Truncation, -i Suffixation, and Extended Vowel Length in Coeur d'Alene[1]

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0. In Coeur d'Alene most morphemes and therefore most words end with one or more consonants. In some cases, a rule of truncation deleting all segments following the stressed vowel results in a stressed vowel in word-final position. In other cases, the suffix -i is affixed to a word following all other morphology, again creating a stressed vowel-final construction. In both cases the word-final stressed vowel is subject to an optional rule of stressed vowel lengthening, where the duration of the vowel is extended beyond that of other, phonologically predictable long (unstressed) vowels, and its pitch is raised, giving the vowel a song-like quality.

The rule of stressed vowel lengthening meets Woodbury's (1987) criteria for classification as a meaningful phonological process. Stressed vowel lengthening and -i suffixation overlap in semantic range, but their application is in separate parts of the grammar, one in postlexical phonology, the other in the morphology. All three rules are dependent on stress placement, and the lexically assigned stress of Coeur d'Alene makes the application of these rules difficult to predict.

The data so far are limited. In sections 1-3 I will describe each process, and in section 4, the rules governing these processes and their interaction.

1. Stressed vowel lengthening. Stressed vowel lengthening is a discourse device used to indicate some unusual augmentation, either of amount, effort, or duration of the item or action indicated. Stressed vowel lengthening most often occurs on the stressed vowel of otherwise unmodified forms (that is, forms not truncated or -i suffixed), though it may follow a rightward shift in stress that would not otherwise take place. In the following examples, the italicized words in (a) are the normally occurring, regularly stressed constructions; those in (b) are the lengthened forms.[2]

(1) a. hɔy ʔenís xʷiʔe šéʔut   (PR15)
       'So he went this Rock'

    b. xʷe šštɔ́t ʔení··s   (PR1)
       'The little Rock, he was going along'

(2) a. ... ɬ c'áw'ncut   (PR41)
       'and he washed himself'

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[2]Data presented in this paper are from various sources. Examples taken from Reichard's (n.d.) unpublished texts are referred to by text number (in Roman numerals) and page; those from Nicodemus' 1975 dictionary are referred to as LND; examples from my own notes are indexed with the notebook number and page; PR (Potty and Rock) and CM (Coyote and Mole), with line numbers, refer to two of Margaret Stensgar's stories.

(2) b. ... ɬ c'á··w'ncut   (PR33)
       'and he washed himself'

(3) a. súm'ncut   (PR34)
       'he sniffed himself'

    b. uɬsum'ncú··t   (PR39)
       'again he sniffed himself'

(4) a. kʷum' xʷiʔɬ ntédš ɬe ylmíxʷəm   (I 20)
       'then here the chief swam'

    b. kʷum' ntedí··š   (I 20)
       'then he swa··m'

(5) a. ʔecʔémut   (XIX 1)
       'he's sitting there'

    b. ʔecʔemú··t   (XIX 5)
       'he's sitting there'; 'he's just sitting there';
       or 'he's sitting there a while'

The forms in 1 and 2 show that in certain words, a stressed vowel can be lengthened regardless of its position within the word. The forms in 3-5 show that in other constructions the normally stressed vowel loses stress to a following stressable vowel, which is then lengthened. Comparison of 2 and 3 indicates that, though the tendency is to lengthen the rightmost vowel, certain roots appear to retain stress even when a stressable vowel follows.

Vowel lengthening applies to single syllable words as well:

(6) a. xʷist   (VII 10)
       'he went'

    b. xʷi··st   (VII 10)
       'he went'

In many of the texts recorded by Reichard (n.d.), who identifies length in the same manner used here, the lengthened form follows an otherwise identical unlengthened form:

(7) hɔi xʷist hɔi xʷi··st ɬe smyíw.   (VII 10)
    'then he went and went Coyote'

(8) hɔi ʔiɬn ʔi··ɬn.   (VII 11)
    'then she ate, she a··te'

The repetition of the form contributes to the augmentative indicated by lengthening.

2. Truncation. The following forms are examples of truncation, a process which, like English contraction, seems to be used as a matter of convenience. In these examples, the (a) form is truncated, the (b) form unaltered and shown with morphemic analysis.

(9) a. niʔ sc̓ew̓eníʔ?   'Is he a giant?'   (2.8)

    b. sc̓ew̓eníneʔ   'giant'   (2.9)
       s-√c̓w̓-n=ineʔ

(10) a. tk̓ʷark̓ʷaré   'orange (fruit)'   (3.69)

    b. tk̓ʷark̓ʷaréqeʔst   'orange (fruit)'   (3.69)
       t√k̓ʷar+√k̓ʷar-eq=iʔst

(11) a. st̓m̓á   'buffalo'; 'cow'   (3.55)

    b. st̓m̓áltmš   'buffalo'   (1.13)
       s√t̓m̓-alt=mš

(12) a. ʔe st̓šá   'huckleberries'   (10b.2)

    b. xʷe č̓čés st̓šástq   'when we go huckleberrying'   (10b.1)
       s-√t̓š=astq

In all of these cases, the material deleted is never equivalent to a full morpheme, evidence that the process of truncation is phonological rather than morphological. The stressed suffix vowel is retained, and all following material is deleted, including subsequent morphemes as in (10) and (13):

(13) a. hnq̓ʷəq̓ʷosm̓í   'dog'   (LND)

    b. hnq̓ʷəq̓ʷosm̓íčnšn   'dog'   (1.13)
       hn-q̓ʷ+√q̓ʷus-m-<ʔ>=ičn=šin

In several cases, analysis of the truncated form is unclear. The form in (14a) may be analyzable as shown in (14b); both forms are taken from Reichard's texts.

(14) a. ɫe ʔatmalk̓ʷmá   'all day'   (I 2)

    b. ʔatmálk̓ʷmalk̓ʷ   'all day long'   (VI 5)
    (?) ʔe(c)-t-√melk̓ʷ+melk̓ʷ

Comparison of these forms suggests that a reduplicated root is truncated, as also occurs in the diminutive form shown in (15):[3]

(15) g̓ʷəɫcx̓ʷəx̓ʷí··   '(he gave) each a little'   (XXI 6)
      g̓ʷɫ-ʔec-x̓ʷ+√x̓ʷic(-n-t-s)

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[3]This form also shows vowel lengthening. See sections 1 and 4.

However, Coeur d'Alene does not elsewhere allow full reduplication of CVCC roots, making the analysis and the form shown in (14b) unlikely.[4] Instead, the attested form and analysis in (16) is more likely the base for the regular truncation resulting in the form in (14a).

(16) ʔatməlk̓ʷmásq̓it   'all day long'   (10b.4)
    ʔe(c)-t-√melk̓ʷ-m=asq̓it

Several roots may themselves be truncated. In the following cases, each relatively common root forms a word by itself. In general, it seems that the roots that truncate do so only when they occur alone, without morphological (particularly infix or suffix) modification.

(17) a. ʔaxí··   'now'   (VIII 20)
      √ʔχiw̓ɫ

    b. lu   'no'   (II 4)
      √lut

    c. xʷu··   'go'   (XXII 3)
      √xʷuy

    d. ʔíčsnlú   'it was very thirsty'
      ʔic-č-s-n-√lup

    e. ʔení   'leave'; 'go'   (III 5)
      √ʔenis

The second root in a simple compound construction may also truncate:

(18) meʔí   'what'   (1.18)
    √meʔ-√(h)ičeʔ

All the forms in examples (9)-(18) show truncation following the stressed vowel of either a (compound) root or a lexical suffix. There is also at least one case (19a) where it appears that the stressed vowel of a grammatical suffix is the point of truncation. I have not yet found a full equivalent to this form. Possible analyses include a truncated continuative benefactive (19b), as suggested here, or a continuative indefinite intransitive with -í suffixation (19c):

(19) a. ʔicq̓ec̓mší··   'She kept knitting'   (V 3)

    b. ? ʔicq̓ec̓mšíc   she kept knitting (for someone)
       ʔic√q̓ec̓-m-ši-t-s

    c. ? ʔicq̓éc̓mš   she kept knitting (it)
       ʔic√q̓ec̓-mš

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[4]The form in (14a) is very unusual. Not only is the apparent reduplication outside the regular rules of CVC reduplication, the root, √melk̓ʷ *whole*, here has its vowel lowered to *a* without the influence of a following pharyngeal or uvular consonant. I suspect that the form reflects some error or else indicates more complex phonology and morphology than is addressed here.

Examples (15) and (17a, c) (and possibly (19a)) show truncated forms in combination with stressed vowel lengthening. Like the sequences shown in (7) and (8), these lengthened truncated forms often occur immediately following an unaltered equivalent:

(20) hɔi   xʷu·y ɬuw'a yáʕcən yaʕcí·· ʔicʼexʷúsms   (xiii 6)
      hɔy   √xʷuy ɬuw'a √yaʕ=cin √yaʕ=cin ʔic√ʔexʷ=us-m-s
      'then she went to that shore, the shore she looked for him'

3. í suffixation. The truncated forms shown in (15), (17a) and (18) look very much like forms that result from the application of a rule of -í suffixation. Examples of -í suffixation include the following, taken from Reichard (1938:S569), who states that this suffix implies "exaggeration or emphasis, particularly on the duration or force of an action."[5]

(21) a. muqʷ-ʊntEm-í....   'many heaps (of meat) were made'
          məqʷəntmí··
          √maqʷ-n-t-m-í

      b. än-tcʼi-tcʼin'-í...   'small thing was in it'
          ʔenčʼčʼən'í··
          ʔɛ-(h)n-čʼ+√čʼen'(ɛʔ)-í

      c. cEl-Em-í...   'he chopped hard and long'
          šɛləmí··
          √šɛl-m-í

      d. pEs-pEs-t-ä´   'it was an astonishing incident'
          pəspəsté
          √pas+√pas-t-í

The regular, unexaggerated equivalents of the forms in (21) are listed in (22):

(22) a. máqʷəntmet   'we piled them up'   (3.12)
      b. čʼčʼén'eʔ   'a small piece'   (LND)
      c. šéləm   'It was chopped'   (LND)
      d. páspst   'It is astonishing'   (LND)

Wherever the accent may fall in the regular form, it is shifted to the -í suffix where it occurs.[6] In most cases, the -í suffix is also lengthened; example (21d) and the forms listed in (23) are a few of the exceptions:

(23) a. ʔeʔuɬʼuʔpí   'a dry spot'   (xix 7)
          ʔe-ʔu-ɬʼ+√lup<ʔ>-í

      b. ʔeťʼəkʷʼí   'there lay a deer'   (xix 8)
          ʔe-ťʼ+√ťʼekʷ-í

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[5] The forms are given, with their glosses, as Reichard (1938) presents them, followed by a transcription in modern orthography and my analysis of their structure.

[6] There is one exception in my notes: ttúpi 'it remains cool' (LN 3.25).

(xix 20)
c. xʷa spʼɔcʼmé   'just dung'
    xʷe s-√pʼɔcʼ-m-í

d. hɔi čeɬpukʷmí   'then it was poured'   (xxii 14)
    hɔy čeɬ-√pekʷ-m-í

e. čicpʼpʼeʔxʷʼí   'twinkle'   (xxiv 13)
    čic-pʼ√pʼexʷ<ʔ>-í

f. čiʔťʼťʼeʔťʼeʔčmí   'it showed ever so little' (xx 4)
    čic-ʔic-ťʼ+ťʼiʔ+√ťʼič<ʔ>-m-í

Several of these examples (23a, b, e, f) use diminutive morphology (reduplicated C₁ and -ʔ- infix), which may contrast with and prevent the augmentative vowel lengthening. However, length and diminutive morphology do cooccur; compare (23e) and (24):

(24) pʼpʼeʔxʷʼí··   'it twinkled from far off'   (i 26)
      pʼ+√pʼexʷ<ʔ>-í

Comparison of the forms in (21) and (22) clearly demonstrates that the final -í is a unique suffix, though it is not clear whether the -í form is the complete suffix or the result of truncation of some longer suffix or suffix combination that carries the exaggerative meaning. However, very rarely do passive (22a) or middle (22c, 23c, d, f) forms take suffixation beyond -m; it is even less common for transitive forms to take any suffixation beyond the personal pronoun (including reflexive and reciprocal) markers.[7] The transitive constructions in (25-27) have no comparable forms with truncatable suffixes following the transitivizer-pronoun sequences. The (b) forms in these examples show the unsuffixed counterparts to the transitive forms in (a).

(25) a. hɔi gʷgʷarncí··   'then he scraped it a little'   (v 1)
          hɔi gʷarcí··   'then he scraped it'

      b. gʷgʷárnc   'he scraped it a little'

(26) a. uɬɬəxʷncí··   'again he sewed (it)'   (xv 10)

      b. uɬɬéxʷnc   'he sewed him'

(27) a. kʷeʔkʷeʔncí··   'it chewed and chewed'   (xix 13)

      b. kʷʼíʔnc   'he bit into it'

These observations strengthen the claim that -í is the full form of the suffix, and that this suffix has special status in both placement and function. Saanich (Coast Salish) has a suffix of similar shape, -í, defined as PERSISTENT, which indicates that the activity being described with use of this suffix 'continues past inception as a state' (Montler 1986:54; also 158-9). Inclusion of the PERSISTENT suffix in a Saanich word triggers an unusual rule of metathesis, the effect of which is to move this stressed suffix rightward to replace a suffixal schwa. The shape, meaning, and rightward tendency of both the Coeur d'Alene and

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[7] The few cases where transitive forms are extended by suffixation are instances where retransitivization occurs. There is no element in retransitivizing suffixes that could be reduced by truncation to -í and carry exaggerative meaning.

Saanich suffixes suggests that they are cognate, and that similar forms may exist in the other Salishan languages. Spokane, for example, has a NON-PERFECTIVE word-final suffix with allomorphs -mi/-i (Carlson 1989:v); like the Saanich PERSISTENT, this Spokane suffix does not always claim stress, as does the Coeur d'Alene -í. If these suffixes are cognate, I would guess that the Spokane -mi is not an allomorph of the PERSISTENT, but instead is the combination of the MIDDLE suffix with the PERSISTENT (see section 5).

Like forms with lengthening alone, -í suffixed forms often occur in discourse immediately following an unsuffixed (and unlengthened) form:

(28)	uɫčú?m čuʔmí··	'Again he cried and cried'	(vi 2)
	čuʔmí··	'a long time he cried'	(xxiii 17)
(29)	hɔi uɫšécm uɫšəcmí··	'Then again he dug, again (he) du··g'	(xix 14)
(30)	utmiš sp'ɔc' xʷa sp'ɔcmé	'only dung, just dung'	(xix 20)

4. Rules and interaction. The processes of truncation, vowel lengthening and -í suffixation in Coeur d'Alene often result in forms with similar shapes: truncation and -í suffixation both create unusual vowel-final words, and lengthening may apply to either; all three rules are dependent on stress placement. The rules, however, are distinct, and each applies at a separate level of word formation.

Vowel lengthening and -í suffixation both add an element of meaning to the forms they affect. Though throughout this paper the glosses provided are vague on the specific interpretation of the altered forms, both processes add some element of augmentation that is quite clear when one hears a story told.

The similarity in meaning of -í suffixation and vowel lengthening suggests that the two processes are predictable variants of a single rule that lengthens and stresses the rightmost stressable vowel in a word; in cases where a stressable vowel is not present, the rule would require suffixation of -í, which is then available for lengthening. For example, the forms in (31) could be considered a contrasting pair:

(31)	a.	xʷí··st	'he went'	(vii 10)
		√xʷist		
	b.	dəxʷtí··	'he fell'	(iv 10)
		√dexʷ		

Stress is lexically assigned in certain Coeur d'Alene morphemes; that is, stress may be considered a phonological feature of a specific morpheme vowel. To account for (31), assuming identical meaning for the lengthened forms, one would have to assume that the vowel of the root √xʷist carries stress, while the vowel of √dexʷ does not. The added component of augmentation or exaggeration would result in similar interpretation of both forms, i.e. that the activity or distance is longer or farther than normally expected.

However, the fact that -í suffixation may occur without subsequent lengthening, as is evident in examples (23e) and (24) (repeated here as 32a, b) and the fact that a single root may occur with either root vowel lengthening (here with truncation) or -í suffixation and lengthening (example 33) confirm that the two are distinct rules:

(32)	a.	čicp'p'ɛ?xʷí	'twinkle'	(xxiv 13)
		čic-p'√p'exʷ<?>-í		
	b.	p'p'ɛ?xʷí··	'it twinkled from far off'	(i 26)
		p'+√p'exʷ<?>-í		

(33)	a.	č'u··	'he cried'	(CM 136)
		√č'um'		
	b.	č'uʔmí··	'he cri··ed'	(xv 10)
		√č'um'-í		

For the moment, I will identify -í suffixation as the PERSISTENT suffix and vowel lengthening as EXTENSION, though further study of their use in narrative is necessary to accurately describe their apparently distinct functions.

4.1. EXTENSION. Woodbury's 1987 theory of Revised Double Articulation maintains that optional rules of postlexical phonology can bear meaning. He states:

> For whatever may be formulated as an optional process bearing linguistic meaning, treat it as a rule in the phonology of a generative grammar only if:
>
> A. It refers crucially to features of phonology in its structural description.
>
> B. Its structural description, structural change, and effects on meaning are regular, predictable, and general (i.e., referring to natural classes rather than arbitrary lists of elements).
>
> C. Its output is not referred to by any rules or distributional patterns in the syntax or lexicon. (1987:5)

As an optional meaningful rule, EXTENSION is candidate for treatment as a *meaningful phonological process* in Coeur d'Alene. EXTENSION meets all three principles of RDA: (A) it refers to features of phonology in its structural description; (B) its effect in structure and meaning is consistent wherever it applies; and (C) no other rule refers to its output.

Coeur d'Alene EXTENSION is quite similar to General Central Yup'ik (GCY) "foot stretching", which Woodbury (1987:25) describes as a meaningful phonological rule whose form is to 'increase duration and raise pitch of the last segment of a foot in the head word of a predicate'. Coeur d'Alene EXTENSION also applies to predicate heads but is dependent on stress placement rather than (metrical) footing. Predicting stress in the Salishan languages has long been a problem, unfortunately, since the placement of stress is essential in predicting which vowel will receive the effects of EXTENSION. (For recent work on Interior Salish stress see Czaykowska-Higgins 1985, ms., and Mattina 1989.) In Coeur d'Alene, lexically stressed morphemes, reduplication, and morphology-related rules such as diminutive stress-shift interfere with a fairly regular rule assigning penultimate stress; prefixes and pronominal morphemes (except reciprocal/reflexive) are never stressed.

EXTENSION appears to be a two-part rule. First, it must shift stress to the right if an available stressable vowel is present. Second, the EXTENSION rule increases the duration and raises the pitch of the vowel that is in the end assigned stress. The derivation of the examples in (3) are given in (34):

(34)	a.	√sum'-n-t-sut	→	súm'-n-t-sut	→	súmncut
		√sniff-n-t-RFLX				
		'he sniffed himself'				
	b.	uɫ√sum'-n-t-sut	→	uɫ√sum'-n-t-sút	→	uɫsumncú··t
		REP√sniff-n-t-RFLX				
		'again he sniffed himself'				

In (a), stress is regularly assigned to the penultimate syllable; in (b), stress is shifted to the right and EXTENSION increases the duration and pitch of the vowel. Similar derivations account for examples (1), (4), and (5). Stress shift cannot apply to single syllable forms, as in examples (7) and (8), where duration and pitch level increase are realized on the root vowel. Certain roots, such as √c'aw' 'wash', are strong (lexically

stressed) and do not allow rightward stress shift when suffixed and subject to EXTENSION; example (2) is repeated here:

(35) a. čáw'ncut   'and he washed himself'

      b. čá··w'ncut

Here, stress shift is prevented by lexical stress assignment, but EXTENSION still applies to lengthen and raise the pitch of the stressed vowel.

Using a metrical/grid analysis of stress (Prince 1983), which assigns lexically stressed syllables an extra grid-mark, the following rules apply to correctly predict stress and thus the vowel subject to EXTENSION:

(36) a. Construct the grid; lexically stressed vowels get two ticks.

      b. EXTENSION STRESS SHIFT (ESS): (Optional). Tick rightmost grid position; this is a foot-level end rule applying from the right.

      c. Penultimate stress (PS); applies only if no clash (adjacent ticks at the same level) results.

      d. End rule (ERL): tick leftmost, highest grid position at word level.

These rules are not sufficient to account for all stress placement in Coeur d'Alene, but are adequate for the data considered here. Rules of truncation (section 4.2) and EXTENSION, given in (37), apply following the rules of stress placement in (36).

(37) EXTENSION: increase stressed vowel duration and raise pitch.

Example (38) shows standard application of the stress placement rules, excluding EXTENSION STRESS SHIFT on a root without lexical stress. Prefixes are never stressed and so are here not included in grid construction. Penultimate stress (36c) and the end rule (36d) apply to correctly place stress.

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(38)  d        x ERL
      c        x PS
      a        x        x
            ał √dar   =inč   →  ałdárɛnč   'sun'
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This analysis accounts for stress placement in very many Coeur d'Alene lexical items, where rules of stress placement are not disturbed by morphological processes such as the DIMINUTIVE stress shift and C_1 reduplication, or DISTRIBUTIVE CVC reduplication.

Where the optional foot-level end rule of ESS (36b) applies, penultimate stress assignment is prevented by the restriction against 'clash', the presence of adjacent ticks at the same grid level (above the syllable). In cases where lexical stress does not interfere, stress will be assigned to the final syllable, and EXTENSION (37) lengthens the stressed vowel:

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(39)  d            x ERL
      b            x ESS
      a    x       x
         sum-n-t-sut   →   sumncú··t
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Lexical stress, however, alters the derivation of EXTENSION. Grid construction includes the placement of an extra tick for the lexically stressed root. If the ESS rule applies (40a; clash may prevent its application even at the syllable level), it does not disturb expected root stress; PS applies, serving to maintain the initial syllable as the strongest in the grid. If ESS does not apply (40b) as may be the case with words constructed with lexically stressed morphemes, PS applies vacuously since the penultimate syllable is already the strongest grid position. In either derivation of this lexically stressed EXTENSION form, the ERL accentuates the strength of the penultimate and assigns it stress.

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(40)  a.   d     x ERL
           c     x PS
           b     x LS    x ESS
           a   , x       x
              čaw-n-t-sut       →   čá··w'ncut

      b.   d     x ERL
           b     x LS
           a   , x       x
              čaw-n-t-sut       →   čá··w'ncut
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EXTENSION is a meaningful phonological process in Coeur d'Alene since it refers only to stress placement in its structural description; its meaning, like that of Yup'ik Foot Stretching (Woodbury 1987:25), consistently refers to an intensification of the predicate referent; and no syntactic rule or distributional pattern is reliant on or disturbed by its application.

4.2. TRUNCATION. While -í suffixation (section 4.3) and EXTENSION occur only in natural discourse, truncation may occur in isolated (elicited) forms as well as in discourse. Truncation does not add meaning to any form, except perhaps to imply convenient or casual speech. The rule of truncation applies postlexically, and may be formulated as in (41):

(41) Truncation:

      $X \rightarrow \emptyset / \acute{V}$ ___

      Stipulation: unrecoverable meaningful material cannot be deleted.

The rule is optional, and applies to delete all material following a stressed vowel. There appear to be restrictions on its application, as stated in the rule stipulation. Only a small number of common roots may be truncated when unsuffixed (see example 17), and even so there may be confusion in meaning out of context:

(42) a. lu   no
          √lut

      b. lu   it is dry
          √lup

Derived stems that contain only one (the root) vowel generally do not truncate in order to protect the meaning of the full form. For example, the form in (43a) is restricted from truncation, which would result in the meaningless form in (43b):

(43) a. máqʷʷənc   he piled it up
          √maqʷ-nt-s

      b. *má

The ordering of truncation with respect to EXTENSION is ambiguous and unimportant, since either ordering would result in the same output. However, EXTENSION STRESS SHIFT (36b), if it applies, must do so prior to truncation. Truncation and EXTENSION are both postlexical rules and must follow -í suffixation, a morphological process.

4.3. PERSISTENT.

The PERSISTENT -í suffix is a lexically stressed morpheme with a very late and unusual placement in word structure. It occurs following all other sequential morphology, including the pronominal suffixes. The phonological result of PERSISTENT suffixation is often very similar to that of truncated structures: both processes result in word-final vowels that are optionally lengthened by EXTENSION. My claim that PERSISTENT is not a default vowel appended to a word to take a rightward shift in stress such as may accompany EXTENSION (as discussed in section 4) is supported by observing the effects of harmony on PERSISTENT forms.

Progressive harmony is the association of a root-assigned pharyngeal feature to the stressed vowel of a full word, whether the stress falls on the root or suffix; regressive harmony is the spread of the pharyngeal feature from a faucal segment, consonant or vowel, to any preceding vowel. There are two vowels in Coeur d'Alene that occur as i when unaffected by harmony: i_1, the default vowel, is maximally underspecified; i_2 is minimally specified, being assigned the feature [-back] in underlying representation. With either progressive or regressive harmony, the default vowel i_1 lowers and retracts to a, but the minimally specified i_2 lowers only to ϵ, and does not retract.

If -í suffixation were formulated as a vehicle for EXTENSION stress assignment, one would expect the maximally underspecified vowel i_1 to fill the position by default. However, the effect of progressive harmony clearly indicates that it is i_2 in this position: examples (21d) and (30) show that the PERSISTENT vowel occurs as $\acute{\epsilon}$ following the roots √pas 'astonish' and √pɔc 'dung', both of which regularly trigger progressive harmony. Confusion may result in attempts to distinguish $\acute{\epsilon}$-final truncated forms, e.g. (10), from $\acute{\epsilon}$-final PERSISTENT forms based on harmony roots, e.g. (30), until an equivalent untruncated form is found or it can be demonstrated that the root induces harmony. Forms such as (44) are clearly the result of truncation:

(44) maqʷᵂá   'they lay (in a pile)'   (vii 8)

If the root √maqʷ 'stack; pile up' induced progressive harmony, PERSISTENT suffixation would result in the unverified form *maqʷᵂɛ́. Other PERSISTENT forms (21a; 45) show that this root does not induce progressive harmony:

(45) ʔəcmaqʷᵂməqʷᵂí··   '(things) were piled up'   (xx 10)

The untruncated form of (44) is more likely maqʷᵂálqʷ 'long objects are piled'.

5. Summary.

In Coeur d'Alene, PERSISTENT suffixation and truncation both result in unusual vowel-final words. Placement of the PERSISTENT suffix, a full morpheme, precedes the application of the postlexical rules of truncation and EXTENSION. Unaltered stems as well as PERSISTENT and truncated forms may have lengthened vowels resulting from EXTENSION, which has been identified here as a meaningful phonological process.

The following example sets show PERSISTENT suffixation, truncation, and EXTENSION applied to several words based on various roots. In these examples, truncation is evident in the discrepancy between the surface form (line 1) and the analysis (line 2). The PERSISTENT suffix is indicated in the analysis and morpheme identification (lines 2 and 3); EXTENSION is indicated only in lines 1 (by raised dots) and 3 (as

EXTENSION).[8] The first example, (46), shows how words based on the root √melkʷ 'whole, complete' appear with (a) PERSISTENT and EXTENSION, (b) truncation and EXTENSION, and (c) truncation alone.

(46) a. uʔcməlkʷᵂí··   'just as good as new'   (i 24)
          uɫ ʔic√melkʷ-í
          again ASP√complete-PERSISTENT-EXTENSION

      b. ʔecməlkʷᵂesší··   'a whole foot'   (v 1)
          ʔec√melkʷ-s=šín
          ASP√complete-s=foot-EXTENSION

      c. ʔatmalkʷᵂmá   'all day long'   (vi 4)
          ʔe-t√melkʷ-m=asqʼit
          PREP-LOC√complete-CONN=day

PERSISTENT and EXTENSION (47a, b) v. PERSISTENT alone (47c) and truncation alone (47d), with the root √lup 'dry':

(47) a. u kʷu lupí··   'you are just dry'   (i 26)
          u kʷu √lup-í
          ASP 2s √dry-PERSISTENT-EXTENSION

      b. ɫʔuʔpí··   'It is all dry.'   (xv 9)
          ɫ+√lup-<ʔ>-í
          DIM√dry-DIM-PERSISTENT-EXTENSION

      c. ʔeʔuɫʔuʔpí   'a dry spot'   (xix 7)
          ʔe-ʔu-ɫ+√lup-<ʔ>-í
          LOC-ASP-DIM√dry-DIM-PERSISTENT

      d. ʔičsnlú   'it was very thirsty'
          ʔic-č-s-n√lup
          ASP-LOC-NOM-LOC√dry

Truncation and EXTENSION (48a) v. truncation alone (48b) with the root √ʔecin 'do with, be the matter':

(48) a. kumʼ ʔicʼəčí··.   What is the matter?   (xix 11)
          kumʼ ʔic√ʔecin(-m)
          and ASP√do with-EXTENSION

      b. he ʔicʼəčí.   What is the matter?   (xix 16)
          he ʔic√ʔecin(-m)
          PART ASP√do with

The examples in (49) show words based on the root √xʷuy 'go' with several combinations of the processes discussed here: (49a) is unaffected by any of the rules discussed here, provided for comparison to (49b) EXTENSION; (49c) PERSISTENT and EXTENSION; and (49d) truncation and EXTENSION.

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[8]EXTENSION is difficult to indicate in the analysis without implying some type of placeholder in the grammar, which is wholly unnecessary for a postlexical rule.

(49) a. čicxúi   'he went'   (xx 12)
            čic√x^{w}uy
            DIR√go

      b. xú···yılš   'they went'   (xx 10)
            √x^{w}uy-ilš
            √go-EXTENSION-3p

      c. uɫxui···   'again he went'   (xix 22)
            uɫ√x^{w}uy-í
            again√go-PERSISTENT-EXTENSION

      d. xu··   'he went'   (xxii 3)
            √x^{w}uy
            √go-EXTENSION

The allomorphy of *-mi/-i* NON-PERFECTIVE in Spokane (see section 3) indicated by Carlson 1989 is not predictable in Coeur d'Alene. Instead it appears that in Coeur d'Alene, roots that normally take the MIDDLE suffix *-m* also occur with PERSISTENT suffixation, just as do roots that do not occur with the MIDDLE. One pair of forms, based on the root √šec 'dig', show PERSISTENT (with EXTENSION) on what appear to be MIDDLE and non-MIDDLE constructions.

(50) a. uɫšəcmí··   'again du··g'   (xix 14)
            uɫ √šec-m-í
            AGAIN √DIG-MIDDLE-PERSISTENT-EXTENSION

      b. x^{w}i? nɛ? nšəcí··   if it is dug here
            x^{w}i? nɛ? n√šec=í
            PART IRREAL LOC√dig-PERSISTENT-EXTENSION

This is the only pair I have found showing distinct use of *-m-i* v. *-i* on the same root.

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