Building Words in Haisla

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This paper is about making derived words in the Northern Wakashan language Haisla. It is an attempt to write about this topic in a way that is understandable to non-linguists and informative to linguists. Haisla is a cover term used for two different ways of talking: X̄a'islak'ala is the language of the Kitamaat side of the population, X̄enaksialak'ala of the Kitlope side. The matters touched on here are largely the same for the two languages, I will use 'Haisla' and 'X̄a'islak'ala' as covering both.

1. Introduction.

Most words in X̄a'islak'ala are built up out of several parts. Some words work as whole sentences, complete statements or questions (see note on SPELLING at end of of paper for explanation of symbols used):

(1.) **T'epanumatlnugᵂa.** 'I'm going to go fishing.'

(2.) **Mayasnukᵂenuxᵂ.** 'We have a cat.'

(3.) **Duqᵂelatlnugᵂutla.** 'I will see you.'

(4.) **'Engᵂas?** 'Who are you?'

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In these pages we will look at how words are built in X̄a'islak'ala.

Words are made by layering from the end by adding suffixes or endings, by modifying the internal form of the word in one of several possible ways, and by changing the sounds at the end of the word as a suffix is added. Sometimes the suffix has several different forms, depending on the form of the word to which it is added, and sometimes the accent or stress of the word is modified by the addition of an ending.

Starting from the end, the last bits of a word are often endings for subjects and objects: I, he, you; him, them, us. The examples above illustrate this:

(1a.)   t'epanumatl-   -nugʷa
             will go fishing – I

(2a.)   mayasnukʷ-   -nuxʷ
             have a cat –   we (exclusive)

(3a.)   duqʷelatl-   -nugʷ(a)   -utl(a)
             will see –   I –   you

(4a.)   'engʷ-   -as
             who –   you (question form)

Other endings that go onto words show something about where something is located in relation to the speech situation, or indicate possession, ownership, or other relations:

(5.)   him'asax̄i :   him'as   -ax̄i
             that chief :   chief –   that...(not here)

(6.)   'ebukʷenc :   'ebukʷ-   -enc
             my mother :   mother –   my

(The most important of these grammatical endings are given on the sheet called Summary of Endings, included in the book of lessons called *Wisenis X̄a'islak'ala*.)

We will be concerned here not so much with these endings, that are part of the grammar of sentences, as in the further modifications, the inner additions and changes that may be thought of as ways of building new words from words or other smaller parts. Some of the examples just given illustrate such further modifications and additions:

(1b.)   t'ep-   -anum(a)   -(a)tl
             fishing –   go...ing –   will... / -going to..

(2b.)   mayas   -nukʷ
             cat –   have

(3b.)   duqʷ-   -el(a)   -(a)tl
           look/see –   continuative – will...

Here are a few more examples for a start:

(7.)   g̅ulisdigulh :   g̅ulisdi-   -gulh
           trout (dead) :   trout –   former/ past
(8.)   kʷʼaʼilh :   kʷʼa-   =ilh
           sit inside :   sit somewhere – inside / in house
(9.)   g̅ʷalis   g̅ʷalh- -=is
           ready on beach : finished –   on beach or field
           (also: late autumn')

These examples give a tiny selection of the many different kinds of meanings that can be rendered by word-building suffixes. Some of them – like the -ela of duqʷela have a very pale meaning and may be thought of primarily as just ways of making different words – that is the reason for just labeling them as a 'formatives.' Others have quite specific meanings, sometimes several. In another place (a sequel to this paper) we will look at these meanings systematically, and see how the suffixes and other word-forming elements and processes are grouped into families linked by meaning. Here we will look at just the various aspects of form that we need to pay attention to in understanding the complex words and how they look and sound like they do.

The general pattern for a complex word in X̄aʼislakʼala looks like this:

ROOT or MODIFIED ROOT + word-building suffixes + grammatical endings

There are a few things that can come before the root and there are a few endings that can be tacked on after the grammatical endings. (We will follow the practice of the Lincoln and Rath dictionary of using the sign √ to mark a root.)

Roots may be internally modified by various kinds of repetitions and expansions and insertions, as in the plural forms of many words (more on these changes and extensions of roots below in Section 5):

(10.)   muzilh –   musmezilh
           lady, –   (plural)
           woman of high rank
(11.)   hiˡmʼas –   himʼaaˡs
           chief –   (plural)
(12.)   duˡqʷela –   duˡdeqʷela
           see –   (plural)

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It will be convenient to have a way of referring to the piece of a word to which some suffix is added, regardless of whether it is a root, a modified root, either plus one or more wordforming suffixes. Let us call such a part of a word a base.

As pieces of words are put together, various changes or alternative forms appear. These changes may be divided into several different kinds, which we will take up in turn: automatic changes, alternate forms of suffixes that depend on the form of the base to which they are added, end-effects or changes in the last sound of a base that are required by various suffixes. We'll look first at the automatic changes as they are the most general. They apply to all combinations of elements within words, and sometimes are extended to combinations of words as well.

2. Some Automatic Changes.

Here are some of the regular changes that take place whenever the sounds involved come together.

- **k to x etc.**

When a root or suffix ends on one of the sounds k k^w q q^w, this sound appears only when the root or suffix is followed by a vowel or vowel-like sound. When the sounds are at the end of a word, then they are replaced by x x^w $\bar{x}$ $\bar{x}^w$. This happens not only at the end of a word, but also before any addition which begins with a non-vowel (consonant). So we have:

basic:	k	k^w	q	q^w
at end:	x	x^w	$\bar{x}$	$\bar{x}^w$

Examples:

ˀik- :	ˀikenug^{w}a	ˀix	ˀixs	ˀixsduq^{w}eya
good	I'm fine	good	good combining form	eagle

guk^w :	guk^{w}a$\bar{x}$i	gux^w	gux^{w}dema	
dwell	that house	house	village	

ḡaaq :	ḡaaqa$\bar{x}$i	ḡaa$\bar{x}$	ḡaa$\bar{x}$di$\bar{x}$ga	
raven	that raven	raven	raven(gone now)	

tlˀaq^{w}a :	tlˀa$\bar{x}^w$sdu			
red	red colour			

- Rounding of k g x q ḡ $\bar{x}$ after u

When one of the sounds k g x q ḡ $\bar{x}$ come to follow a u or au sound, the consonant is rounded to k^w g^w x^w q^w ḡ^w $\bar{x}^w$.

Example: ʔiksdu + -qia : ʔiksduqʷia (ʔixsduqʷeya) 'eagle.'

• **tl to lh**

When a tl comes before another consonant or at the end of a word it is usually replaced by lh: gax̄itli – gax̄ilh 'he or she comes in,' 'to come in'

• **s + s to c**

When two s's come together, they are pronounced together as c: him'as + s becomes him'ac: Him'ac ʔIk'iax̄i 'Lord of Heaven.'

• **Final Devoicing: g to k etc.**

When the voiced consonants b d z dl g gʷ ḡ ḡʷ come at the end of a word or syllable they are generally devoiced and thus sound like p t c tl k kʷ q qʷ: gig sounds like gik, c'aḡ sounds like c'aq. Notice that the basic voiced sounds g gʷ ḡ ḡʷ are NOT changed into x xʷ x̄ x̄ʷ.

From these facts we can draw the conclusion that to know the true nature of the final sound of a word, we sometimes have to check it by looking at the example with some suffix or ending that starts with a vowel:

ḡaax̄	ḡaaqax̄i
raven	that raven (remote)
x̄aax̄	x̄aax̄ax̄i
bone	that bone (remote)

3. Variations in Forms of Suffixes.

There are many suffixes in X̄a'islak'ala that show two different forms. They differ by the presence or absence of a consonant sound at the beginning of the suffix. Most usually the sound that appears and disappears is one of the sounds: g ḡ x k s. For example there are two forms of a suffix that means 'to make...' or 'go to...': -gila and -ila:

gelw'agila 'make a canoe'

gukʷila 'build a house'

We indicate these 'disappearing consonants' by writing the suffix with square brackets around the relevant consonant: -[g]ila

The general rule for these suffixes is this:

• Include the consonant in brackets if the base ends on a vowel or em en el, otherwise leave it out (that is leave it out after real consonants.)

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One way of thinking about this situation is this: X̄aʼislakʼala likes to keep the number of consonants that come together in the middle of a word as small as possible. So to avoid "gukʷgila" the short form of the suffix is chosen. But you have to remember that this is not a general, automatic rule, such as those discussed in the last section. It is just a fact about certain suffixes that they have the two forms. We can think of the minimization of consonants coming together as a kind of reason for this situation, which has developed in the history of the language, leaving its special mark on certain suffixes. There is more discussion of the implications and theoretical status of these alternate forms in Section 6.1.

Some common suffixes that show this variation are:

-[x]ʼid : 'to start to ..., do... once, become...,more..., ...-er'
-[x]ʼilap (same kinds of meanings, mostly used with 'place' words)
-[ḡ]u 'together'
-[x]dema 'place, frame, surface for doing something'
-[x]si (-[k]si) 'in pieces, apart'

Examples of words with these suffixes:

ʼemlhʼid ʼemlh-[x]ʼid 'start to dance, play'
ʼuˡmʼasʼid 'become big, be bigger'
siˡxʼid 'to start to pole canoe, give one push' (from sia)
ʼ ageḡu 'all gathered together'
baaˡkʷuala 'meet and talk' (LR)

(LR indicates that the word or form is from the Lincoln and Rath dictionary, see end for a list of works referred to.)

We see a different kind of pattern in some other suffixes, which instead of having a disappearing consonant have a disappearing vowel. One of them is the suffix -(e)ksala 'in all directions, randomly, wrong' as in these examples:
daaˡseksala 'play around diving' √das- LR
daaˡksala 'take here and there' √da-

Here the vowel appears only after consonants. This has the same effect of helping avoid three consonants in a row. There are not many suffixes of this second kind.

4. End-effects of Suffixes.

Some wordbuilding suffixes have the power to bring about a change in the final consonant of the base or word to which they are added. Look at the following words, all built on the root √bekʷ- 'human' :

bekʷaiˡ 'body, self'   begʷanem̩ 'person'   bekʷʔeˡs 'monkey, sasquatch'
bekʷeluˡsemi 'character'   babaˡgʷelaqʷa 'talking   bekʷʔaˡla 'speak'
                                              sound'
bekʷiˡ 'habit'   bekʷʔegaˡlh 'start talking'

Here are more examples with other roots or bases:

ʔiˡkenx̄ela 'goodlooking'   ʔiˡgis 'generous'   ʔiˡkʔimasˈ energetic'
ketaˡ 'shoot'   kedaˡyu 'gun'   ketʔiˡd 'begin to shoot'
tlaˡka 'paddle'   tlagaˡlisela 'paddle upriver'   tlaˡkʔex̄di 'follow paddling'

As you can see the final sound of the root or stem changes with these different suffixes in a systematic way. If we take the sound that appears in the first column as the basic form of the final consonant (which makes sense), we can say that the word-forming suffixes are divided into three kinds:

- 1. plain suffixes: these suffixes have no special effect on the final consonant (as in the first column).(The only effects of these suffixes will be the automatic variations that happen at the ends of words or before other consonants, such as guxʷ- for gukʷ- and so on.)

- 2. voicing suffixes: these suffixes change a final voiceless consonant into the corresponding voiced sound (as in the second column).

- 3. glottalizing suffixes: these suffixes change a final voiceless consonant into the corresponding glottalized sound. These are illustrated in the third column.

There are some special situations for these different kinds of suffixes that we will take up in a minute. The statements just made are clearest with roots or stems that end on stop consonants, like the examples above.

What all this means is that you have to know whether a suffix belongs to one or another of the kinds just given. It is a good idea to adopt a special way of marking these suffixes, and we can use the system that was used by Franz Boas and George Hunt for dealing with the same kind of system in Kʷakʷʔala:

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plain suffixes:	voicing suffixes:	glottalizing suffixes:
-SUFFIX	=SUFFIX	-!SUFFIX

Examples:

-x̄d mouth	=ilh in house	-!ix̄d want to

Besides these effects on the final sound of the word to which they are attached, suffixes may require the stem to which they are attached to be extended in one of the ways that we will look at in Section 5.

What all this means is that for understanding how words are built you need two main tools: a list of all the roots in the language, a list of all the suffixes with information about how they affect the stem to which they are added. The Lincoln/Rath dictionary includes the first tool, a list of roots at the end of the second volume. To use it you will have to get used to a different way of spelling things. There is no published list of suffixes.

Here is a chart summarizing the changes that are brought about by these various kinds of suffixes:

TABLE OF FINAL CONSONANT ALTERNATIONS:

Final		before glottalizing suffix -!	before voicing suffix =
any voiceless stop	C	C'	voiced C
	p	p'	b
	t	t'	d
	c	c'	z
	tl	tl'	dl
	k	k'	g
	kʷ	kʷ'	gʷ
	q	q'	ḡ
	qʷ	qʷ'	ḡʷ
other consonants:			
	s	y'	y
		c'	z
	x	n'	n
	xʷ	w'	w
	x̄ʷ		
	lh	l'	l
	l	l'	l'
	m	m'	m'
	n	n'	n'

Some of these changes are tricky! Watch out especially for these:

- s can become either y' y or c' z.
- x becomes n' and n before -! and = suffixes.
- Both x^w and $\bar{x}^w$ go to w' and w.
- l m n become l' m' n' before BOTH kinds of suffixes.

Here are some examples of the three kinds of suffixes:

- **-SUF: Suffixes with no special end-effects:**

(But remember that automatic changes like k – x will happen!)

-$\bar{x}$d(a) 'at mouth'
>   mexe$\bar{x}$da¹k^w 'punched in mouth'
>   dem¹k^{w}e$\bar{x}$d 'kick in mouth'

-(e)$\bar{x}$s 'on board, in canoe or vehicle'
>   bel¹ke$\bar{x}$sud 'stain bilge of canoe w. animal blood for initiation'
>   dlexe¹$\bar{x}$s 'crosspiece in a canoe' (HV)
>   dla¹$\bar{x}^w$e$\bar{x}$sala, dla¹dle$\bar{x}^w$e$\bar{x}$sala 'standing aboard ship' (LR)
>   lala$\bar{x}$sa¹ 'ride along with, hitchhike'

-c'uaqia 'on head, inside head'
>   mexc'ua¹qia 'punch on head'
>   lha¹x^{w}em'c'uaqia 'have a headache'

-[g]ila 'to go to..., to make..., have form of...'
>   Terrace-ila 'go to Terrace'
>   gel¹w'agila 'make a canoe'
>   beg^{w}enem¹gila 'something in the form of a human'

- **-!SUF: Suffixes that glottalize:**

-!$\bar{x}$d 'at rear end, bum; in inner feelings; having — characteristic'
>   men$\bar{x}$du¹d 'punch on bottom'
>   gel¹t'e$\bar{x}$d 'tall person'
>   k^w'en¹c'e$\bar{x}$d 'having a wrinkled bum'

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-!in'ix̄ʷ 'expert at something, member of ... clan'
             men'iˡniīx̄ʷ 'boxer'
             Ḡaq'iˡnix̄ʷ 'member of Raven clan'

-[k]!ala '...language, sound like...'
             Kʷaˡkʷ'ala 'speak Kwakw'ala'
             Gʷiˡt'ala 'speak Tsimshian'

• =SUF: Suffixes that voice:

=zu(a) 'on flat thing, table, mat etc.'
             menzuˡd 'pound fist on table'

=ilh 'inside house or building'
             q'ediˡlh 'sit inside for a meeting'

=is 'on beach or field'
             q'edis 'sit in a group on the beach'

=ayu / =ay'u 'instrument for...'
             dlabaˡyu 'digging stick'
             k'ugʷaˡyu 'axe'

5. Modifications of Roots.

What determines the modification of roots? First, the root may be modified
to make another related form of the word with an addition or change of meaning:
plural, repetitive action, or the like. Second, and most commonly, the root is
modified under the influence of some suffix that requires the modification.

Examples:

biˡbegʷanem plural of begʷaˡnem 'person'
x̄iˡx̄abekʷ plural of x̄e'aˡbekʷ 'child, youth'
caaˡseksala 'rush off in all directions' from cesaˡ 'swarm, rush'
kakut'aˡ 'guess, try to think of something' from kuˡta 'think'

The last example shows that root modification can be combined with some
end-effect such as glottalization.

Considering the form of words, there are three common ways in which roots can be modified:

- Reduplication of part or all of root, possibly with changes of vowels.

- Changes in the vowels of the root.

- Insertion of consonants into the root.

Here is a sketch of the main types of root modifications. For each type I give an example followed by the root and, for reference, the way the root is represented in the Lincoln and Rath dictionary (LR). The examples may be taken as handy tags for remembering the pattern. The patterns are given by using C to stand for consonants in the root, V for a vowel from the root, and particular vowels—i u a e—stand for themselves. The general way of associating the symbols of the pattern with the sounds of the root is to think of the consonants of the root to be filled in right to left and any left-over C's to be connected again to the last consonant used (that will then be the first consonant of the root). So with Pattern (4a) and the example root √p'al- the linking looks like this:

p' a l
/ | \ | \
C i C V C
| | | \ \
p' i p' a l (a)
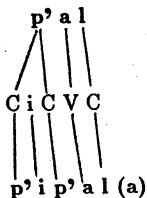
You can think of the symbols of the pattern as slots waiting to get their content from the particular roots that are fitted to them. When the pattern contains a filled slot—like the i in this example—there is no room to put in anything from the root, so the only place the vowel of the root appears is in the 'empty' vowel slot symbolized by the V.

Type 1 ROOT + ROOT:

bi'xbika   √bik- (√byk-)
lightning   transfer fire ?

In this pattern, the complete root is repeated. (In this tag example, the x comes about by the regular rule.)

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Type 2 CVCCeC:

ciˡx̅ʷcex̅ʷa   √cixʷ- (√cyxʷ-)
eat crabapples   crabapple, sour

Here the root is followed by a reduced form of the root: the two consonants of the root with a (predictable) schwa (e) vowel between them.

Type 3 CeCVC:

cʼecʼenˡ   √cʼen- (√cʼn-)
rapids   move in a mass, tidal rapids

In this type, the first consonant of the root is repeated followed by a schwa (e) vowel.

Type 4a CiCVˡC:

pʼipʼaˡla   √pʼal- (√pʼhl-)
work plural   work, lay hands on

In this pattern, the first consonant is repeated, followed by i. The stress is still on the original root position. The stress is the only difference between this pattern and the next, where the stress is on the new (first) syllable:

Type 4b CiˡCVC:

biˡbegʷanem   √bekʷ- (√bkʷ-)
people   human

Type 5 CaCVC:

baˡbelʼa   √bel- (√bl-)
sexually jealous prevent

This type is just like Type 4b, but the new vowel is a instead of i.

Type 6 CVCeC:

duˡdeqʷela   √duqʷ (√dwqʷ)
see plural   see, look

Here we see the initial consonant AND the vowel of the root repeated, then the reduced form of the root (the two consonants of the root separated by the schwa vowel (e)).

Type 7 CaVC:

caaˈseksala	√ces- (√cs-)	
rush off	swarm, move in a group	
in all directions		

In this type, there is no reduplication but instead a modification of the internal shape of the root. The nature of the modification depends on the shape of the root, as in these examples:

cʼaiˈpiu 'cedar waxwing' √cʼip-/cʼiʼp- (√cʼyp-/cʼyʼp-)

ḡauˈx̄ʷeksala 'squander, scatter berries' √ḡux̄ʷ- (√ḡwx̄ʷ-)

kʼaiˈx̄ʷeksala 'run in all directions' (LR) √kʼix̄ʷ- (√kʼyx̄ʷ-)

cʼaˈmaksala 'point aimlessly' (LR) √ʼcem- (√ʼcm-)

daaˈseksala 'play around diving' (LR) √das- (√dhs-)

One way to think of this is to think of the change of the shape of the word as coming from inserting an a vowel into the root to make the new base.

Type 8 CaCaC:

ḡaˈḡakʼa (LR)	√ḡek- (√ḡk-)
try to get a wifewoman	

In this type we see two a vowels with a repetition of the first consonant.

Type 9 CVsCeC (etc. with new consonant):

buˈsbeqʷʼa	√buqʷ- (√bwqʷ-)	
sea anemone	bud, knob	

Finally, we may have one or another of the previous types of reduplication together with the insertion of a new consonant (here s) in the first syllable. This type should then be further subdivided according to the consonant and the basic type of expansion involved, but since the pattern is rather rare and not very productive, I won't assign special labels to all of the variants, but just lump them together into a sort of "waste-basket" or remainder class. The consonants that may be involved are s lh x ʼ.

The last type is pretty rare and the same must be said for a few other types of root extension, such as those which insert vowels between the last two consonants of a root, as in kʷenʼaˈq 'mink' from a root √kʷenq- or beliˈx(dlem) 'blood' from a root √belk- 'bleed'(compare for Kwakw'ala Boas (1947): pp. 220, 222-223).

Sometimes these reduplications occur together with changes in the first consonants. Common changes are: y for s, l for tl lh:

sayagidemaiˡ   √sak- (√shk-)
take a boat / car ride   travel in a boat or vehicle
tlalakaˡpˀ   √tlak- (√ƛhk-)
canoe race   paddle
lhalag̅aˡlh   √lhaq- (√ɫhq-)
cave, shelter   shade, shelter

6. Some Points of Theoretical Interest.

In this section, we will consider a number of points of interest for theories about what Language in general is like that arise from the facts of Haisla word building that we have sketched in the preceding sections. Common to a number of the points discussed is the belief that when we try to work out how a language works, consider different ways of representing forms, and so on, we are approaching a realistic account of how the language works in the minds of the speakers of the language. In the best of cases, we expect that decisions we make about the structure of the language and representations of its form and interpretation will find some confirmation in the naturalness, ease of learning, and so on, for speakers of the language in such matters as spelling systems and description of principles and rules for the language.

6.1 Syllable Shapes.

Haisla favors certain kinds of syllables, and some of the variations outlined in this paper can be seen as ways of ensuring that these laws or preferences are obeyed when complex words are built up.

Syllables consist of the main vowel or vowel-like sound (em, en, el) and some consonant beginning the syllable (the *onset*) and one or two consonants ending the syllable (the *coda*). The vowel or vowel- like part of a syllable is called the *nucleus* (plural: *nuclei*). The nucleus may be a simple reduced 'shwa' vowel e or a full vowel or combination: i u a aa au ai em en el, the first kind are called *light*, the second *heavy*.

Here are the general principles governing syllable shapes in Haisla:

- **Simple onsets**: syllable must begin with one and only one consonant.

- **Simple codas**: syllables end on at most two consonants, and preferably with only one.

- **Possible coda consonants**: if a coda contains two true consonants (obstruents) the first one is a fricative / spirant: s lh x xʷ x̄ x̄ʷ .

There are a few exceptions to this rule, but the words are probably not Haisla in origin: **mik'²t** 'obsidian (?).'

If we let **v** stand for a light nucleus, **V** for a heavy one, and **C** for consonant, then we can represent different possible syllables in Haisla as follows, with examples:

a. Cv : le ḡe(nem)

b. CV : laa laa(tus) 'au(penc) dem(kʷa)

c. CvC : ses

d. CVC : sems saax

e. CvCC : (lha)q'esg

f. CVCC saxg

Now we can look back at the alternative forms of various suffixes and see that the way the different forms combine serves to keep Haisla words in conformity to these required and preferred forms. First, look at these examples of suffixes that exist in two forms, one with and one without a consonant like **x** at the beginning:

-[x]dema 'place, surface for doing something, equipment, frame'

kʷ'axdema 'chair' from √kʷ'a- 'sit'

c'exilhdema 'easy chair, padded chair' from c'exilh- 'relax inside'

The fact that the suffix has two forms allows the two words to conform to a preferred form with only two consonants forming the transition between two syllables. Now look at one more example:

kʷel'xdema 'bed' from √kʷel- 'lie down'

This example shows that the nucleus **el** works like a vowel and not like a sequence of a vowel and a consonant (so also **em en**). In other words, the root √kʷel- is an instance of the syllable pattern CV and not CvC.

We can take a clue from this fact to raise a question about the nature of some of the other vowels and nuclei in Haisla. Notice how the root √si- is pronounced in two derived words: **sia** 'to pole a canoe' **six'id** 'to start to pole, give one push with a pole': the first word is pronounced in a way that we can represent as **seyaˡ**, the second more or less as it looks with a full vowel **i**. When the vowel we have been writing as **i** comes before a vowel, it is pronounced as **ey** with the **y** acting as the onset of the next syllable; when the next syllable starts with a consonant then the vowel **i** is pronounced as such and forms the nucleus of its syllable. This pattern is pervasive for **u** and the nuclei we have written **em en el**. But now we

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should notice that the nuclei we write u i are pronounced as ew ey [əw əy] when
they occur after back consonants like q x̄ and also h ' and (in Kitamaat Haisla) t
t' p'. Compare the pronunciations of these words:

>   'uˡm'as ['əwm'as]   'big'
>   gukʷ [guxʷ]   'house'
>   ḡuda [ḡəwˡda]   'over there by you'
>   'iuzuaˡ ['əyuzəwaˡ]   'big flood, world flood'
>   k'ibaˡt [k'ibaˡt]   'elderberry'
>   qi [qəy]   'that (remote)'

We can conclude from these observations that the vowels i u and the combina-
tion ey ew are equivalent from the point of view of the Haisla sound system. It is
possible to go even further and suppose that these vowels are even equivalent to y
w, and that their pronunciations are completely predictable from their position in
the syllable structure of the words in which they occur. These facts are reflected
in the various choices that can be made in spelling systems for Haisla: here are
three ways of spelling the word for 'devil's club' according to what we take as the
basic sounds:

>   'eweyˡq'as   'uiˡq'as   'wyq'as

The second spelling is the one adopted in the Lincoln and Rath dictionary (LR),
the third is close to the spelling used in the school Haisla classes 'wiq'as (based
on work by Henry Vink) and is identical to the way roots are represented in LR
(√wyq- for the root of this word). The first way is not used by anyone but is close
to the basic system argued for by the author many years ago for Kwakw'ala (Bach,
1975). Choice of a good spelling system is important and requires consideration
of many factors. I won't go into that here, just urge that communities should not
settle too fast on an 'official' spelling system and that linguists should not push a
spelling system too soon without trying out lots of options with the community in
question.

Another question arises about the variant forms of suffixes: what exactly does
it mean when we represent a suffix like the one illustrated above as we have here:
-[x]dema? Two possibilities come to mind: one, the representation is just an
abbreviation for a list of two alternate forms, -xdema and -dema; two, we might
suppose that the representation is one representation with the possibility of vari-
ation somehow built into it. In the first possibility we need to think that there is
some additional statement or rule telling us which alternant to choose where. In
the second possibility we also have to think about how our one representation leads
to the correct final result. Other things being equal, I think we want to choose the
second alternative if we want to understand and not just record the alternations.

Here's a possible way of following the second option: suppose we think of the
[x] as saying that the consonant x is marked to be a complete coda and nothing

else. Then it will follow that it can only appear in a word if it is standing in a position where it can be attached as a coda to the preceding base, that is, after a vowel or other possible nucleus. We can suppose that this choice is made in a theory that says something like this:

- **Sounds that cannot be integrated into a proper syllable structure are not pronounced.**

This idea goes very well with a general theory about linguistic structure that follows a general principle of Invariance:

- **Assign structure (interpretation, etc.) as locally as possible but in such a way that restructuring (reinterpretation, etc.) is avoided.**

(See Wheeler, 1981, for an account of a theory that works out this and similar ideas in a categorial framework.)

6.2 Glottalizing and Voicing Suffixes.

We are symbolizing the ability of suffixes to trigger glottalization or voicing by writing them with special marks: -! and =. You could ask whether these marks have any real status as speech sounds or phonemes of some sort or if they are just arbitrary marks.

There is one compelling reason to think that these marks have some status beyond signalling the power of a suffix to trigger an end-effect. The reason is that the change takes place exactly at the edge or boundary between the base and the suffix. This is to be expected if the mark is actually some linguistic element, a sound or a component of a sound that is located at the front end of the suffix, since in general speech sounds almost always influence other sounds in their immediate neighborhood. One possibility is that the two marks — ! and = — stand for the properties that characterize sounds that are glottalized or voiced, not full speech sounds, just components or features of such sounds. It is probably not right to try to identify these partial sounds with any other separately existing sounds like the glottal stop ' for the glottalizing component ! or some other sound for the voicing component symbolized by =. This is because when we have suffixes that actually introduce the glottal stop, such as the suffix -[x]'id, the result is not the same as with a glottalizing suffix. There are contrasts like these:

k'alh'id 'fall asleep' (from √k'alh- and -[x]'id)

k'al'ix̄da 'want to sleep' (with suffix -!ix̄da

And in the case of the voicing suffixes marked with = there is no real candidate for an independent speech sound for us to identify with it. But it should be noted that that contact between a stop like t and the glottal stop of the suffix

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-[x]'id does result in a glottalized t' (as in ket'id 'shoot once, start to shoot' from √ket- 'shoot'), so there is some close relationship between the glottalizing feature symbolized by ! and the glottal stop '.

6.3 Strange Changes.

Several of the alternations triggered by the voicing and glottalizing suffixes are hard to understand: the strangest changes are those by which a basic x is replaced by n and n'.

When the basic root ends on a voiceless stop, the changes are straightforward: the stop consonant just becomes its glottalized or voiced counterpart, retaining all its other properties of being a stop articulated in a certain way and place in the vocal apparatus. With the spirants (fricatives)—that is, the sounds s lh x x" x̄ x̄" we can observe an important fact. In only one case—that of lh— does the language actually have corresponding voiced and glottalized sounds in its inventory of sounds, that is, the sounds l l'. In other cases, there does not seem to be a uniform relationship between the last consonant of the base and the result of attaching a glottalizing or voicing suffix. In the case of the rounded spirants x" x̄", the result is the same: loss of the spirant or obstruent component leaving just the rounding component as the nearest full speech sounds of Haisla: w' w. In the case of s, we find two results. There is no glottalized s in the language: the result of adding a glottalizing or voicing suffix is either c' z or y' y. This situation no doubt has a historical basis: present day s must result from two different sounds in the past. But in the present, there is no clear basis for thinking there are two different speech sounds at the basis of s, because there is no uniformity, even with the same root, in whether there is a c-type sound or a y-type sound in the derived word: we find both da'y'inix̄" and da'c'inix̄" 'diver' derived from the root √das- (LR). In the case of the sounds l m n, glottalized sounds result from attaching both glottalizing and voicing suffixes. It is hard to see any principled reason for this fact. Finally, the situation with bases ending on x seems most mysterious: why should glottalizing or voicing this spirant result in nasal n' n? I leave these questions for linguists who are interested in theories of phonetic features and their relationships. BUT I would say that there are often residues of history in the grammars of languages that cannot be reduced to general principles and simply have to accepted as special facts about individual languages.

Final points: sometimes the effects of attaching glottalizing and voicing suffixes are masked: √mex- -!x̄d -ud results in menx̄dud 'punch on the behind' as the glottalization of the n' is absorbed into a plain n in this position. A further complication is that there sometimes appear to be doublets of suffixes with the same meaning as well as suffixes that carry out their effects on only some of the final consonants of bases to which they are attached. In other words, there are many special exceptions and irregularities of the sort we expect in real languages with their own histories.

6.4 Lessons from Root Modifications.

There are three features of root modifications that I would like to point to: first, how modifications are governed; second, the organization of the root into a skeleton of consonants with vowels and vocalic elements fleshing out the forms; third, the availability of the root as a component in deriving new words and bases.

6.41 What Governs Root Modification?

As mentioned above in Section 5, modification of roots can occur as an independent process, as in the formation of plurals for many words, or it can be required by particular suffixes. This situation is very reminiscent of what happens in sentence grammar in languages with case systems. A case system is a way of marking words and phrases to indicate their role as subjects, objects, and so on. Haisla has a fairly minimal case system, showing up in the different forms of pronouns and in the marking of phrases with the oblique or instrumental element *his* or (short form) -s. Some languages have a much more elaborate case system, such as Finnish with its fifteen or so cases. Root modification is something like case marking but *within* a word and not outside of it: as with some case marking there are some meanings associated with special modifications. In Haisla as in many languages, reduplications often go with meanings of plurality, repetition, intensity and the like; and in some instances, the special modification is simply required or governed by some other element in the structure. In sentence grammar, cases are governed by verbs, prepositions and the like. In Haisla word-internal grammar, root modifications are governed by suffixes. This is a big topic and can't be dealt with in detail here.

X̄a'islak'ala exhibits then four different ways in which the form of items can be modified as they are put together:

- automatic changes: these result just by virtue of the sounds that come to stand next to each other;

- automatic alternations: choice of one of several alternate forms of an item is determined completely by the sound structure of the items that are put together and the laws and preferences of the language about the sound structure of syllables and other units (words, phrases, and so on);

- special properties of items that affect the margins between items that are put together;

- requirements of special forms of items that are governed by properties of the governing elements that go together with them, these properties having nothing to do with the sound structures of the governing elements.

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6.42 Consonants and Vowels in Roots.

It is implicit in the way in which the patterns of root modification have been laid out in Section 5 that these roots and their various extended forms are structured in a way that distinguishes between a kind of 'skeleton' of consonants and a kind of 'filling' of vowels or vowel-like elements. You can state the rules for making the various modifications by using this organization, for example:

- repeat the first consonant;

- add a to the vowel or nucleus;

- put the vowel of the root in the first syllable of the derived form and a reduced vowel e in the second syllable, etc.

The details of how these modifications work and how they are related to general facts about sound structures (syllables and so on) in X̄a'islak'aḷa are very relevant to current discussions among linguists about general properties of sound systems in Language and languages.

6.43 Roots as Components of Derived Words.

Look at these examples of derived words:

kʷen'aᴵq 'mink' (√kʷnq-)   kʷaᴵkʷenq'a 'go after mink'
k'enaᴵxʷ 'crab' (√k'nxʷ-)   k'aᴵk'enw'a 'go after crab'

It is apparent that the derived forms for 'going after' here are based directly on the root that underlies the word referring to the relevant object, and that this latter word is itself derived by some pattern of root modification. There are quite a few examples of this situation in X̄a'islak'ala. It shows that the processes of word formation must have access to information about the derivation of a word, specifically, what root it is derived from and must be able to use the root directly in its basic form, stripped of the modification that occurs in the word itself. These facts are of considerable interest again for general theories about how word formation works in languages in general.

6.5 What's a Word?

People often ask: How do you know that a certain stretch of linguistic material should be thought of and written as a single word or not? This is an especially relevant question for a language like X̄a'islak'ala that is outstanding in its ability to build complex words. For X̄a'islak'ala I think you can give pretty cogent reasons for thinking that a certain clump of material constitutes a word:

- words always have a single main stress or accented syllable (very long words sometimes have one or more secondary stresses);

- the kinds of alternations and changes we have looked at here only occur within words and never across words.

The loosest connection comes between words or bases and the grammatical endings for pronouns and demonstratives like -nugʷa 'I,' -ax̄i 'that... (remote),' as well as the connective -s. It is for this reason that they are sometimes called *clitics* (LR). But even here the main stress can fall on the ending as in the word ḡenemaˈx̄i 'that woman (remote).'

Reading X̄aʼislakʼala texts presents obvious challenges: to understand individual words fully, you need to know about all the various alternations and changes we have discussed in this paper. To study the language, there are certain obvious tools that are needed: a dictionary of all the words of the language with an index from English to X̄aʼislakʼala or a separate English-X̄aʼislakʼala dictionary; a root list; a dictionary or list of the suffixes used in deriving words; a grammar describing the ways in which words are built and how they are put together into sentences. Finally for learning, some texts with analyses of each word into its parts, as well as the usual pedagogical presentations of the language with lots of practice exercises as well as tapes, video tapes, and so on. Only some of these aids exist now. It is to be hoped that more such aids will be made available in the near future both for the community of Kitamaat Village and members of the Haisla Nation in other places as well as for the outside world so that it will be possible to retain and increase knowledge about this fascinating language.

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SPELLING: In the spelling used here e always stands for schwa (ə), back velars are
overlined ($\bar{g}$, $\bar{x}$), ai and au stand for open E and open O respectively, glottalized
consonants are marked with (following) ' , which also stands for glottal stop (ʔ), lh
is voiceless l (ɬ), and the lateral affricates (λ ƛ) are indicated by dl and tl . Note
that this spelling includes explicit indications of many vowels that are doubtless
predictable (epenthetic) and resolves syllabic sonorant elements into sequences of
e and sonorant. Stress on words is indicated by writing ! after the most prominent
syllable.

Here is a summary of the sounds and spellings used here:

stops and affricates:

voiced:	b	d	z	dl	g	$\bar{g}$
rounded:					g^w	$\bar{g}^w$
voiceless:	p	t	c	tl	k	q
rounded:					k^w	q^w
glottalized:	p'	t'	c'	tl'	k'	q'
rounded:					k^{w}'	q^{w}'

spirants:

		s		lh	x	$\bar{x}$
rounded:					x^w	$\bar{x}^w$

liquids, nasals:

plain:	m	n		l
glottalized:	m'	n'		l'

glides

plain:	w		y
glottalized:	w'		y'

laryngeals:

	h		'

vowels:

	i		u
	ai		au
		e	
		a, aa	

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