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LABIALIZATION IN NOOTKAN

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A well-known phonological characteristic of most of the Indian languages of the Northwest is the presence of contrasting pairs of plain and labialized dorsal consonants. In 1920 Boas observed:

> The study of phonetics indicates that certain features have a limited and well-defined distribution which, on the whole, is continuous. To give an example: the extraordinary development of the series of k sounds and of laterals (l sounds) is common to the most diverse languages of the North Pacific coast, while in California and east of the Rocky mountains this characteristic feature disappears. ... The labialization of k sounds following an o or u is widely spread in the extreme Northwest, and infrequent outside of that territory.[1]

Later he elaborated on this statement, in the context of making comparisons to the phenomenon as occurring in Kwakiutl:

> The labialization of k sounds after o and u is a widely spread phenomenon on the Pacific coast. In Chinook when a u vowel precedes a k sound and the latter is either followed by a vowel or is a prefix, it must be labialized or followed by a vowel of the u group (HAIL I, 569). In Tlingit k sounds preceded by o or u change the following i and e to o and u (ibid. p. 165). A similar type of labialization of k after a, o, and u occurs in Kutenai (IJAL IV, p. 9).[2]

In his survey of the areal spread of sound features in this area, Jacobs stated that "... almost all the languages also have a set of rounded palatal phonemes; that is, g^w and $\dot{g}^w$, k^w and q^w, k'^w and q'^w, x^w and $\dot{x}^w$", and mentioned Siuslaw of coastal Oregon

as the only known (at least partial) exception to this generalization.[3] Reviewing this paper, Hymes added Tillamook Salish and adjacent Lower Chinook and Kathlamet Chinook to the list of languages lacking this contrast.[4] These exceptions are found in a restricted area of coastal Oregon, in which other departures from the general Northwest phonological norm also occur.

Against this background, it is hoped that a general survey of the status of labialization in the languages of the Nootkan branch of the Wakashan family (Makah, Nitinat, and Nootka) may be of interest. The general pattern found is one of neutralization of contrasts of labialization in the environment of rounded vowels, and limited or secondary contrasts in syllable-final position.

Let us begin with a consideration of Makah, in a conventional phonemic transcription preserving biuniqueness, which can also be regarded as a broad phonetic transcription.[5] This language, like the other Nootkan languages, shows six pairs of consonants opposed with respect to labialization: the unrounded stops and fricatives /k k̓ x q q̓ x̣/ and their rounded counterparts /kʷ k̓ʷ xʷ qʷ q̓ʷ x̣ʷ/. The language has five vowel phonemes, /a e i o u/. These occur long and short, but as only qualitative differences between vowels seem to be relevant as environments affecting consonantal labialization, contrasts of length will be largely ignored in the following discussion. Two of the vowel phonemes, /e/ and /o/, are relatively rare and to some extent morphophonemically secondary, and hence will be left out of the following discussion; however, it is clear that /o/ belongs in the same class with /u/, and /e/, with /i/ and /a/, with respect to the conditioning of labialization.

Using the symbols K for the class of unrounded dorsal obstruents, K^W for that of labialized dorsal obstruents, # for word boundary, and C for consonants, the distribution of these dorsal consonants can be charted as follows:

		Following Phoneme			
		#	C	u	a/i
	#			K	K/K^W
Preceding	C	$K/(K^W)$	$K/(K^W)$	K	K/K^W
Phoneme	u	K^W	K^W	K^W	K^W
	a/i	$K/(K^W)$	$K/(K^W)$	K	K/K^W

The following examples of complete words, arranged to correspond to the pigeonholes of the chart, while probably not showing all occurring combinations of components of dorsal consonants in every environment, will serve to attest the regular pattern. The abbreviations m. for momentaneous aspect and rep. for repetitive aspect are used with some of the glosses.

#_u: kuẋ^{W}ak hole, k̓uči↛ hooking something (m.), xut̓ik drinker, qux^{W}šil it's freezing, q̓u·y medicine, ẋuč̓ak bailer.

#_a/i: kawad killer whale, ki↛u·k^W dish, bowl, k̓atuk^W oil, k̓iɬadu·s fur seal, xad?ak woman, qali?i eye, qi·waẋ steelhead salmon, q̓a?uk^W lake, q̓idi·↛ dog, ẋaša·bis bone, ẋišuk^W trash, k^{W}a?ak small, k^{W}i·ẋši↛ itching (m.), k̓^{W}ak̓^{W}?aq↛i porpoise, k̓^{W}idiɬ sticking on the floor, x^{W}akši↛ swelling up (m.), ẋ^{W}i·ba·ɬatẋ Squimalt, q^{W}alal seagull, q^{W}išsac pipe, q̓^{W}a·lis crane, q̓^{W}iča·k rotten, ẋ^{W}a·cẋ^{W}ac plant sp.

C_#: bubutk burnt hand, susutk̓ he's holding hands, pi·šqpi·šq winking (rep.), ku·txku·tx drumming (rep.).

C_C: sutkši↓ sniffling (m.), pišqši↓ winking (m.), kutxši↓ drumming (m.).

C_u: tupkuk^{W} black, ṗatquk^{W} belongings, ɬa·pxu· it's flying.

C_a/i: ḳučka·pix sea urchin, čatqa·yak spoon, ʔapqi·ʔas crown of head, ↓a·šqi·lux^{W} turkey, ṗatxak rotten (wood), ʔatxi·yuʔu night, ba·ck^{W}a·d fly, k^{W}išk^{W}iši bluejay, ḳasx^{W}i·yiɬ hoarse throat, ʔa↓i·tq^{W}aɬ bear, ṗaṗatq^{W}iɬ many belongings in a house, ṗaṗatq^{W}aq↓yak storage place, x^{W}a·cx^{W}ac plant sp.

u_#: ↓isuk^{W} white, pu·x^{W}pu·x^{W} blowing (rep.), wi·yu·q^{W} sixty, wi·yu·q^{W} it's sixty, hu·x^{W}u·x^{W} whistle sounding (rep.).

u_C: huk^{W}tu·p bird, tux^{W}ši↓ spitting (m.), pu·q^{W}↓uɬ crab sp., ṫux^{W}cki skull.

u_u: ɬuk^{W}u·ṫap rope sp., ċi·yuḳ^{W}ub dipper, qux^{W}u ice, ṗu·q^{W}uk^{W} feather, ṫux^{W}u·ċid head.

u_a/i: tuk^{W}tuk^{W}adi owl, čuk^{W}i?i eel, ši·↓uḳ^{W}a↓s I'm moving, ↓icux^{W}adi person, bux^{W}iċ rattle, ɬu·q^{W}i·dab cover, bu·buq^{W}aq↓ berry sp., duq^{W}iɬtab arrowhead, dux^{W}ac pocket.

a/i_#: ča?ak water, duq^{W}ik singer, ṫu·d?ax mattress sp., su·yaq net, ha·diq goose, su·yaq it's a net, ?akyiq there are many, qi·wax steelhead salmon, bi·ša·wix black cod.

a/i_C: ↓ušakt dried fish, ċikyup intestines, ↓a·↓axċu?u trout sp., hi·xdi·? otter, pa·staqši↓ yawning (m.), wi·qsi wind, qaxši↓ dying (m.), či·xpa·ɬ six.

a/i_u: čakup husband, piku·?u basket sp., ca·xuk^{W} rotating, ɬa·xuk^{W} man, ↓ixuk^{W} red.

a/i_a/i: daka sun, moon, cacakis razor clam, ?iki·sis my son, ḳaca·ḳa·c pinching (rep.), ɬaḳitbis pitch, ↓ipsi·ḳa·d barnacle,

waxa·c̓iɬuɬ bee, wa?aqap perch, taqi earthquake, diqi·b thread, č̓aq̓a·du?u crow, ?aq̓iƛ cave, biq̓a·t sockeye salmon, q̓iq̓ič̓ eyebrow, pa·x̣ac nest, hive, k^{w}a·x̣i·? it's in view, q̓ix̣ak crying, cix̣i·p̓aɬ it's sour, hitak^{w}ad bow (of canoe), c̓a·k^{w}it antler, horn, qi·k^{w}a·ɬ being gone a long time, ɬaɬak̓^{w}apuɬ sad dream, t̓at̓ak̓^{w}ik hawk, ɬik̓^{w}ax̣aɬ cloth, si·si·k̓^{w}i?i bird sp., cax^{w}i·ks he's rolling something, baq^{w}i·tub harness, t̓iq^{w}a·k buttocks, ƛ̓i?iq̓^{w}ati shell-rattle, t̓ax̣^{w}as leaning against, č̓ix̣^{w}atši ƛ getting scared (m.).

The relatively restricted occurrences of syllable-final consonants elsewhere than after /u/ are indicated by parentheses in the above chart. These fall into several groups. Labialization is not inhibited by a following glottal stop, so many of the occurrences contain this consonant. In some words, many of them reduplicated forms, this occurs at the beginning of the second syllable, and a preceding short vowel has presumably been lost: k^{w}ak^{w}?awič̓iq the little ones, children, k^{w}ak^{w}?ak̓abiɬ little ears (these formed from k^{w}a?ak little), k̓^{w}ak̓^{w}?aqƛ̓i porpoise, lit. "broken tail", k^{w}a·k^{w}?aɬatx̣ Kwakiutl. In other cases the glottal stop is at the beginning of a suffix: ƛax̣^{w}?u there are ten, ?i?i·x̣^{w}?i it's big, c̓axa·c̓a·x^{w}?i he's spearing, tititk^{w}?aƛ̓ wipe your hands!, perhaps caca·tx̣^{w}?a man's name (nickname catx̣^{w}?i). Many of the occurrences before other consonants are due to the apparent effect of a preceding /u/ extending to the second member of a cluster of dorsal consonants: č̓u·šuk^{w}x̣^{w}šiƛ̓ be careful!, cu·cuk^{w}x̣^{w}ta·s tripping over something, x̣ix̣icbuq^{w}x̣^{w}s flower sp. It is more regular, though, for this not to happen, as in these forms: ha?uk^{w}q̓ad̓ic I see you're eating, ɬa·x̣uk^{w}x̣?u it was a man,

kiƛ̓u·kʷx̣tidʔi it's made out of glass. Aside from these and some probable misrecordings, only some forms based on an apparent stem q̓ucxʷ- attest preconsonantal occurrences: q̓ucxʷsu·wi arm going through sleeve, q̓uq̓ʷu·cxʷswi·yak vest. In word-final position, the only commonly occurring instance is in the word ƛ̓ax̣ʷ ten. The labialized consonant here has probably developed as a consequence of the loss of a final */u/. The stem has an allomorph ƛ̓ax̣u- when before formative suffixes, e.g. ƛ̓ax̣uq̓ʷič̣x̣ ten years, ƛ̓ax̣udaks I have ten. Even the allomorph with /x̣ʷ/ shows the effect of a *u: contrast ƛ̓ax̣ʷʔu there are ten with ʔaƛ̓ʔi there are two, šuč̓ʔi there are five. Another example is apparently due to the loss of a final */i/ without delabialization: sisitckʷ chips from splitting wood; the suffix present has the allomorph -ckʷi(-q-) when in the second syllable or non-final: hisckʷi chips (from chopping), hihisckʷiq̓ukʷ soda crackers, lit. "resembling chips". Although there is a commonly occurring morphophonemic delabialization in final position, these examples suggest that this does not occur when the consonant is not really final on the morphophonemic level, but is rather followed by a vowel within the same morpheme. Other examples are again due to a /u/ affecting more than one member of a final cluster of dorsal consonants: ƛ̓u·ƛ̓uqʷqʷ ƛ̓apiqib tack, lit. "broad-headed nail".

In Makah, as in the other Nootkan languages, these labialized consonants are in contrast with sequences of consonant plus /w/, and hence could not be phonemicized as clusters of this sort. Thus we find forms such as: qakwašbap salmonberry vines, bukʷwač deer, dašukʷwa·d he's strong, they say, and k̓u·xʷwa·š duck sp. Such a

cluster has been found before /ʔ/, as well as before vowels: dakwʔas sitting and looking around outside.

In correlation with the exclusion of non-labialized consonants after /u/, a striking feature of a Makah accent in English, especially of some older speakers, is the occurrence of labialization in phrases such as took it and cook it, where the last syllable sounds like quit.

Available information on Nitinat indicates that it is just like Makah with respect to the lack of contrast of labialization contiguous to /u/.[6] Haas and Swadesh decided that these consonants were not labialized when between two /u/'s, but, as discussed below, this probably represents a difference of analysis rather than a factual difference between the languages. There is one way in which Nitinat differs strikingly from the other Nootkan languages, however. This is that occurrences of labialized consonants in word-final position after another consonant are quite common. This has come about because the language has lost short vowels before single final consonants in the third or later syllables of a word. Thus we obtain a final labialized consonant when the lost vowel was */u/, but a contrasting non-labialized one when the vowel was */a/ or */i/ or when the final cluster was there in the first place.[7] For example, compare Nitinat -k̓k^{w} [R] resembling ... with Makah -k̓uk^{w} [R] id. and Nootka -k̓uk [R] id. Nitinat has thus made use of the word-final environment, in which there probably was previously no contrast of labialization, for the preservation of this contrast in a contiguous segment that has otherwise been lost. And as so often in sound change, when a lost feature has been moved

elsewhere, the preservation has been only partial, since it did not occur when the final consonant was not one which could be labialized.[8]

Brief mention may be made of Southern Kwakiutl as representing the other branch of Wakashan. This language shows the same restrictions in the neighborhood of u-like vowels -- labialized consonants are prohibited before such vowels and required after them. This language seems, however, to have labialized consonants somewhat more freely in syllable-final and word-final position: m̓ənéˑkʷ measured (vs. məɬéˑk steelhead salmon), p̓éˑkʷ one to whom potlatch is given, náˑgəlkʷ drunkard.[9]

Let us turn now to Nootka. Using the phonemicization of the later works by Sapir and Swadesh, we can chart the distribution of the dorsal consonants as follows:[10]

		Following Phoneme			
		#	C	u	a/i
	#			K	K/Kʷ
Preceding	C	K	K/(Kʷ)	K	K/Kʷ
Phoneme	u	K	K	K	Kʷ
	a/i	K	K/(Kʷ)	K	K/Kʷ

A comparison of this chart with the similarly arranged one for Makah on page 3 will show that, if we exclude the restricted or secondary occurrences that are enclosed in parentheses, the pattern of contrasts in the various environments is the same in both languages.

The relatively infrequent syllable-final occurrences of labialized consonants in Nootka are mostly before the laryngeal

or pharyngeal phonemes /ʔ ʕ ḥ/.[11] The following instances occur in Nootka Texts: four words with following /ʔ/, yaqʷʔičʔitqa·ɬa *what ... always wore* (p. 72), ɬiɬicx̣ʷʔaʔa *spread-on-the-rocks (a variety of seaweed)* (p. 116), hinmi·xʷʔaqɬsaťaɬsi *I was wearing feather-dance regalia on my forehead* (p. 140), makʷʔatuẃiťas *going in order to trade* (p. 144); three words with following /ḥ/, of which two are almost the same, ʕaʕa·pakʷḥisuk *(you) be willing* (p. 192), ʕaʕa·pakʷḥi *(she should) be willing* (p. 194), makʷḥa·ẏasnaksi *I sent someone to buy ...* (p. 198); and finally, just one word with following /ʕ/, wikna·kʷʕiʔat *being caught not having ...* (p. 142). The only instance of another following consonant, /qʷ/, occurs within an onomatopoetic stem entered in the stem list: čak̓ʷqʷ- *to make a sucking sound in copulation; imitate sound as an indication that one desires sexual intercourse* (compare also čapkʷ-, m. čapkši ɬ *to make a watery sucking sound; to kiss*); this occurs once in the texts: čak̓ʷqʷi·n̓ak *a love-signalling dance* (p. 130).

The failure of Nootka /ʔ ʕ ḥ/ and of Makah /ʔ/ to inhibit labialization of preceding consonants is, of course, readily understandable from an articulatory point of view, since these sounds are formed in the throat and thus would not give rise to anticipatory movements of the tongue or lips. The pharyngeals /ʕ ḥ/ do not occur in Makah, and have developed in Nootka since Proto-Nootkan times from certain back velar consonants; their entry into this distributional class would correlate with this phonetic change.[12]

Examples from Nootka Texts of contrasting clusters of dor-

sal consonant plus /w/ are wikwe·ʔin not, they say (p. 16) and tuxwa·sʔaɬwe?in he jumped out of the house (p. 22).

The differences in the treatments of Makah and Nootka displayed by the two charts appear in the occurrences after /u/. The Makah consonants were considered to be always labialized after this vowel, whereas in Nootka labialization is shown only when a vowel /a/ or /i/ follows. An inspection of Sapir's earlier analysis of a Nootka text, which is couched in a phonetic rather than phonemic transcription, seems to confirm one's suspicion that the different notation here is not based on any significant difference between the phonetics of Nootka and these other languages, but rather reflects a difference in analysis. Sapir states that "k-sounds are labialized after o [i.e. u]".[13] The actual transcriptions always show labialization (marked with signs of the type kw) when either a vowel or a glottal stop plus vowel follows; in word-final position or when another consonant follows, there is a fairly even balance between an indication of labialization (marked with signs of the type k^u) and its absence, with no apparent correlation with either the particular dorsal consonant in question or with the particular following consonant.

It is clear that if one wished to employ a notation (whether morphophonemic or phonemic) which avoided redundant indications as much as possible, one would never have to mark labialization of consonants after /u/. In this connection, it is interesting to note that the Nootka phonemicization could be regarded as a less redundant notation underlying a notation of the type that we started out with for Makah. But one could go further, and omit

the indication of labialization after /u/ when /a/ or /i/ follows also, and still preserve biuniqueness.

I am convinced that there is no contrast present in this environment, and that the few occurring forms in Nootka Texts that fail to show labialization here are due to negligent omission of its mark precisely because of the lack of contrast. The following are the occurrences. On p. 86 labialization is lacking in three forms based on the stem ḵu·qʷa· to approach stealthily, stalk, hunt, but two other forms nearby show it, as does the entry in the vocabulary of the volume. On p. 106 one finds ʔuʔu·štaqyuqaɬsʔi the one who is engaged in doctoring, but a very similar form on p. 105 shows it: ʔuʔu·štaqyuqʷaɬsy̓akukʔi the doctoring-songs belonging to (him). Two other such forms occur in one short text: haẃi·qƛatukikqas may they hunger for my ... (p. 108) and c̓awi·yuqatikqas may it happen to me alone (p. 110). The final exception is constituted by a place name entered in the vocabulary, yuxak̓ʷ-at.

The fact that labialization is marked in this environment has created common alternations in Nootka when stems ending in /u/ plus dorsal consonant come to stand before another vowel. For example, ɬuqʷiɬ urinate in the house[14] < ɬuq- (male) urinates + -iɬ(.-) in the house, on the floor. This happens even when the suffix is an incremental (or word-forming) one, which would inhibit labialization if the /u/ did not precede: nunu·k̓ʷaƛ they sang then[15] < nunu·k singing + -ʾaƛ now, then, at the given time. It also happens when the morpheme boundary precedes the consonant: ḥayuqʷimɬ ten round objects[16] < ḥayu ten + -qimɬ

... many round objects. Similarly in Makah: bu·x̣^{w}ta·k four sackfuls < bu· four + -x̣ta·k ... sackfuls.

This could be avoided by writing non-labialized consonants in this environment also. This would not do away with all alternations, however. They would then occur in the reverse direction when a suffix beginning with a labialized consonant came to stand after /u/. For example, muk^{w}a·ɬ four are gone[17] < mu·- four + -k^{w}a·ɬ absent, missing, lacking, would be written *muka·ɬ.

The main decision to be faced thus concerns the treatment of morphemes ending in /u/ plus dorsal consonant, of the type -uK. Alternations can be avoided either in the way just indicated, or by considering these to be basically -uK^{w} and using the type of transcription that was shown for Makah. In favor of the latter approach would be the consideration, for at least Makah, that phonetically the labialization is always present. If one wished to write basic -uK together with the latter type of phonemicization, then at least the rule for adding labialization would already be present in the language because of the cases where a morpheme boundary precedes the consonant, as illustrated above.[18]

The other environment in which a problem presents itself is between two /u/'s. One would expect the preceding vowel to incite labialization, and the following one to inhibit it. Phonetically I have judged these segments in Makah to be labialized, but the decision is difficult. Allomorphy involving this environment can be avoided if the consonant here is considered to be non-labialized and the previously discussed morpheme shape is considered to end in -uK. If the consonant is considered labialized, then morphemes

beginning in Ku- would acquire labialization of this consonant when they came to stand after /u/, which would happen both in suffixation and in initial reduplication; morphemes ending in -uK would also acquire labialization before suffixes beginning with /u/, although allomorphy can be avoided here also by considering them to end in -uK^{W}.

Although there is no distinction of labialization in the basic forms of stems that end in /u/ plus dorsal consonant, the entries in the stem list of Nootka Texts (pp. 244-316) are inconsistent in this respect, and might lead the unwary reader into thinking that a valid contrast was being indicated. Stems ending in back velars are mostly listed without labialization, as ʼmuq- phosphorescent, glowing, ʼɬuq wide, broad, and čux̣- to tickle, but we find also kʼ^{W}atuq^{W}- dense underbrush; cluttered up, čiʼtuq^{W}- war club. Stems in k are listed without labialization when they can be complete words, as puk book, but both with and without labialization otherwise: puk- feeling very cold, muk- galloping; deer (esp. N. Nootka) vs. ʼmuk^{W}- stone, tuk^{W}- sea lion. The marking of the end of the stem does not correlate well with the labialization in the durative aspect forms that are often also listed; cf. the alternations in tuk^{W}-, tuku·k sea lion vs. tu·k-, tu·k^{W}a· to cover with soil. Similarly for stems in x, considerable variability appears. No labialization is shown for independent words: pux sound-imitative word. Stems otherwise are mostly listed with labialization: ʼpux^{W}- halibut, but sometimes not: ʼnux- to become sun-cracked. One stem is listed both ways: ʼtux- ʼtux^{W}- to shred cedar bark (old word). Parentheses are used

in one of a pair of at least etymologically related stems: yux(^{w}-) lungs vs. yux^{w}- to float. This difference of policy as between the handling of front and back velars has given rise to pseudo-alternations of labialization: mux^{w}- variant of mux- to boil. These different notations thus give a certain amount of information about varying distributions or attestations of morphemes, but none about their actual phonological properties.[19]

A morpheme-final contrast of labialization in Nootkan languages thus exists only after /a/, /i/, or another consonant. For such cases the general policy followed in this stem list is to write ^{w} after bound stems, e.g. ċax^{w}- to hurl pointwise, to spear, and (^{w}-) after potentially free stems and after suffixes that may end words, e.g. satq(^{w}-) grand to look at, -ẏak(^{w}-) ... device, instrument; useful for .... But this difference of notation again reflects only the difference of distribution and not differential phonological properties; labialization in either case will be lost in the appropriate environment, e.g. ċaxẏak spear.[20] For these stems the fieldworker has the problem of finding the evidence for labialization, since there are so many environments in which it is lost. This may be illustrated from Makah with the stems ʔada·k^{w} fire and lak^{w}- to stick one's tongue out, to lick. The labialization is attested by forms such as ʔada·k^{w}aċis stove and lak^{w}iɬtɬ̓ab point on bow of canoe, lit. "sticking-out nose". It is lost word-finally: ʔada·k fire, before consonants other than /ʔ/: lakši~~k~~ licking (m.), before /u/: ʔada·ku~~l~~ fireplace, and before incremental suffixes, ʔada·ḳal fire is burning. An interesting point is that the loss before

consonants depends on the occurrence on the morphophonemic level, even if a vowel is inserted between the two consonants by morphophonemic rules. The words laka·yak tongue, lit. "licker" and laka·la·k licking (rep.) illustrate this.[21]

Finally, it may be mentioned that there is dissimilation of labialization of consonants in Makah in suffixes in otherwise non-restrictive environments. This can be illustrated by the suffix -ck^{w}ǐ̌(-q-) debris from ...(-ing). Labialization is seen in hisck^{w}i chips (from chopping) or x̣ašck^{w}i skeleton, bones lying around, but is lost in t̓ux̣^{w}cki skull and bucki ashes. Dissimilation thus occurs after a /u/ of the preceding syllable, whether or not this is followed by a labialized consonant; it does not occur after a stem-final consonant which itself loses its labialization: q̓akck^{w}i shavings from knife-work, stem q̓ak^{w}- to whittle, cut sideways with a knife.

NOTES

[1]Franz Boas, The Classification of American Languages, AA 22.367-376 (1920), p. 369. P. 213 of the reprint in Franz Boas, Race, Language and Culture. New York: The Macmillan Company, 1940, pp. 211-218.

[2]Franz Boas, Kwakiutl Grammar, With a Glossary of the Suffixes, APS-T, Vol. 37, Part 3, pp. 201-377 (1947), p. 214, footnote 10.

[3]Melville Jacobs, The Areal Spread of Sound Features in the Languages North of California, pp. 46-56 in Papers from the Symposium on American Indian Linguistics Held at Berkeley July 7, 1951, UCPL 10 (1954), pp. 49-50. In his more recent study of Siuslaw phonology, Hymes has concluded that "a labialized order is not a typological trait of Siuslaw", p. 338, sec. 3.3 of Dell Hymes, Some Points of Siuslaw Phonology, IJAL 32.328-342 (1966).

[4]D. H. Hymes, review of Papers from the Symposium on American Indian Linguistics Held at Berkeley July 7, 1951, Lg. 32.585-602 (1956), p. 589. For Tillamook we now also have a more recent study, Laurence C. Thompson and M. Terry Thompson, A Fresh Look at Tillamook Phonology, IJAL 32.313-319 (1966). This shows that, although the dorsal consonants appear in pairs, making a system isomorphic with that formed elsewhere by the component of labialization, the actual articulations involved are quite different, so that "Tillamook is meaningfully characterized as a language totally devoid of labial elements" (p. 316, sec. 3.3).

[5]My work on Makah and comparative Nootkan was supported during 1962-64 by National Science Foundation grant GS-19 to the University of Washington. Field work on Makah has been continued during parts of the summers 1965-68 with the support of the Desert Research Institute, University of Nevada, and in the summer of 1969 with the support of the Research Advisory Board, University of Nevada, Reno.

[6]Mary Haas Swadesh and Morris Swadesh, A Visit to the Other World, A Nitinat Text, IJAL 7.195-208 (1933), p. 200, rule 1.

[7]This rule is stated in Mary R. Haas, Internal Reconstruction of the Nootka-Nitinat Pronominal Suffixes, IJAL 35.108-124 (1969), p. 119, sec. 6.23. Syncopation of vowels in Nitinat may also have given rise to the occurrence of non-final labialized consonants between other consonants, but information on this is lacking. On Nitinat vowel syncope see Mary Haas Swadesh and Morris Swadesh, A Visit to the Other World, p. 201, rule 5.

[8]Cf., for example, André Martinet, Concerning the Preservation of Useful Sound Features, Word 9.1-11 (1953), which deals primarily with Old Irish 'infection' of consonants.

[9]Boas, Kwakiutl Grammar, p. 214; Franz Boas, Kwakiutl, pp. 423-557 in Franz Boas, Handbook of American Indian Languages, BAE-B 40, Part 1 (1911), pp. 431-433, 436 (examples from the latter source, with modified orthography).

[10]The symbols used for writing Nootka are those employed in Edward Sapir and Morris Swadesh, Nootka Texts, Tales and Ethnological Narratives, with Grammatical Notes and Lexical Materials, Philadelphia: Linguistic Society of America, 1939, with the exception that I follow Swadesh's later practice of substituting /u/ for /o/ and /o/ for /ɔ/. For discussion see Edward Sapir and Morris Swadesh, Native Accounts of Nootka Ethnography, RCPAFL 1 (1955) (= IJAL Vol. 21, No. 4, Pt. 2), p. 4. I have not, however, adopted Swadesh's other innovation of transcribing long vowels with double letters. All forms and individual phonemes mentioned herein have been put into this system, regardless of the transcriptions used in the original sources.

[11]Swadesh has mentioned this class of consonants in the context of related morphophonemic alternations: "Delabialization is mechanical before all consonants but ?, !, and h ...", Morris Swadesh, Nootka Internal Syntax, IJAL 9.77-102 (1939), p. 80. Mattingly has also discovered the apparent absence of these labialized consonants, or, as he labels them in Jakobson's distinctive feature terminology, phonemes that are consonantal and flat, in syllable-final position: I. G. Mattingly, The Phonemic Structure of Nootka, NSA Technical Journal, Special Linguistics Issue, pp. 75-83 (1960), p. 79. His statement must be amended by the exceptions indicated. Mattingly is wrong in assuming that Sapir and Swadesh "do not seem to have recognized that these phonemes are also excluded as syllable finals" (p. 83, fn. 9). In addition to the above quote from Swadesh, cf. Sapir's earlier statement that "labializations regularly disappear in syllabically final position", Edward Sapir, The Rival Whalers, A Nitinat Story (Nootka Text with Translation and Grammatical Analysis), IJAL 3.76-102 (1924), p. 89, note 58.

[12]Cf. my Origin of the Nootka Pharyngeals, IJAL 35.125-153 (1969).

[13]Sapir, The Rival Whalers, p. 87, note 33.

[14]Sapir and Swadesh, Nootka Texts, p. 23.

[15]Ibid., p. 54.

[16]Sapir, The Rival Whalers, p. 101, note 172.

[17]Ibid., p. 101, note 173. I would have expected a long vowel, *mu·k^{w}a·ɬ.

[18]Cf. Mattingly, op. cit., p. 81: "... English /k, g/ after /u,U/ are interpreted not as /k/ but as /k^{w}/", mentioning Nootka

šu·k^{w}a· < sugar and čuk^{w}iyo·k < Duke of York (Nootka Texts has, probably incorrectly, čuk^{w}iyo·k). He comments further, "This is a fine instance of phonemic relativity. The same allophones of /k/ which a Russian speaker identifies with his sharp /ḱ/ and plain /k/ are identified by a Nootka speaker with his plain /k/ and flat /k^{w}/." Thus he seems to take this as a case of straightforward acoustic equivalences, rather than as being due primarily to Nootka phonotactic restrictions, and he was unaware of the possibility of reinterpreting the Nootka phoneme in these words as /k/. (Cf. the statements on a Makah accent in English above, p. 7.)

[19]Similarly, Haas's statement "In Nitinat all velars and postvelars are labialized after u but not in Nootka, e.g. N ča·puk manned canoe, Nt ča·puk^{w} id." is apt to cajole the unwary reader into thinking that some such consonants might be labialized in this environment in Nootka: Haas, Internal Reconstruction of the Nootka-Nitinat Pronominal Suffixes, p. 119, sec. 6.22.

[20]Swadesh, Nootka Internal Syntax, p. 96; Sapir and Swadesh, Nootka Texts, p. 35.

[21]Cf. Swadesh, Nootka Internal Syntax, p. 80: "These phonological differences may be used as criteria of suffix type only if the suffixes are of strategic form. Delabialization is mechanical before all consonants but ?, !, and ḥ, and so this criterion cannot be applied except in the case of suffixes beginning in one of these consonants or in a vowel." He neglected to mention that it cannot be applied when the suffix begins with u either. Cf. also Mattingly, op. cit., p. 83, fn. 9: "Sapir and Swadesh ... do not seem to have recognized that these phonemes are also excluded as syllable finals, and so list many stems as having morphological alternation between a labialized and a nonlabialized final." This is to the point in so far as he has in mind the irrelevance of the use of parentheses around labialization marks that was discussed above. But the syllable-final exclusion does not account for delabialization before u and before incremental suffixes.