. /kiləm/ 'fear' [k^yiləm]; /t'eka/ 'dirt' [t'ek^yæ]; /ʔi'k^y/ 'good' [ʔi'k^y]; /ki'λəm/ 'fish net' [ki'λəm].
- /ḳ/ voiceless palatalized glottalized velar stop with two allophones: [ḳ^y] in all environments except before [i], and [ḳ] before [i]. /ḳiləm/ 'tongue' [ḳ^yiləm]; /ḳi'sχən/ 'I am not' [ḳi'sχən].
- /g/ voiced palatalized velar stop with two² allophones: [g^y] in all environments except before [i], and [g] before [i]. /gina'nəm/ 'child' [g^yina'nəm] ; /gi'gi/ 'teeth' [gi'gi].

- /k^w/ voiceless labialized velar stop with three allophones: [k^w] initially and medially, except before [u]; [k] before [u]; and [k^{wh}] finally: /k^wi'k^w/ 'eagle' [k^wi'k^{wh}]; /k^wu'si'ʔi/ 'potatoes' [ku'si'ʔi].
- /k̥^w/ labialized glottalized velar stop with three allophones: [k̥^w] in initial and medial position except before [u]; [k̥] before [u]; and [k̥^{wh}] finally: /k̥^wi'sa/ 'snow (vb)' [k̥^wi'sa]; /k̥^wu'mta/ 'smoke (a cigarette)' [k̥^wu'mta]; /ʔi'k̥^w/ 'seagull' [ʔi'k̥^{wh}]
- /g^w/ voiced labialized velar stop with two allophones: [g^w] in all environments except before [u]; [g] before [u]: /g^wa'da/ 'twenty-five cents' [g^wa'da]; /ba'g^wu'm/ 'visitor' [ba'gum].
- /x/ voiceless palatalized velar fricative with two allophones: [x^y] in all environments except before [i]; [x] before [i]: /xu'mʔs/ 'head' [x^yu'mʔs]; /xi'x^yʔi't/ 'burning' [xi'x^yʔi't].
- /x^w/ voiceless labialized velar fricative with only one allophone evident, [x^w]. By analogy with the other labialized velars, however, it is suggested that there is an allophone [x] which can occur before [u], despite the lack of proof.

3.2. Vowels

Generally speaking, tongue height is of less importance in Kwakiutl vowels than the intensity. High front unrounded vowels depend to a certain extent on tongue height, yet [ɪ] and [i] are both considered as /i/.

The back vowels are determined more by the intensity of rounding: what was perceived at first to be a very tense [o'] was discovered to be a free variant of [u'].³

The following shows the distribution of phones:

	Front	Central	Back
High	i I	ɨ	u
Mid	e ɛ	ə ʌ	o ɔ
Low	æ	a	ʊ

Because of the differences in allophonic distribution, the short vowels are discussed first, followed by the vowels in combination with length.

3.2.1. Short vowels.

/e o u/ have only one allophone each, [ɛ ɔ u], which are exemplified in: /teki/ 'dirt' [teki], /guwi'smi's/ 'finely powdered snow' [gʷuwi'smi's], and /qakubi'co/ 'expression of fright' [qɑ'kubi'co].

/i/ has one major allophone [I], as in /kiləm/ 'fear' [kiləm]. However, the realization of /i/ in final position appears at times to be irregular. Rare examples show evidence of vocalic reduction - /ha'ma'ʔi/ 'food' > [ha'mɛʔ] - while others demonstrate a voiceless allophone [I], as in /na'ʔi/ 'snow' [na'ʔI]. This allophone is also sporadically lost, as in [na'ʔ].

/ə/ is normally realized as [ə], /dənəm/ 'rope' [dənəm], but before palatalized consonants it is realized as [ɨ], /dɛxdɛxilu'xʷ/

'owl' [dɤx^ydɤx^yɪlu^x].

/a/ has two allophones, the predominant one being [ɑ]:
/paqaʒu/ 'flat surface' [pɑqɑʒu]. Following palatalized consonants
the realization is fronted to [æ]: /kɑkaga'la/ 'back paddle!'
[kʰækʰægʰæ'la].

3.2.2. Long vowels.

/i/ has only one major realization [iː] - /ki'λəm/ 'fish net'
[ki'λəm] - although there is a [ə] off-glide and on-glide before
and after (respectively) a uvular consonant: /qi'nəm/ 'many'
[q̄i'nəm], /xi'qa/ 'carve hole in wood' [xi^əqa].

/e/ in stressed position is realized as [eː], and in unstress-
ed position as [ɛː]: /ge'wa's/ 'deer' [gɛ́'wa's], /gi'we'la/ 'long time
in water' [gɛ́'wɛ'la].

/ə/ has one major allophone, [əː], which is in free variation
with [ʌ], as in /mə'lɤxu/ 'goat' [mɛ́'lɤxu] ~ [mʌ'lɤxu].

/a/ shows a predominant allophone [aː], but following pala-
talized consonants it is realized as [æː], and following uvular
consonants as [ɑː]: /pa'ɪa/ 'river rising' [pa'ɪɑ], /kɑkaga'la/ 'back
paddle!' [kʰækʰægʰæ'la], /qa'layu/ 'fish hook' [qɑ'layu].

/u/ shows free variation between [uː] and [oː] both of which
are very tense in their rounding as compared to the short [u]:
/?u'mp/ 'father' [ʔuːmp] ~ [ʔoːmp]

/o/ in all environments is realized as [oː]: /yo'la/ 'wind'
[yoːla].

3.3. Length and Stress within the Word

It was stated in 1.0. above that the feature of length is phonemic, and that it can occur with all vowels. At this point it is necessary to elaborate upon the relationship of stress to length, since there seems to be more than simple phonetic stress acting within the word boundary.

Stress is a regularly predictable phonetic feature which occurs within the word, and which can occur with either short or long vowels. Basically, stress will occur on the first long vowel of the word: where there is no long vowel, it occurs on the final syllable. This rule holds true even when vowel length is changed within the root morph. For example /sɪka/ 'five', /sɪka'gi'yu/ 'fifteen', and /sɪ'kago'la/ 'twenty-five' show stress shifts which follow the long vowels - [sɪk^yæ], [sɪk^yæ'gi'yu], [sɪ'k^yægo la].

The only other form of stress is weak, which remains unmarked. At first other long vowels in words appeared to have secondary stress, but this can be attributed to the length factor since no contrasts are evident between weak and secondary stress.

The one problem in regard to the rule of stress placement is /ə/. If we posit that there is /ə/, the pattern follows normally, as in: /mə'lɪxu/ 'goat', /nə'mwo:t/ 'older brother', /wədə'mbedək/ 'catch cold', /cənɪ'a'i/ 'fat, blubber'.

However, it will be noticed that the examples cited show the only pre-consonantal environments in which /ə/ occurs, namely

/ə'/ followed by either /l/, /m/, or /n/. Besides this fact, there appear to be some morphophonemic changes present, as in: /mə'lxu'/ 'goat' in opposition to /məl'stu'/ 'gin', both of which have a root morph /məl-/ 'white'.⁴

As shown above in the example of /sika/, morphophonemic changes can occur to change vowel length, and when this does occur, the stress changes accordingly. However, with the severe environmental restriction imposed on /ə'/, one hesitates to admit to its combination with length. Should there be no /ə'/, then morphophonemic rules will have to be determined to account for the phonemically aberrant stress pattern.⁵

Until more research is done at the morphophonemic level, we choose to retain /ə'/, since the stress patterning is rendered completely regular.

FOOTNOTES

1. G.N. O'Grady.

2. On rare occasions there appears to be a case of devoicing in word-final position, namely [g^y], as in /di'da'ga/ which was realized as [di'da'g^y] with the loss of the final vowel. Whether this is to be called an allophone or not is, at the moment, a matter for conjecture, although the phenomenon may fit into a pattern. For further treatment of this see 4.1.

3. Boas transcribed the word for 'house' as [g^yōk^m], whereas my transcription was [g^yu'k^m]. After much investigation, it was found that either [g^yo'k^m] or [g^yu'k^m] was acceptable, providing the lip rounding was tense. A laxly rounded [ow] or [Uw] was rejected in each case.

4. The presence of /ʔ/ has not been found to be a significant factor in the shortening of /ə/; c.f. /nə'n^ʔqo'm/ 'liquor', /nə'm^ʔgi's/ 'Nimpkish (tribe)', and /čə'lq^a/ 'hot'.

5. T. Hess pointed out that it is rather unusual to find phonemic /ə/ in the languages of this area, although not unusual on the morphophonemic level. As with most languages of the Pacific Northwest, /ə/ is a problem in itself, since it is difficult to determine which [ə] is parenthetical, which is a reduction of another vowel, and which is inherent in the language from its 'proto' stage. (Personal communication).

PHONEME DISTRIBUTION

4.1. Distribution of Consonants

All Kwakiutl consonant phonemes occur word-initially, and all, except /h/, are attested in medial position, but only nineteen of the thirty-seven consonants occur word-finally. Examples of initial and medial consonants are given in 2.1.1, while those that occur word-finally are presented below.

4.1.1. Consonants in word-final position.

The following consonants occur in final position: /p t c
 ʰ k kʷ q qʷ ʔ ɕ kʰ s ʃ x xʷ ɣ ɣʷ m n/. Examples of these are: /wa'p/ 'water'; /no'ga't/ 'wise man'; /lə'mənc/ 'we, pres.' /qa'nu'ʰ/ 'night'; /'i'k/ 'good'; /k'i'kʷ/ 'eagle'; /čəda'q/ 'woman'; /təxta'qʷ/ 'eat dried berries'; /ʔəlʔ/ 'dead'; /'wa'č/ 'dog'; /či'kʷ/ 'seagull'; /aba's/ 'mother'; /g'a'ʔ/ 'finished'; /t'i'səmx/ 'stone (indef., near speaker)'; /di'xʷ/ 'yellow cedar'; /na'ʔiɣ/ 'that snow (invisible)'; /x'u'ɣʷ/ 'ice'; /nəm/ 'one'; /ʔə'wən/ 'coho salmon'.

From these examples, it is evident that the contrast between voiced and voiceless stops is neutralized word-finally. In rapid speech there is also a tendency towards loss of final vowels (see also 3.2.1.). Under these conditions, a voiced stop, which normally precedes a final vowel in slow speech, becomes voiceless with the loss of the vowel. An example of this is /di'da'ga/ 'drinking tea' (slow speech: [di'da:gʷæ]; rapid speech: [di'da:kʷ] or [di'da:gʷ].)

4.2. Consonant Clusters

Kwakiutl admits a considerable number of consonant sequences and clusters within the word, but there is a considerable restriction as to which consonants occur as first member of the cluster, and a lesser restriction on those which can occur as second member.

No oral stops can occur as first member of a consonant cluster. The only exceptions to this are found in medial sequences of /-bs-/, /-ks-/, /-qs-/, /-dx-/. Any other cluster is always opened by either /ʔ/, a fricative, or a resonant.

Most consonants are permitted as second members of clusters, with the one main restriction that velar and uvular consonants **də** not occur as the second member where the first is either a velar or uvular consonant also. Hence, such combinations as */-x^wg-/, */-x^wk^w-/, */-kx^w-/, or */-xx-/ do not occur in the language.

4.2.1. Initial Clusters.

Only two clusters were found in initial position: /ʔw-/ and /ʔh-/. Examples are: /ʔwa'č/ 'dog' and /ʔhe ɬ'a/ 'teenage boy'.

4.2.2. Final Clusters.

Clusters occurring in word-final are not as restricted as those in initial position, yet in the entire corpus only twenty-three clusters were found.

4.2.2.1. Final Clusters - Two Consonants.

The first member of the cluster is listed to the left of the

colon and the second members are listed to the right:

/ʔ/: /q s ɬ ɣ^w ɣ/, i.e. -ʔq, -ʔs, ʔɬ,...

/s/: /t/

/ɬ/: /ɣ/

/ɣ^w/: /ɣ/

/m/: /p s ɬ x ɣ /

/n/: /t c ʔ ɣ/

/l/: /k q^w ʔ ɣ^w /

4.2.2.2. Final Clusters - Three Consonants.

Only three clusters were found in the corpus: /-mps/, /-mʔs/, and /-lʔs/. For example /xu'mʔs/ 'head'.

4.2.3. Clusters and Sequences in Medial Position.

Without regard to syllable boundaries, sequences of consonants admit up to four members. There is a considerable number of possibilities of combination with only two consonants, much less with three, and a very restricted number with four.

4.2.3.1. Medial Sequences - Two consonants.

/ʔ/: /b d ɕ ʒ k^w k^w g^w g s ɬ ɣ^w m n l w y/, i.e.
/-ʔb-/, /-ʔd-/, /-ʔc-/,....

/s/: /p p̣ t ɣ k^w k g q ɕ ɕ^w ʔ x n/

/ɬ/: /p̣ t d c ɕ ɣ k ḳ g̣ g̣^w ʔ l/

/ɣ^w/: /ʔ s/

/x/: /ṭ d c ɕ ɣ ɣ^w ʔ s/

/ɣ^w/: /ɕ ʔ s/

/ɣ/: /p d c ʁ λ ʔ s/
 /m/: /p̣ b t d ʒ ʁ g q ɣ x x^w ɣ m w/
 /n/: /t ṭ ɕ ʒ ʁ k g g^w ʔ x x^w ɣ ɣ^w w/
 /l/: /p b ṭ ʒ k k^w q ɣ ɣ^w ʔ s x ɣ ɣ^w w y/

4.2.3.2. Medial Sequences - Three consonants.

The first member of the cluster is given to the left of the hyphen and the entire clusters are listed to the right:

/ʔ/ - /-ʔst-/ , /-ʔɕc-/ , /-ʔɣg-/ , /-ʔɣg^w-/ , /-ʔxm-/.
 /s/ - /-s^ʔm-/
 /ɕ/ - /-ɕ^ʔc-/ , /-ɕ^ʔm-/
 /x/ - /-x^ʔd-/ , /-x^ʔm-/ , /-x^ʔy-/ , /-xst-/ , /-xs^ʔ-/
 /x^w/ - /-x^{wʔ}m-/ , /-x^wst-/
 /ɣ/ - /-ɣst-/ , /-ɣs^ʔ-/
 /ɣ^w/ - /-ɣ^wst-/ , /-ɣ^ws^ʔ-/
 /m/ - /-m^ʔṭ-/ , /-m^ʔs-/ , /-m^ʔn-/ , /-msp̣-/ , /-msx-/ , /-mxɕ-/ ,
 /-mx^ʔ-/
 /l/ - /-l^ʔʒ-/ , /-ls^ʔ-/ , /-lxɕ-/

4.2.3.3. Medial Sequences - Four consonants.

Only five such sequences were found in the corpus:

/n/ - /-ns^ʔw-/ , /-nɣst-/
 /l/ - /-l^ʔst-/ , /-lx^wst-/ , /-lxst-/

Examples of these are: /mɛl^ʔstu/ 'gin' and /ṭɛ^ʔns^ʔwɛl/ 'testerday'.

4.2.3.4. Consonant Clusters within Syllable Boundaries.

To restrict the sequences to only those which occur within

a syllable boundary reduces considerably the number of clusters, since the canonical shape of the syllable is basically CVC(C), with frequent occurrences of CV, and rare occurrences of CCVC.

Aside from the two initial clusters mentioned in 4.2.1 above, there is only one other cluster found in syllable-initial position: /st-/; and there are no further additions to those which occur in word-final position.

In medial position, however there are a great number of changes. All medial sequences of three or four phonemes are reduced to clusters of one or two phonemes, so that /-lxst-/ is reduced to /-lx⁺/ and /⁺st-/, and /-lɣx-/ to /-lɣ⁺/ and /⁺ɣ-/.

The following are the clusters:

/k/: /s/

/ʔ/: /ɪ x/

/s/: /ʔ/

/x/: /s/

/ɣ/: /ʔ/

/ɣ^h/: /s/

/m/: /x/

/n/: /t^h ʔ ɣ/

/l/: /ʔ s x ɣ/

4.3. Distribution of Vowels

All vowels can occur medially and finally but never initially. There are no vowel clusters in Kwakiutl.

BIBLIOGRAPHY

BOAS, FRANZ.

- 1887 "Census and Reservations of the Kwakiutl Nation," Bulletin of the American Geographic Society, Vol.19, No.3: 224-32.
- 1888 "The Indians of British Columbia," Proceedings and Transactions of the Royal Society of Canada, VI; ii: 47-57.
- 1910 Kwakiutl Tales, Volume 2. New York, Columbia University Press.
- 1911 "Kwakiutl Grammar," Handbook of American Indian Languages, Part 1. Bureau of American Ethnology, Bulletin 40, Washington, D.C.
- 1931 "Notes on the Kwakiutl Vocabulary," International Journal of American Linguistics, Vol.6, Nos.3-4: 163-78.
- 1932 "Note on some Recent Changes in the Kwakiutl Language," ibid, Vol.7, Nos.1-2: 90-93.
- 1966 Kwakiutl Ethnology. Edited and abridged by Helen Codere; Chicago, University of Chicago Press.

CODERE, HELEN.

- 1950 Fighting with Property: A Study of Kwakiutl Potlatching and Warfare, 1792-1930. Monographs of the American Ethnological Society, 18: Seattle, University of Washington Press.

DRUCKER, P.

- 1965 Cultures of the North Pacific Coast. San Francisco, Chandler Publishing Company.

FORD, CLELLAN S.

- 1941 Smoke from Their Fires: The Life of a Kwakiutl Chief. New Haven, Yale University Press.

GIBSON, JAMES.

- 1963 "Quinalt Phonology." Unpublished M.A. thesis, University of Washington, Seattle.

GUNN, S.W.A.

- 1966 Kwakiutl House and Totem Poles at Alert Bay, B.C.
Vancouver, Whiterocks Publications.

HALL, A.J.

- 1888 "A Grammar of the Kwakiutl Language," Proceedings and Transactions of the Royal Society of Canada, VI; ii: 59-105.

KINKADE, M. DALE.

- 1963 "Phonology and Morphology of Upper Chehalis: I." International Journal of American Linguistics, Vol.29, No.3: 181-195.

KLOKEID, TERRY J.

- 1968 "Wakashan Linguistic History: A Contribution to Northwest Coast Prehistory." Unpublished m.s., University of Victoria, Victoria.

LA GRASSERIE, R. de.

- 1902 Cinq Langues de la Colombie Britannique. Paris.

MITCHELL, MARJORIE R.

- 1968 "A Dictionary of Songish, A Dialect of Straits Salish." Unpublished M.A. thesis, University of Victoria, Victoria.

MURDOCK, GEORGE P.

- 1960 Ethnographic Bibliography of North America, 3rd. ed. New Haven, Human Relations Area Files, Inc.

O'GRADY, GEOFFREY N.

- 1964 Nyangumata Grammar. Oceania Linguistic Monographs, No.9: Sydney, University of Sydney.

SAPIR, E.

- 1938 "Glottalized Continuants in Navaho, Nootka and Kwakiutl," Language, XIV: 248-74.

SAPIR, E. and MORRIS SWADESH.

1939 Nootka Texts. Philadelphia, Linguistic Society of America.

SPRADLEY, JAMES P., ed.

1969 Guests Never Leave Hungry: The Autobiography of James Sewid, a Kwakiutl Indian. New Haven, Yale University Press.

THOMPSON, LAURENCE and M. TERRY.

in "Clallam: A Preview." University of Hawaii, Honolulu.
press

APPENDIX A

As a short sample of lexical items, the Thompson word list has been used as a guide. Only 185 items have been listed here, since some portions have not been elicited. The words are arranged in alphabetical order.

Above ?e'kɪ'

Ache (all over) ča'ʔčax'ɪ't

Autumn ʔo'ʔɪnɣ

Back ?awɪ'gɪ'

Bad ya'ksəm

Bear (black) k'a'ʔɪ

Bear (grizzly) gɪla

Below bənɪ'

Belly te'kɪ'

Big wa'las

Birds ʔi'ʔa'k'u'mas

Black ču'ʔa

Blood ?e'lk'a

Blue ʔa'stu, ʔa'sawa

Bone ɣa'q

Box (cedar) ɣacəm

Boy (pre-teen) ba'bag'm

Boy (teen) ?he'ʔ'a

Breast ʒa'ʔma
 Brown ti'xstu k'a'x'stu (i.e. 'dark red')
 Buttocks ʔe'ʔwa'nu'česte'ʔi
 Bluebird k'əsk'əs

 Cat bu'si
 Caucasian ma'ma'la
 Cedar (yellow) di x'
 Cheeks ʔo'nu'χama'ʔi
 Chest ʔu'ʔbo'ʔi
 Chief gi'qa'mi
 Child (non-adult) gina'nəm
 Child (offspring) sa'səm
 Clothes g'i'ig'e'la
 Cloud ʔe'nwa'ʔi
 Cold; it is cold weda; weda'la
 Corpse ɣawiq
 Cougar pədi'
 Crab ʔo'ʔmi's
 Creek k'ə'nx'a
 Crow kixəla'ga
 Cry ʔa'sa

 Dance yix'a
 Dark (it is ~ inside) ʔadagi'i

Day na'la
 Deer ge wa's
 Digging Stick ʒi'ga'yu'
 Drink (n) na'qa
 Drink (vb) na'xʔi't
 Dog ʔwa ɕ
 Down bəni'
 Down stream g'e'ʔnag'i'səx
 Duck q'i'yu'ʔx'

 Eagle k'i k'
 Ear pəspə'yu'
 Egg ɕi'g'ənu
 Eight ma'ig'ə'na'i
 Eighteen ma'ʔig'ə'na'legi'yu'
 Elbow x'a'k'a'ni
 Eleven nəmmagi'yu
 Enemy lək'a
 Eulachen ʒə'wəŋ

 Father ʔu'mp
 Fifteen sika'gi'yu
 Finger q'a'q'axɕa'na'ʔi
 Fingernails ɕə'mɕəmxɕa'na'ʔi
 Fire xi'qala, ləg'i'i

Five sika

Foam ?a?a'wi

Fog pə'lɣəla

Food ha'ma'ʔi

Foot gu'gəʔyu

Four mu'

Fourteen mu'wagi'yu

Friend (male) nəmu'k^w

Friend (female) ?e'ga's

Ghost lo'ʔli'nu'x^w

Girl (pre-teen) ča'čada'qəm

Girl (teenage) ?he i'agas

Good ?i'k

Goose ɬa'ɬku'

Grandparent ga'gəmp

Gray ?e'gi'cəm

Great-grandchild he'lu'ʔk'i'na'ʔi

Great-grandparent he'lu'ʔs

Hair si'ya

Hand ?a'ya'su

Heart no'qa'ʔi

Hill te'nkis

Hot čə'lq'a

House gu'k^w

Indian ba'k^mum

Ice xu'x^m

Knee ?o'?'k^mexi'?'i

Leg gu'g^mə'yu

Liver ti'wa'nɪ

Long gil't'a

Man bəg^ma'nəm

Many q̄i nəm

Morning qa'a'la

Mother ?abəmp, ?aba's

Mountain nige'

Mouth səms

Nape of Neck ?o'xχa'a'to'?'i

Navel gadalo'q̄i'?'i'ʒa'?'i

Neck q̄o'q̄'a'na

Night qa'nu'χ

Nine na'?'nə'ma

Nineteen na'?'nə'magi'yu

No ki'

Northn g^me'?'nako'la

Nose xi'nʒas

Old man ɬʰə lʰyakʰ

Old woman ɬəʔkʰaːni

One nəm

Owl dəxdəxiluːxʰ

Red ʰaːqʰa

Rib qaləm

River wa

Salmon ʔuːtəla

Salmon, dog ɡʰaːxʰniːs

Salmon, humpback hanunʰ

Salmon, silver ʒəʰwən (Coho)

Salmon, sockeye məfiːk

Salmon, spring saːtəm

Salt dəːmsxi

Salt water dəːmsxi

Sand ʰeːgiːs

Seagull tʰiːkʰ

See (v) duːxʰniːt

Seven ʰaləbuː

Seventeen ʰaləbuːgiːyu

Short tʰəʔkʰa

Shoulder ʰoːksiːʰyaːpi

Sing dəːnɬəla

Sit kʰaːxʰniːt

Six ǰaʎa
 Sixteen ǰaʎa'gi yu
 Skull ɣawiq
 Slave ǰa'ku
 Small ʔama bida, ʔama'ʔi
 Smoke (from fire) kʰa xila
 Smokehouse xila'ci
 Snow (falling) kʰi'sa, kʰi's'ʔi't
 Snow (on ground) na'ʔi
 Sour cəlɣ
 South nəl'ʔzi
 Springtime he'ʔənɣpana'kʰəla
 Stars tʰu'tu
 Steelhead trout gixʰa
 Summer he'ʔənɣ

 Talk ya'ǰənta'la
 Tears gʰa'st
 Ten la'ʔstu'
 That one yix'a'da
 Thick wo'kʰ
 Thin pəl
 Thirsty lə'mxʰa (lit. 'dry')
 Thirteen yu'duxʰəgi'yu

Thirty yu'dux^msəngu'sto'
 This one yiχo'χda
 Three yu'dux^m
 Thunder k^mə'n^mχ^ma
 Tooth gi'gi
 Tongue kiləm
 Trout (gen,) gola
 Trout, steelhead gix^ma
 Twelve ma'ʔiəgi'yu
 Twenty ma'ʔicə'mgu'sto'
 Twenty-one nə'ne'mgo'la
 Twenty-two nama'ʔio'la
 Two ma'ʔi

 White man ma'ma'la
 White mela
 Water wap
 West ʔə'nʒa'sa (sa ʔi'sela)
 Wind yo'la
 Winter čəwənx
 Wolf ʔa'ʔka'neḿ, ʔu'ʔli'gin
 Yes ʔe'

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