however begun recording the features of the morpho-syntactic behavior of such limited predicatives as all 'precisely that one; so' and *'s'we 'not' and have found these features to be different from those of both auxiliaries and open-class predicatives. I have therefore said that the pronominal as the only obligatory member of AUX.


It follows the first consonant in CC initial bases, preceded by a presumably
epenthetic shwa, and it has no glottal stop.

In Co initial bases, where shwa is unstressed, the infix could be analyzed
again as following CV, although it has no glottal component and generally it
is not followed by shwa (unlike other cases where the base is CV, as in (5)),
hence it more closely resembles the CC cases.

In addition, the glottal segment is lost if the infix is followed by a
voiced sonorant.

Note that the loss of /ʔ/ does not depend on the vowel preceding the infix,
applying to the plurals of Ci and Co initial bases as well as the simpler
cases.

3. PLACEMENT

It strikes me that the major problem is accounting for the distribution
of the infix with respect to tense vowels—that it appears to precede strong
syllables and to follow others. At least three analyses are not implausible:

i. the infixation rule is sensitive to strong syllables, inserting
the infix before the vowel in just this case;

ii. the infix always immediately follows the first consonant and a
preceding tense vowel is actually a copy;

iii. strong syllables receive early stress and the infixation rule is
sensitive to this, inserting the infix before the vowel just in
 case it is stressed.

This section focuses on these alternatives. While (ii) seems preferable to
me, (iii) may be a viable alternative, although it requires the mixing of
levels.

3.1. Analysis I

The first alternative seems the most straightforward, as it is simply a
restatement of the distributional facts. We can say that the infix follows
the first vowel (if there is a vowel), but follows the first consonant if the
syllable is strong. I will assume hereafter that long vowels are geminate
(W), although this is not a necessary assumption.

Rule 1: Infixation (I)

This schema decomposes into two disjunctively ordered rules:

- syllabic
  a. \( \emptyset \rightarrow +^?1+ / [CV] \) +(voice)
  b. \( \emptyset \rightarrow +^?1+ / [C] \) +(voice)

(Elsewhere, /+1+ is inserted after the first consonant.)

Additional rules will be required in accounting for the distribution of
shwa, as indicated by the following derivations.

Rule 2: Epenthesis (CS)
I assume that the unmarked value for an epenthetic vowel in Cowichan is that of shwa.

The shwa following the infix in the derivation of (4) is more of a problem, since there is evidence that /ʔ/ plus a nonsyllabic sonorant merge to form a glottalized sonorant (Hukari, 1981) and glottalized sonorants may be realized as Sʔ when followed by a consonant, where an epenthetic shwa does not occur:

(19) h6yʔqw burning (progressive)
(20) đeʔlʔq getting tangled (progressive)

This may involve conditions which are as yet not understood, however, so let us assume tentatively that shwa is inserted in forms such as (4) by the following rule:

Rule 3: Epenthesis (?SC)
\[ \emptyset \rightarrow V/\{\text{syllabic} \ + \text{sonorant} \} \cdot C \]

A further problem is the fact that unstressed Cs initial forms seem to pattern like CC initial bases, since the infix lacks /ʔ/ and there is no following shwa (cf, 10) unless the infix is followed by a sonorant, as in (21).

(21) a. xʷonifotm white man
    b. xʷoninítm PL

All the relevant unstressed shwa forms found to date can be ascribed to the phonotactics of Cowichan; that is, the initial sequences SC or CS are not possible surface forms. The insertion of /a/ in these contexts after infixation will account for this. A third epenthesis rule will handle this:

Rule 4: Epenthesis (*SC)
\[ \emptyset \rightarrow V/\{\text{syllabic} \ + \text{sonorant} \} \cdot C \]

(Shwa is inserted between an initial sonorant and a following consonant.)

This rule takes care of sonorant-initial forms such as (22). Obstruent-initial forms such as (21a) undergo Rule 2.

(22) a. mstiʔma\ ~ person
    b. málstiʔma\ PL

These shwa-insertion rules are highly tentative and will clearly require refinement in a more encompassing analysis of Cowichan phonology. For example, (2a) violates Rule 2 (although there is a morpheme boundary between /l/ and /m/ which may be relevant).

We can assume that the epenthesis rules follow infixation, as in the following derivations.

<table>
<thead>
<tr>
<th>infixation (a)</th>
<th>mstiʔma\ (22)</th>
<th>mstiʔmx\ (22)</th>
<th>ʔm-ʔl-ʔm (4)</th>
<th>sʔ-ʔl-ʔm (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>infixation (b)</td>
<td>m-stimix\</td>
<td>m-1-stimix\</td>
<td>ʔm-ʔl-ʔm</td>
<td>sʔ-ʔl-ʔm</td>
</tr>
<tr>
<td>epenth. (R2)</td>
<td>m-stimix\</td>
<td>molstimix\</td>
<td>ʔm-ʔl-ʔm</td>
<td>sʔ-ʔl-ʔm</td>
</tr>
<tr>
<td>epenth. (R3)</td>
<td>m-stimix\</td>
<td>ʔm-ʔl-ʔm</td>
<td>sʔ-ʔl-ʔm</td>
<td></td>
</tr>
<tr>
<td>epenth. (R4)</td>
<td>mstiʔma\</td>
<td>mstiʔma\</td>
<td>ʔm-ʔl-ʔm</td>
<td>sʔ-ʔl-ʔm</td>
</tr>
</tbody>
</table>

Stress placement will be considered in section 3.2 below.

Analysis I may be missing a significant generalization, despite the fact that it seems to be observationally adequate. Strong syllables are exceptional in reduplication as well as in infixation, since they retain their full quality rather than reducing to shwa. For example, the progressive (CV-) reduplication vowel is reduced in strong syllable forms instead of the base vowel.

(23) a. gaf\-qat sew it
    b. gaf\-qat PROG
(24) a. seʔt lift it
    b. səʔt PROG

Similarly, the diminutive prefix normally copies a tense vowel (CV-) and is Cʔ- if there is no vowel (or the base vowel is shwa), while the base vowel is lost. However a strong syllable is retained and the prefix is Cʔ-.

(25) a. s-ʔepəʔ uncle/aunt
    b. s-ʔepəʔ DIM
(26) a. s-k-ʔm basket
    b. s-k-ʔm DIM

The fact that this phenomenon extends across three separate morphological processes cries for an explanation.

3.2. Analysis II

It seems highly likely that the exceptional behavior of strong syllables is a stress-related phenomenon, considering the fact that Cowichan is a stress-timed language in which unstressed vowels reduce to shwa. That is, the shwa vowel in the progressive of (24b) and the shwa preceding the l-infix of (7b) may be consequences of assigning stress to some other syllable. Suppose, then, that the infixation rule always copies the first vowel of the base, if there is one, as in the following rule.

Rule 5: Infixation (I)
\[ \emptyset \rightarrow +\{v\}_{1}/1+c \rightarrow \{v\}_{1} \]
The presence or absence of a tense vowel before the infix in cases where the vowel is copied will depend on subsequent stress assignment rules. Whether vowel receives stress will retain its quality, while an unstressed vowel will reduce to shwa.

I will assume that a base (root) syllable receives stress if it is in base-final position (ignoring at least any inflectional suffixes). This rule may be formulated as follows, assuming long vowels are geminate and /?/ is a sonorant (cf., Chomsky and Halle, 1968).

**Rule 6: Strong Syllable Stress (SSS)**

\[ V \rightarrow [+\text{stress}] / [+tense] / [+\text{sonorant}] / [-\text{syllable}] / [+\text{voice}] \]

A number of putative counterexamples to this analysis exist, although I believe the vowel in question can be analyzed as shwa and that it tenses after Rule 6 applies. In such cases the quality of the vowel is predictable. It is generally /e/, but may be /a/ under certain conditions, as in (28) where the preceding vowel is /a/.

(27) mëqeʔ snow
(28) Ÿাসাʔ lake, swamp

There is considerable evidence that shwa tenses to /e/ or /a/ when followed by /?/ in Cowichan, although further discussion of this goes far beyond the bounds of the present study.

A second rule relevant to the present analysis (but most certainly not the only remaining stress rule) handles the cases where the copy vowel is stressed, call this the **Main Stress Rule**.

**Rule 7: Main Stress Rule (MSR)**

\[ V \rightarrow [+\text{stress}] / C^n / [-tense] / C / [+tense] \]

(The first tense vowel in a base is stressed, otherwise, stress the first vowel (shwa).)

Leaving aside the interaction of roots and lexical suffixes, which I will not attempt to account for here, this rule has putative counterexamples involving stress on the second of two shwa vowels. Consider the following examples.

(29) masdůt fill him/her
(30) masdůt swallow

I will assume, along the lines of the previous section, that unstressed shwa, as in (31) is epenthetic and that (30) has an underlying shwa.

The reduplicative prefix of CaC roots also appear to be counterexamples to Rule 7, since the root is stressed (unlike the reduplication of tense vowels, where the prefix is stressed).

(31) a. tat get close
   b. tatšə PROG
(32) a. šaməm weave
   b. šaməm PROG

These constitute more serious counterexamples and suggest that Rule 7 should be reformulated to handle tense vowels only, with other rules for assignment of stress to shwa.

**Rule 7': Main Stress Rule (MSR)**

\[ V \rightarrow [+\text{stress}] / C^n / [-tense] / C / [+tense] \]

Further discussion of shwa stressing will be omitted here, as a more encompassing analysis of epenthesis seems warranted. Rules (6) and (7') suffice for the discussion at hand.

The following derivations are representative of Analysis II, with the exception of Rule 3, the epenthesis rules remain as in Analysis I. Rule 3 is no longer needed, since the shwa following the infix in (4) is now a reduced form of the base vowel.

A vowel reduction rule is needed to convert the tense unstressed vowels in (4) and (6) to shwa. I assume that a lax vowel has the specification of shwa.

**Rule 8: Vowel Reduction**

\[ V \rightarrow [-tense] / [-\text{stress}] \]

This rule will of course apply after Rule 6 and Rule 7'. I will return to the loss of /?/ in forms such as (6) below.

The tense vowel (/e/) in plurals of Ca bases with initial stress remains to be explained. If these are the only cases of underlying shwa in this position, a rather simple explanation exists in Analysis I, that /-ʔI-/ is inserted after the vowel, which triggers a tensing rule, as in (27) and (28).
It is not clear that a similar analysis will work here. While it is true that unstressed initial Ca can be handled in the same fashion (since the infix will then lack /?/, being inserted into underlying CC), strong syllable bases such as (6) create a problem unless glottal stop is eliminated in these forms before tensing applies, since the preceding vowel will become tense even if it has once been lax. The as-yet unformulated rule deleting glottal stop when the infix is followed by a sonorant (cf. examples (16)-(18)) is of no use, since this must apply after tensing in (18) if glottal stop is to trigger the tensing rule.

\[(18)\ a. \text{C6jx} \quad \text{dry} \]
b. \text{C6lij}x \quad \text{PL}

While a number of solutions seem possible at this point, let us suppose the infixation rule copies all nonback vowels as /e/. Or, rather, that a tense vowel is inserted and that it agrees only with back vowels, the unmarked case otherwise being /e/, as in (27).

Rule 5': Infixation (II)

\[ \emptyset \rightarrow +1/C \left\{ \begin{array}{l}
+\text{tense} \\
+\text{back} \\
+\text{high} \\
\end{array} \right\} \]

This analysis will then account both for the apparent tensing in Ca initial bases (stressed) and the apparent lowering of /i/ to /e/. This analysis requires of course that unstressed shwa be epenthetic or otherwise it would wrongly predict that the plural of a form such as (10) would have /e/.

3.3. Analysis III

The third analysis is a modification of the first, incorporating Strong Syllable Stress and hence increasing descriptive adequacy. That is, infixation is ordered after Strong Syllable Stress but before Main Stress, and it is sensitive to stress. The infix follows the initial consonant and any (as yet) unstressed vowel.

Rule 9: Infixation (III)

\[ \emptyset \rightarrow +1/C \left\{ \begin{array}{l}
V \\
\text{[-stress]} \\
\end{array} \right\} \]

Here, as in Analysis I, underlying shwa will be tensed when followed by glottal stop and a special lowering rule, which is apparently morphologically conditioned, applies to /l/. I leave these for the reader.

While this analysis overcomes the problems of Analysis I, it forces us to assume that infixation is ordered between two stress rules. While we may not be able to dismiss the mixing of morphological and phonological rules out of hand, an analysis which does not require this assumption should be more highly valued, all things being equal. For this reason, I prefer Analysis II.

4. GLOTTAL DELETION

A rule deleting glottal stop in the l-infix is clearly needed in all three analyses and has not been formulated above. In addition, Analysis II requires the deletion of glottal stop in the infix before strong syllables. The latter context is not necessary in the other two analyses, since the infix immediately follows the initial consonant as in CC-initial bases, so it has no glottal component. It is, however, possible to formulate the rule so that glottal stop is deleted in all relevant contexts of Analysis II, since the second component of a strong syllable is a sonorant (i.e., VV and V?).

Rule 10: Glottal Deletion

\[ ? \rightarrow \emptyset / +V \quad l+V_{[+\text{sonorant}]}} \]

While the rule is formulated here only to apply on the l-infix, a similar phenomenon occurs in diminutives, although it is not clear that the two cases should be formulated as one rule.

As noted above, the diminutive reduplicative prefix is C6j- or CV?. But the glottal stop is deleted if the second consonant of the base is a nonsyllabic sonorant.

\[(33) a. \text{s-}\text{-k} \text{en} \quad \text{woman} \\
b. \text{S-}\text{-k} \text{en} \quad \text{DIM} \]

\[(34) a. \text{hewt} \quad \text{rat} \\
b. \text{h} \text{eh} \text{ow} \text{t} \quad \text{DIM} \]

A strong syllable, however does not form an context for glottal deletion in diminutives.

\[(35) a. \text{s}\text{-}\text{k} \text{6} \text{q} \text{m} \quad \text{basket} \\
b. \text{s}\text{-}\text{k} \text{6} \text{q} \text{m} \quad \text{DIM} \]

\[(36) a. \text{m} \text{it} \text{f} \quad \text{blue grouse} \\
b. \text{m} \text{it} \text{f} \quad \text{DIM} \]

While it seems reasonable to expect the two cases of glottal deletion to be subsumed under one generalization, I will not attempt to do so here.

5. CONCLUSIONS

Three possible analyses of l-plural infixation in the Cowichan dialect of Halkomelem have been examined. The second and third both provide explanations for the exceptional behavior of strong syllables (VV or V?) in a way which allows for a generalization to be captured in three separate morpholo-
logical constructions. In the second analysis, infixation is, in part, a copying rule in which a tense vowel is inserted and assimilates to following back vowels, but reduced to shwa if not stressed. Stress fails to apply if the next vowel undergoes Strong Syllable Stress. The third analysis assumes that Strong Syllable Stress (but not Main Stress) precedes infixation, determining the placement of the infix before or after the first vowel. While both rules seem descriptively adequate in so far as their consequences on the rest of the phonology have been determined here, the second analysis seems preferable, as it does not require the ordering of infixation, a morphological rule, between two stress rules.

FOOTNOTES

1. This work was supported in part by a grant from the Social Sciences and Humanities Research Council of Canada. My thanks go to Ms Ruby Peter of Duncan, B.C. Without her patient help the project would have been altogether impossible.

2. I have recorded various stress contours in such forms. Shwa probably receives at least a secondary stress due to the following consonant cluster. However the initial syllable of citation forms has high pitch, which I often misinterpret as stress.

3. This may be /ci?lo?y+?/ at some level, where shwa reduces out, as unstressed [ay?] and [i?] seem to be alternate pronunciations, as in [pi?li?] or [pi?lo?y]; 'bark'.

4. I would have predicted /g6?o?lt/, as apparent metathesis usually occurs when a sonorant is followed by a homorganic obstruent in this position:

 REFERENCES


A Contribution to Puget Salish Lexical Studies
Nile Thompson

This paper is intended as an augmentation to information already found in Hess's Dictionary of Puget Salish. Proposed etymologies, utilizing data from closely related Twana, are followed by a preliminary chart showing the lexical selection process for the concept FALL. The symbol # is used to indicate roots, + for lexical affixes, - for syntactic affixes and = for lexical adjectives (Hess's "lexical connectives").

1. #bal+i ('busy' + 'head') forget
   cf Twana bibal?al?ad (bi-#bal-al-#ad), "I've been busy"
   k?i (k?i + i) "tumpline" - literally, "hangs from head"
   The Twana lexical suffix i most specifically refers to the forehead region.

2. #bal+ups ('stripe' + 'tail') raccoon
   cf Twana b?layas (#b?layas), raccoon - literally, "striped eyes"
   as?bal, "it has stripes" (as- is the stative aspect marker)

3. #bal+idg?as ('stripe' + 'body') bluebill
   cf Twana as?bal, "it has stripes"
   This Puget Salish duck name refers to the lesser and greater scapts (Aythya affinis and marila). The lower, central body portion of these ducks is white while the head and neck area, and tail area is black; produces a white striped body appearance.

4. s-#c'aal+ic ('stand up' + 'back') backbone
   cf Twana asc' lap, "they're standing up"

5. s-#c'ap+ialc ('submerge in water' + 'surface') swamp
   cf Twana bic'ap'ilas, "the tide is coming in"
   The Puget Salish lexical suffix +ialc has the meaning "top, crest, surface" (Thom Hess, personal communication).