

NOTES ON DUWAMISH PHONOLOGY AND MORPHOLOGY

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1. Duwamish is one of the Coast Salish languages of the northwest Pacific coast embracing a group of tribes: Snohomish, Snoqualmi, Puyallup and Duwamish, among which the separate languages are more or less mutually intelligible. Duwamish was spoken by the people living around the south shore of Lake Washington, extending along the west shore to the site of the canal joining the lake to Lake Union, and by families scattered in the Rainier Valley. Nearly all the present day speakers are residing on the Muckleshoots Reservation, near Auburn.

In recording the language two informants were used, grandmother and granddaughter. Slight differences were noted in their pronunciation, particularly in the use of vowels. There are but four true vowels in Duwamish, but nine symbols have been used to render a more accurate orthographic record of the spoken language. Several phonograph recordings were also made and are on file in the Department of Anthropology of the University of Washington.

2. Consonant pattern. Duwamish makes use of a considerable variety of consonants

although there are no complicated consonantal clusters such as obtains in Chinook, or in the Interior Salish. Most frequently used consonants are laterals and sibilants.

Following are a few representative consonantal clusters: *sxw tq tqq ktł ɬxw gwł gwłts gwłd gwłgw ɬtł sɬx tɛd kʷtɛd tɛtɛ tstɛ bd bɛtɛd tɔ sqwqw txw tsɬ be pe kwl ɬdj ɬdjɛd kwɬɛd djɛtɛd bɛtɛdɔz kh ɬɛq*

Frequently a consonantal cluster acts as a syllabic unit, as for example: *gwł tɛd bd tɛɬ ts ks*

There are no nasals in Duwamish. The phonemes *m* and *n*, which exist in the Interior Salish languages are here replaced by their corresponding sonant stops, *b* and *d*.

3. Consonant phonetics.

- b** The sonancy is quite distinct, and it may occur in almost any position within a word, e.g. initial, internal, and final. It may occasionally be lengthened by one mora with distinct vocal cord vibration. A preceding vowel may carry its sonancy over to the *b*, although the lips remain closed, as in English *rubbed*.
- B** Probably a phonetic variant. In general the sonant stops when occurring in final position lose part of their sonancy. Final aspiration may be slight or distinct.
- c** Pronounced as English *sh* in *shut*.
- d** As in English, but may be rounded slightly when followed by *u*.
- D** Incompleted final *d* followed by only slight aspiration. When initiating a syllable, it is a true intermediate phoneme. When followed by an alveolar surd, the aspiration is assimilated with the adjacent phoneme.

	STOPS			FRICATIVES		AFFRICATIVES			NASALS	SEMI VOWELS
	Son.	Surd	Glott.	Son.	Surd	Son.	Surd	Glott.		
bilabial.....	b	p	p̣							w
alveolar.....	d	t	ṭ		s	dz	ts	ṭs		
C series.....					c	dj	tc	ṭc		y
Palatals.....	g	k	ḳ		x		kx			
Palatals rounded..	gw	kw	ḳw		x ^u					
Velar.....		q	q̣		xw					
Velar rounded.....		qw	q̣w		ɣ					
Faucal.....			?		ɣw					
Lateral.....				l	ɬ		kɬ	ṭɬ		

- dj** Of infrequent occurrence, and pronounced as G in George.

dz Pronounced as ds in English dads.

g Rarely found except in an initial position.

gw This phoneme is of frequent occurrence. Most of the mid and back palatal consonants are rounded.

h Not of frequent occurrence, but when used, is sounded as in English.

k Mid palatal position, similar to English, but frequently more strongly aspirated.

ḳ The many slight variations of this phoneme are rather difficult to distinguish, since an adjoining phoneme alters its sound in obscure ways. It occurs with lengthening, so that a continued passage of air through the glottis results in a rapid series of rasping breaks. Only slight differences differentiate this phoneme from the related glottalized velar consonant, q̣, except when followed by u, when its position is advanced rather far forward.

k^u In pronunciation this form of rounded kw differs from the latter, because the u is in reality a voiceless vowel. The palatal is well forward.

kw As in English quick.

ḳw Glottalized form of kw, but without lengthening.

kɬ A consonantal cluster of infrequent occurrence. Both consonants are pronounced so closely together as to emerge almost as a single phoneme.

l When occurring initially, especially when followed directly by another consonant, l is sonant.

L Final l as pronounced by the older people is an almost voiceless intermediate, with only slight sonancy. A peculiarly light sound, almost unheard as the tongue goes into position because the flow of air around it is so slight as to be barely discernible. This phenomenon of slighting the final phoneme has been reported in Oregon Alsea and Miluk Coos where final n of a syllable appears nearly voiceless. (Jacobs mss.)

ɬ Surd l, common to all the Salish languages, coastal and interior.

p As in English but with more forceful aspiration following.

p̣ Infrequently occurring. The p is sharply glottalized followed by strong aspiration except where followed by a voiceless u, when aspiration is relatively weak and glottalization soft.

q Velar k, sounded far back in the throat. It varies toward velar g

in an intermediate position, especially when rounded.

q̇ The vibration of the glottis is continued slightly so that q̇ is not made with a single closure. If a consonant may be said to have mora length, this phoneme would have about one and a half mora. Where a two mora length has been indicated, the sound has been transcribed as q̇x.

qw Rounded q of rather frequent occurrence.

q̇w Of rather infrequent occurrence.

s One of the most frequently occurring phonemes in the language. It may occur both as a unit morpheme and as a phememe. Is pronounced as in English, and never palatalized.

t As in English table.

ṫ Not infrequently found. It possesses strong aspiration and is sharply explosive.

tc English ch in church.

ṫc Strongly explosive tc.

ts May initiate or complete a syllabic unit. Is sounded as ts in English hats.

ṫs Sharply and clearly glottalized ts.

ṫṫ Contrary to the usual glottalization practice of sharp explosiveness, this phoneme is usually pronounced rather softly, sometimes with a length of one and a half mora.

w Usually occurring in conjunction with another consonant in its rounded form. Is semi-vocalic when following a vowel, thus producing a modified diphthong.

x Normally a mid-palatal, though appears farther forward when followed by i.

ẋ Harshly distinct as ch in Low German ach.

xw Rounded mid-palatal. It does not appear in final position except as x^u where the final vowel is voiceless.

ẋw Not of frequent occurrence.

y Like w this is a semi vowel, and

when following a vowel, it modifies it in rapid speech. In the word for *grandmother*, káiya', the diphthong is a true one, and the y is a true consonant.

' Glottal stop which functions as a true consonant. Most final sonant vowels are followed by glottal closure.

4. Consonantal changes. Consonantal modifications occur principally as mechanical accompaniments to a change in the mouth cavity anticipating or following adjacent phonemes. In rare cases does a consonantal change manifest itself as a phenomenon of morphologic importance, and such modifications occur only incidental to established rules of grammar.

Most words ending with a vowel are followed by glottal closure. This may be replaced by an enclitic such as the possessive pronouns, verbal pronouns and verbalizers.

The final consonant (L) is frequently dropped entirely. This is an almost exact parallel to Southern Oregon Miluk Coos where final n becomes non-phonemic N, or is entirely lost. (Jacob's mss.) It is possible that the tongue takes the phonemic position but no air is permitted to pass.

Since the final consonants b, d, l, t occur in the intermediate position in the usual word or stem, these are changed to true consonants in the verb terminations where they are no longer final but must initiate the last syllable.

5. Vowels and diphthongs. The vowels may be conveniently classified as primary and secondary.

Primary: a, i, u, α,

Secondary: ə, ε, á, ι, v.

When sounded as pure vowels, these phonemes show the characteristics of Sweet's terminology, but the presence of adjacent vowels or consonants modifies them considerably. The pronunciation of the i vowel varied most, from e in English met to

i in French *fini*, and to i in English *hit*. Where iota has been used in the texts, it is sounded closer to French i, as in *fini*, than to English i in *hit*.

The vowel u is intermediate between its sound in German *gut* and German *so*. This is particularly true when it carries the accent. It may become modified to the sound of the vowel in English *full*.

The dull vowel ə occurs most in rapid speech, and is often a ligature vowel between two adjacent consonants. It is duller and less distinct than α, and rarely carries an accent. Sometimes it substitutes for another vowel in rapid speech, or when the regular vowel is itself not distinct. Before glottalized ts it takes on a slight r tinge.

α is one of the commonest phonemes in the language. This is undoubtedly a modification of the vowel a, as in German *Mann*, and therefore really of secondary character.

Vocalic changes resulting from elisions and progressive or regressive combinations occur so rarely in Duwamish as to be unnoticed. Such changes are known from adjacent languages, but are not familiar to this language. However, vocalic lengthening is distinct and clearly recognized. The dull vowels do not usually contain length, but a, i, and u may have a length of a single mora, or of two mora. It is unlikely that vowel lengthening is a phonemic requirement of morphology, except in words denoting time, duration, distance and number. Lengthening produces a rhythmic quality, varying with nuances of expression. When the speaker is excited, his vowels are lengthened and include tonal qualities relating to his emotion. Some words may be drawn out six or seven mora for emphasis.

Surd vowels: The vowel u when characteristic of verb terminations is sounded without sonancy. When affiliated with the directional element t—, it loses sonancy and becomes whispered. When the verbal termination containing voiceless u is followed by another suffix, the vowel becomes

w, thereby rounding the preceding consonant.

The diphthongs most commonly found are: ai, au, ei, iu, ui. In rapid speech diphthongs occur where they do not exist under syllabification. Diphthongs containing vowels intermediate to European sounds are likewise intermediate.

6. Syllables and stress. Duwamish is a language containing a superabundance of consonants when compared to other regional stock languages. The majority of consonants occur more frequently than any of the vowels. It is therefore logical to expect a group of syllabic entities which are somewhat complicated in phonemic structure.

Many consonants appear as syllabic entities of morphologic importance. Some are so distinct that where it is difficult for the taxeme to become a complement of an adjacent syllable, it may be set off by a glottal closure.

Stress and accent are characteristic of the language. Accent is usually placed on heavy syllables, not necessarily distinguished by length. In rare instances the accent may fall on syllables containing only consonants in the unit, although such stress usually falls on the principal vowel.

7. Word order. In a simple sentence, the order of ideas is rather rigidly maintained as follows: verb, article, agent, article, recipient. Compound sentences are made up of two or more simple sentences connected by the coordinating conjunction, *g'la*, which may be used as a free morpheme, or as a verbal prefix. Simple sentences in which the agent is not indicated, but having adverbial or prepositional phrases have the order as: verb, article, recipient, prepositional free morpheme, object of preposition. Other word orders may be derived from the above with the addition of modifiers, adverbs, etc. which generally follow the direct object or recipient of the verbal action.

Descriptive adjectives usually precede their substantives, except where emphasis places them after the noun. Gerunds and participles follow the substantive to which they may refer.

8. Stems. We distinguish verbal, nominal, reduplicated, and compositional stems.

Verbal stems. The usual order of morphemes bound to a verbal theme finds such morphologic elements as prefixes, infixes, suffixes and enclitics. To find the stem of a verb it is necessary to divest the theme of secondary morphemes. Duwamish stems appear to be predominantly monosyllabic. Verb themes may be broken up in the following orders of bound morphemes: (1) temporal element, stem, pronoun, directional, locative; (2) obligative, pronoun agent, temporal, stem, tense indicator; (3) obligative, pronoun, continuative, temporal, stem; (4) temporal, stem, pronoun (transitive present tense simple stem); (5) pronoun, temporal, stem, incorporated object, verbalizer; (6) nominalizer, stem, possessive pronoun.

Nominal stems. The number of morphemes acting upon a nominal stem is relatively small when compared with the verbal forms. These comprise principally possessive modifiers and demonstratives. The usual order of morphemes is: (1) stem, gender termination (if feminine); (2) nouns derived from verbs have prefixed *s*—, which acts to make the verbal root passive; (3) possessive pronouns are both prefixed and suffixed directly to the stem according to the person involved.

Reduplicated stems. A stem may have its initiating syllable reduplicated to indicate distributive plural, and its initiating consonant or vowel reduplicated to indicate diminutive. A combination of both is permissible.

Compositional stems. Frequently a noun may be a combination of two stems, the principal one coming first being the primary root, usually verbal, and the secondary root

being compositional, usually the object incorporated.

9. Reduplication. Stem reduplication yields the simple plural: *stube man*, *stubube men*; *sqwabái dog*, *sqwabqwabái dogs*. Reduplication of the first syllable, or initiating consonant, yields the diminutive: *sqwa-qwabái little dog*, *pup*; *á'lal house*, *á'alal little house*. Combination of these create the diminutive plural: *sqwa-qwa-qwabái many little dogs*; *á'a'alal many little houses*. Duplication of the entire word possibly represents the distributive plural. Internal reduplication of the stem vowel changes the number of the stem from singular to plural: *tił the one*; *tí'íl they, them*; *tí'i'd the scattered little ones*.

10. Numeral system. Numeration in Duwamish does not seem as complex as in the related Salishan languages, although all of the elements of the quatracoount system appear to a certain degree. Boas in his Chehalis texts pointed out four methods of counting, which phenomenon likewise appears in the interior Salishan languages. In Duwamish only two numeral forms were found, the abstract or inanimate, and the personal, or animate. Numerals which are multiples of ten have suffixed—*atci'*.

The numerals which are multiples of a hundred, e.g., two hundred, three hundred, etc. are formed by prefixing the abstract forms to the ten-times-ten numeral listed in the table: 200 *sálsbkwátci'*; 300 *łix'sbkwátci'*; 1000 *s'łłátci'*.

11. Affixes. We distinguish proclisis and prefixation, enclisis and suffixation, and infixation of the roots and incorporated objects.

The use of proclitics is quite common, especially since many morphemes which normally exist freely may also be loosely bound to the following words. Also a considerable number of elements may be prefixed to the stems. These include adverbial elements,

	Abstract	Personal	Cardinal	Repetition	Times ten
1	déitcu'	déitstcu'	dzix ^u	d̄tcáx ^u	
2	sá'li'	sá'li'	lihláq	tsábá'b	sála'atci'
3	lix ^u	lixwix ^u	lixwáils	lixwál	slixwatci'
4	bu's	bəbú'	bú'sáhils	bu'sál	sbúsatci'
5	tsláts	tsláts	tslátsáhils	tslátsal	səlátsatci'
6	dzəlátci'	dzəlátci'	dzlátci'áhlils	dzlátci'əl	dzəlátci'atci'
7	tsú'kws	tsú'gú'kws	tsúkwsáhils	tsúkwsal	tsúkwsatci'
8	tqátci'	tqátci'	tqátci'áhlil	tqátci'əl	tqátci'atci'
9	ɣwəl	ɣwələl	ɣwəláhils	ɣwələl	sɣwəlátci'
10	pádats	pádats	pádatsáhils	pá'datsəl	sbkwátci'

possessional pronouns, personal pronouns, locative elements, modal tense elements, quantitative elements marking *some*, *many*, etc., demonstratives, nominalizers, negative particles.

Enclisis and suffixation. These are among the most important grammatical processes in the language since practically all the modes and tenses, the majority of pronominal differentiations, and verb terminations are formed by this process. Verb terminations are more enclitic in nature than suffixational, and especially is this to be noted of the pronominal agents. Derived elements are true suffixes; formal elements are enclitics.

Infixation: compositional roots and incorporated objects. True infixation is rare, being found almost solely in the insertion of an *s* into the demonstrative pronouns; e.g. *tɪl*, *tsɪl*, in order to denote feminine gender.

Compositional roots are usually abbreviated forms of the free word which are to be found incorporated into a verb theme, either as the direct object or the indirect object. Names of body parts, of many geographical features and the personal pronouns exist as real substantives when used nominatively or as objects of prepositions. When of secondary importance in the idea, these morphemes emerge as incorporated suffixes attached to the stem. Incorporated objects usually follow the stem and are themselves followed by the verbalizing enclitics.

12. Demonstrative pronouns. There is in Duwamish a category of pronouns which act as demonstratives. These same morphemes may be used in an agentive sense when followed by the subject of an action. Below is a table of the pronouns following the order set down by Boas in his Chehalis text analysis.

There are other demonstratives which do not seem to fall into the above classifications. In those above note the almost universal *ti*—. This element may be categorized as agentive. The morphemes *ki*, *kwi* act both as prefixed proclitics or as independent free morphemes. *di*— refers to some previously named or thought-of thing.

The following demonstratives are unclassified: *kwɪlu* *such things, the like*; *tsúdi'* (fem.) see *túdi'*; *túdi'* *those far away*; *túba* *the same one*.

13. Sex gender exists in Duwamish as a borrowing from the non-Salish northwest coast stock languages. It is not found in the interior Salish group and exists in Duwamish only in the insertion of an *—s—* in the demonstrative pronouns. Sex gender is not used to denote the sex of the agent of an action, or of the nominative personal pronouns. When it is used, it refers to the sex of the thing or person spoken about. The word for *grandmother*, *káiyá'*, obviously a term dealing with feminine sex, has no element of sex gender connected. But, *the grandmother*, is *tsəl káiyá'*, where the demonstrative is used in the feminine form.

non-feminine	feminine	reference
ti, tiL	tsi, tsiL	general indefinite
ati	atsi	general definite
tɬ	tsɬ	definite present
tá'a	tsá'a	definite absent
altí	altsí	locative general indefinite
atɬ	atsɬ	locative general definite
altsits	altsits	locative
atits	atsits	?
tí'd	tsí'd	definite present plural
tí'i'd	tsí'i'd	indefinite number present
dɬ		definite repetitive, <i>same</i>
dikɬ		definite repetitive, <i>same</i>
ki	ksi	indefinite number, <i>some</i>
kwi		indefinite number, <i>some</i>
akwi		locative general indefinite

14. Directional suffixes. The idea of motion acting along something is expressed by an infix, —lɬ—. The idea of motion passing by, through or leaving the thing toward which it is directed untouched is expressed by —gwólə—. The morpheme —a' bats expresses the idea that conjunction takes place between the action and the object toward which the action is directed, and that contact such as on, against, under, etc. has been made. The morpheme —a' ligwd, attaches to the idea of side with respect to the agent of the action, whether it be the right or left side. The t^u—which initiates most directional suffixes marks motion *to, toward*.

—t ^u cáq	<i>upwards</i>
—t ^u ɬəp	<i>downwards</i>
—t ^u dí'i	<i>over there</i>
—t ^u ta'ɬ	<i>forwards, across</i>
—t ^u ɬəpa'·bats	<i>under</i>
—t ^u cqa'·bats	<i>on</i>
—dzəha'·ligwəd	<i>to the right side</i>

—t ^u qala'·ligwəd	<i>to the left side</i>
—t ^u lác'	<i>behind</i>
—t ^u xwáɬxad	<i>down river, northwards</i>
—t ^u qéix ^u	<i>up river</i>
—t ^u khú'·ləgwadx ^u	<i>toward the east</i>
—t ^u dzíx ^u (dzíx ^u , first)	<i>ahead, toward the front</i>
—t ^u dzíx ^u ·di'd	<i>in front of</i>
—t ^u séilə'·átsa	<i>from</i>
—t ^u xwəscéi'	<i>out of</i>
—t ^u wasədák ^w	<i>into</i>
—t ^u xwílá'·bats	<i>against</i>
—t ^u wastsál	<i>out of sight</i>
—páɬtaɬ	<i>along, anywhere</i>
—dgwá'·bats	<i>along the inside</i>
—lɬcá'·bíx ^u	<i>along the outside</i>
—lɬcqa'·bats	<i>along the top</i>
—lɬtɬəp	<i>along the bottom</i>
—t ^u hú'·da'·gwá'·bats	<i>to the middle</i>
—t ^u xwí'·la'·xá'd	<i>to the edge</i>
—tsədítcu'	<i>around</i>
—gwóləbálx ^u	<i>past, by</i>
—gwóləpátq	<i>through</i>