

# High-ranking Affix Faithfulness in Yakima Sahaptin

Sharon Hargus and Virginia Beavert  
University of Washington and Heritage University

## 1 Overview

Alderete 1999 has proposed that accentual languages exhibit either root-controlled accentual phenomena or affix-controlled accentual phenomena. With root-controlled accent, underlying affix accent only surfaces in words which contain unaccented roots; otherwise, underlying root accent surfaces. With affix-controlled accent, the minority case found within and across languages, affixes impose an accentual pattern on roots. Alderete proposes a way in which both patterns can be made consistent with high ranking root-faithfulness, as predicted by McCarthy and Prince 1995.

Revithiadou 1999, taking note of languages in which underlying affix rather than root accent surfaces, proposes a theory of head dominance to cover such cases. When a word contains more than one accented morpheme, the realization of multiple underlying accents is determined by HEADFAITH >> FAITH.

Sahaptin has a lexical accent system which differs from the cases discussed by Revithiadou 1999 and Alderete 1999. In Sahaptin, underlying root accent (for ordinary roots) surfaces only in words which contain no accented suffix or prefix. We begin this article by describing the theories of Alderete 1999 and Revithiadou 1999 in more detail (§2). Next we describe the accentual system of the Yakima dialect of Sahaptin, including a formal model of the constraint rankings (§3), which indicate that affix faithfulness ranks high in this language. In §4 we briefly discuss another case of high-ranking affix faithfulness, namely modern Hebrew (Ussishkin 2005). We also consider and reject the possibility of analyzing Yakima Sahaptin as a case of Head-Faithfulness. In §5 we summarize our conclusions.

## 2 Accent systems: models and predictions

### 2.1 Root- vs. affix-controlled accent

In the typology of accent systems proposed by Alderete 1999, there are two types of phenomena found in accentual languages, root-controlled accent (the default) and (occasionally also) affix-controlled accent. With root-controlled accent, ‘inherent accent in the root precludes the realization of accent elsewhere in the word’ (Alderete 1999: 1). Alderete provides examples of this pattern in Cupeño, Russian, and Tokyo Japanese, which can be easily described as  $\text{PROS-FAITH}_{\text{ROOT}} \gg \text{PROS-FAITH}_{\text{AFFIX}}$ , a ranking which Alderete also proposes to be universal, following work by McCarthy and Prince 1995. Edgemoost constraints are also relevant in many accentual languages. For example, in Cupeño the underlying accent of the rightmost accented suffix surfaces if the root is unaccented.

Potential counter-examples to the ranking  $\text{PROS-FAITH}_{\text{ROOT}} \gg \text{PROS-FAITH}_{\text{AFFIX}}$  can be found in some of the languages that Alderete considers. These counter-examples are ‘dominant’ affixes, found in diverse languages: Russian, Tokyo Japanese, Lithuanian, Sanskrit, Getxo Basque, Moses Columbia Salish. As described by Alderete, the hallmark of dominant affixes is that their accents ‘appear to win in competitions with a root accent’ (p. 113). Dominant affixes themselves can be accented or unaccented. For example, in Russian the dominant suffix *-úx* (which forms nouns) is inherently accented, whereas the dominant suffix *-ač* (which also forms nouns) is unaccented. In a word containing *-ač*, the accent of the root does not surface and instead the default accentual pattern for the language surfaces instead, showing that dominant affixes induce the same prosody found in words with no accented morphemes. Dominant affixes pose obvious problems to the ranking  $\text{PROS-}$

---

\*We would like to thank the following individuals for their helpful comments on this presentation at the WCCFL conference: Doug Pulleyblank, Pat Shaw, Ellen Kaisse, Jeff Heinz, and Laura McGarrity.

FAITH<sub>ROOT</sub> >> PROS-FAITH<sub>AFFIX</sub>, and Alderete proposes that dominance is not a type of culminativity effect but rather just one type of affix-controlled process found in accentual languages. In addition to dominance (= deletion of base prosody), other types of affix control include pre-accentuation (= insertion of accent) and accent shift (= ‘shift of base prosody’). The properties of affix-controlled accent<sup>1</sup> are summarized by Alderete as follows (147 ff.). Affix-controlled accent is lexically idiosyncratic (only found with certain morphemes), morphologically triggered (but not just by affixation), base mutating (‘roots and stems...are always the target of the phonological change...there are no roots which idiosyncratically cause the deletion of an accent in a neighboring affix’), grammar dependent (phonological defaults emerge), and there is a locality requirement (the target must be close enough to the trigger).

As a formal account of affix-controlled accent, Alderete proposes ‘Transderivational Anti-Faithfulness’ constraints, which hold of particular morphemes and are ranked highly for those morphemes (152 ff.). That is, ‘there is an Anti-Faithfulness constraint for every Faithfulness constraint’. Some examples are given in (1):

- (1)     ¬MAX-PROM: ‘Obligatory deletion of prominence.’  
           ¬DEP-PROM: ‘Obligatory insertion of prominence.’  
           ¬NO-FLOP-PROM: ‘Obligatory shift in prominence.’

## 2.2 *Head dominance*

Revithiadou 1999 has proposed an alternative theory of Head-dominance to describe cases where underlying accent surfaces on an affix, not a root. According to Revithiadou’s theory, ‘when two accents occur in a word, the accent introduced by the *morphological head* is prosodically prominent’ (p. 162). Headedness is defined (p. 162) as ‘the ability of a morpheme to determine the word’s syntactic category’, and ‘head’ is defined elsewhere as the ‘morphological determinant’ of the word, that which ‘determines syntactic category, class and gender’.<sup>2</sup> In Revithiadou’s theory, the ranking HEADFAITH >> FAITH subsumes the usual ranking ROOTFAITH >> SUFFIXFAITH.

Revithiadou’s theory predicts that accent can surface on an accented inflectional affix only if it is attached to an unaccented root or unaccented category-changing affix, as in the case of Greek [aʝor-ón] ‘market’ (gen.pl.). A possible empirical problem for Revithiadou’s theory can be noted from one of Alderete’s observations; namely that ‘while dominant affixes are sometimes derivational, this morphological property is not a reliable predictor of dominance. In Russian, for example, the plural suffix *-a* used in technical jargon is dominant, and yet it is clearly inflectional’ (p. 147)

## 2.3 *Summary of theoretical predictions*

Alderete 1999 proposes that PROS-FAITH<sub>ROOT</sub> >> PROS-FAITH<sub>AFFIX</sub> is ‘an inherent ranking’ which ‘rules out certain logically possible types of culminativity effects, the obvious one being a case where accented affixes systematically win out over accented roots’ (p. 113). Revithiadou 1999, on the other hand, predicts with the ranking HEADFAITH >> FAITH that ‘to my knowledge there are no accentual systems that give systematic priority to non-heads’ (p. 164). Both theories would therefore run aground against a language in which the accents of suffixes, whether category-changing or not, systematically surfaced rather than those of roots.

<sup>1</sup>Affix-controlled accent is defined as ‘the attachment of an affix correlates with a mutation of the accent in the base of affixation’ (Alderete 1999: 1).

<sup>2</sup>Revithiadou is not completely consistent about her definition of ‘head’. On p. 179, she writes that ‘heads are given priority for stress, provided that they bear an accent’, but on p. 199 she says that ‘morphological heads...are not stressed unconditionally.’

### 3 Sahaptin accent system

Sahaptin contains many of the classic properties of accentual systems (McCawley 1978): unpredictable location of accent within morphemes, a contrast between accented vs. unaccented morphemes, and a culminativity principle. In addition, high pitch is a phonetic correlate of accent (Hargus and Beavert to appear), as is often the case in such systems. All Sahaptin data in this article come from the second author, who is a native speaker of the Yakima dialect.

#### 3.1 Unpredictable location of accent

Yakima Sahaptin roots vary in length, with most roots one to three syllables long. In roots, accent (transcribed here with acute accent) can fall on any syllable: [ʔánutʔat] ‘orphan’, [tʃalámát] ‘pipe’, [ʔanahúj] ‘black bear’.

Affixes can be one or two syllables long. The location of accent within accented affixes is also variable. Compare accented prefixes [ʃapá]- *causative* vs. [pápa]- *reciprocal* and accented suffixes -[tʔáwaas] *instrumental* vs. -[pamá] ‘for’.

#### 3.2 Accented vs. unaccented morphemes

As noted by Jacobs 1931, there is a contrast between accented and unaccented affixes in Sahaptin. Jacobs gives [páwatʔana] ‘he struck at him’, with [pá]- *inverse*<sup>3</sup> (and /wátʔa/-<sup>4</sup> ‘strike’, -/na/ *past*) vs. [pa]- *3pl.nom.* [pawátʔana] ‘they struck’. Accentual contrasts involving suffixes can also be given; e.g. -[nmí] *genitive* [spiljajnmí] ([spílja] ‘coyote’, -[jáj] *legendary*) ‘of Coyote’ vs. -[in] *ergative* [spiljájjin] ‘Coyote’ (erg.). In our current lexical files (Beavert and Hargus in preparation), 57% (54/95) of affixes have no accent. Second position pronominal clitics are all also unaccented (see Hargus and Beavert to appear for a list).

All roots appear to be accented. The unaccented conjunctions ([ku] ‘and’, [uu] ‘or’, [kutja] ‘but, however’) are unaffixable functional morphemes. The verbal root [kú]- ‘do’ is thus a minimal pair for presence vs. absence of accent with [ku] ‘and’. The imperfective form of the copula [wa] ‘be’ is variably accented. In Hargus and Beavert 2006 we analyze this root as being underlyingly unaccented with accent inserted only in certain locations where an unacceptably long accentual lapse would result.

#### 3.3 Culminativity

Of greatest interest for present purposes is the culminativity principle at work in Sahaptin. In surface words, there can be at most one accent (pitch peak). The factors at work in predicting which accent survives appear to be predominantly morphological.

Jacobs 1931:119: notes that prefixes and anterior root elements are accented ‘except where...the suffix receives the accent...In the verb...the root is accented if nothing else is accented.’ In this article, our novel descriptive contribution is to point out there there is also a class of (for the sake of a better word) “strong” roots in Yakima Sahaptin, discussed in 3.3.3. In this article, we suggest that morphological elements can be harmonically ranked according to the surfacing of their underlying accent, as shown in (2):

- (2) suffixes > “strong” roots > prefixes > roots

Discussion and exemplification of the morphological factors at work in the surfacing of Sahaptin accent can also be found in Hargus and Beavert 2002b and Hargus and Beavert 2002a. Below, for reasons of space, we present minimal examples of the crucial cases.

<sup>3</sup>See Rigsby and Rude 1996.

<sup>4</sup>Verb roots are bound morphemes in Sahaptin, requiring some kind of affix to be a word. We symbolize their affix dependence with a following hyphen, but the required affix is not always a suffix. Again, see Rigsby and Rude 1996 or Hargus and Beavert 2006.

### 3.3.1 *Accented prefix + accented root*

When a word contains both an accented prefix and an accented root, the accent surfaces on the prefix:

- (3) [páʔatʰ'awiʃa] 'he's begging him'  
/pá/- inverse + /ʔatʰ'áwi/- 'beg' + -/ʃa/ imperfective

Accent surfaces on the root only when there are no accented affixes:

- (4) [ʔiʔatʰ'áwiʃa] 'he's begging him'  
/ʔi/- 3s.nom + /ʔatʰ'áwi/- 'beg' + -/ʃa/ imperfective

### 3.3.2 *Leftmost accented prefix*

When there are multiple accented prefixes, accent surfaces on the leftmost accented prefix, as shown in (5)a. (5)b. contains only one accented prefix, and (5)c. contains no accented prefixes.

- (5)a. [ʔáʃapaʃmat'ak] 'make her wash her (own) face'  
/ʔá/- absolutive + /ʃapá/- causative + /ʃmát'a/- 'wash face' + -/k/ imperative
- b. [ʔiʃapáʃmat'áʃa] 'he's making her wash her (own) face'  
/ʔi/- 3s.nom + /ʃapá/- causative + /ʃmát'a/- 'wash face' + -/ʃa/ imperfective
- c. [ʔiʃmát'áʃa] 'she's washing her (own) face'  
/ʔi/- 3s.nom + /ʃmát'a/- 'wash face' + -/ʃa/ imperfective

### 3.3.3 *'Strong' root + accented prefix*

It is also necessary to recognize a small class of what we call 'strong' roots, which require that the root be accented even when there is an accented prefix. (6) contains one such root affixed with unaccented affixes. (6)b.-c. contain this same root affixed with exactly one accented prefix each. (6)d. contains this root with two accented prefixes.

- (6)a. [iʔiwáχiʃa] 'he's waiting for him'  
/ʔi/- 3s.nom + /ʔiwáχi/- 'wait' + -/ʃa/ imperfective
- b. [paʔiwáχim] 'wait for me'  
/pá/- inverse + /ʔiwáχi/- 'wait' + -/m/ cislocative
- c. [ʔawiwáχiʃaaʃ] 'I'm waiting for him'  
/áw/- absolutive + /ʔiwáχi/- 'wait' + -/ʃa/ imperfective + =/Vʃ/ 1sg
- d. [ʔáʃapaʔiwáχik] 'make her wait for him'  
/ʔá/- absolutive + /ʃapá/- causative + /ʔiwáχi/- 'wait' + -/k/ 2sg.imperative

The list of strong roots in Yakima Sahaptin is not presently very large, but includes those in (7), all verbal roots:

- (7) ʔisík<sup>w</sup>-a 'show'  
ʔiwáχi- 'wait'  
ʔináwi- 'measure, test, try'  
míʃpaχ<sup>w</sup>i- 'eavesdrop on, overhear'  
naknúwi- 'take care of, guard, keep safe'  
tanawíiχ- 'argue, conflict with'  
tmaaní- 'pick (berries, fruit)'  
ts'wájk- 'straighten, correct'  
tanamún- 'hire'

ʔawqalaláti- ‘roll’<sup>5</sup>

We have not systematically searched for strong roots in our dictionary research, and suspect that more of these roots would turn up if we did.

3.3.4 *Accented suffix + accented root*

When an accented suffix is added to a(n ordinary) accented root, accent surfaces on the suffix. (8)a. contains an accented root + accented suffix. (8)b. contains the accented root with no accented affixes.

- (8)a. [wanpáwaas] ‘musical instrument’  
/wánp/- ‘sing medicine song’ + -/áwaas/ instrumental
- b. [wánpanim] ‘sing for me’  
/wánp/- ‘sing medicine song’ + -/ani/ benefactive + -/m/ cislocative

3.3.5 *Accented suffix + strong root*

When an accented suffix is added to a strong root, accent also surfaces on the suffix. (9)a.-c. contain examples of a strong accented root + one accented suffix.

- (9)a. [ʔiwaxíłá] ‘one who waits’  
/ʔiwáxi/- ‘wait’ + -/łá/ agentive
- b. [ʔiwaxítpamá] ‘waiting room, bus stop, etc.’  
/ʔiwáxi/- ‘wait’ + -/t/ gerund + -/pamá/ ‘for’
- c. [ʔiwaxíját’afa] ‘he wants to wait’  
/ʔiwáxi/- ‘wait’ + -/át’ a/ ‘want’ + -/fa/ imperfective

3.3.6 *Rightmost accented suffix*

When more than one accented suffix is added to a strong root, accent surfaces on the rightmost suffix. (10) contains examples of a strong accented root + two accented suffixes.

- (10) [ʔiwaxítpamanmí ajkáwaas] ‘waiting room chair’  
/ʔiwáxi/- ‘wait’ + -/t/ gerund + -/pamá/ ‘for’ + -/nmí/ genitive, [ajkáwaas] ‘chair’

When more than one accented suffix is added to an ordinary root, accent also surfaces on the rightmost suffix. (11) contains examples of a regular accented root + two accented suffixes.

- (11) [wanpawaasíłá] ‘musician’  
/wánp/- ‘sing medicine song’ + -/áwaas/ instrumental + -/i/ verb-forming + -/łá/ agentive

3.3.7 *Accented suffix + accented prefix*

When a word contains an accented suffix and an accented prefix, the accent of accented suffix surfaces. The examples in (12)-(13) contain regular roots:

- (12) [pinatwanptpamá] ‘comb’  
/piná/- reflexive + /twánp/- ‘comb’ + -/t/ + -/pamá/
- (13) [hawláak ʃapaʃuk<sup>w</sup>aałá] ‘prophet’  
/hawláak/ ‘empty space’, /ʃapá/- causative + /ʃúk<sup>w</sup>aa/ ‘know’ + -/łá/ agentive

<sup>5</sup>The exceptional accentual properties of this root were also noted in Jacobs 1931:119.

### 3.3.8 Constraints and constraint ranking

Before beginning our formal description of the Yakima Sahaptin accentual system in Optimality Theoretic terms, we would like to point out that a purely phonological account in terms of EDGEMOST (RIGHTMOST<sup>6</sup>, LEFTMOST) constraints is inadequate. We have already seen examples of the two contradictory rankings, repeated below in (14)-(15):

(14) LEFTMOST >> RIGHTMOST  
 [pá'atł'awiʃa] 'he's begging him'  
 /pá/- 3s.nom + /ʔatł'áwi/- 'beg' + -/ʃa/ imperfective

(15) RIGHTMOST >> LEFTMOST  
 [wanpáwaas] 'musical instrument'  
 /wánp/- 'sing medicine song' + -/áwaas/ instrumental

Our OT analysis was performed via OTSoft (Hayes, Tesar and Zuraw 2003). We initially selected what seemed to us to be a reasonable set of accent Faithfulness constraints, those listed in (16), as well as markedness constraints LEFTMOST and RIGHTMOST:

(16) Constraints initially selected<sup>7</sup>  
 Faithfulness: FAITH-SUFFIX, FAITH-STRONG ('preserve accent of strong roots'; see Anttila 2001 on alternatives), FAITH-PREFIX, FAITH-ROOT  
 Markedness: LEFTMOST, RIGHTMOST

Our candidate set consisted of the winning forms seen in 3.3.1-3.3.8, along with losers which were analogous to winners in other forms.

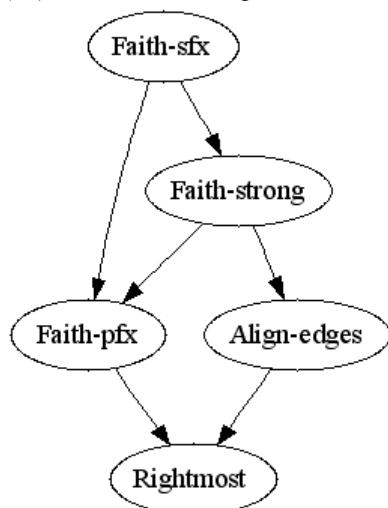
We found that there was no ranking that could describe the data with the set of constraints in (16), and following a suggestion by Jeff Heinz, we added ALIGN-EDGES (Gordon 2002). This constraint is essentially equivalent to the conjoined constraint Leftmost&Rightmost. As described by Gordon 2002:497, ALIGN-EDGES requires that 'the edges of level 0 of a prosodic word, i.e., both the initial and the final syllable, be aligned with a level 1 grid mark...one violation is incurred if either the initial or the final syllable does not carry a level 1 grid mark, and two violations are incurred if both the initial and the final syllables do not have a level 1 grid mark'.

With ALIGN-EDGES, OTSoft determined that there was a ranking of the constraints, and that FAITH-ROOT and LEFTMOST were so low-ranking as not to be needed by the analysis. The Hasse diagram in (17) shows the final ranking of the constraints needed to describe Yakima Sahaptin accentual patterns, with FAITH-ROOT and LEFTMOST eliminated from the analysis.

<sup>6</sup>Here LEFTMOST and RIGHTMOST are defined as follows: LEFTMOST = Align (\*, L, Pwd, L); RIGHTMOST = Align (\*, R, Pwd, R), where \* represents accent.

<sup>7</sup>Actually, the constraint set we initially selected contained LEFTMOST and RIGHTMOST nonstandardly defined as 'Preserve leftmost accent' and 'Preserve rightmost accent', essentially faithfulness rather than markedness constraints. While there is a constraint ranking that can describe the Yakima Sahaptin facts with these versions of the EDGEMOST constraints, it is obviously preferable to use the standard markedness versions. We thank Laura McGarrity for helpful discussions with us on this point.

## (17) Yakima Sahapin constraint ranking



In summary, in Yakima Sahapin FAITH-SUFFIX is the highest ranked of the accentual constraints. FAITH-PREFIX is also higher ranked than FAITH-ROOT, which is not needed at all to describe the culminativity patterns seen in 3.3.1-3.3.7.

## 4 High-ranking affix faithfulness

### 4.1 Modern Hebrew

One previous case of high-ranking affix faithfulness has already been noted in the literature, Modern Hebrew as described by Ussishkin 2005. In Modern Hebrew, ‘affixal vowels in the formation of a complex form are realized, via melodic overwriting, at the cost of stem vowels’ (p. 192); i.e. the surface form corresponding to /gadal/, /i e/- is [gidel] ‘he raised’. Ussishkin proposes that this pattern should be described as MAX-AFFIX >> MAX-IO >> MAX-OO<sup>8</sup>, where MAX-IO is defined as ‘other MAX constraints’, including MAX-ROOT. Ussishkin is not unaware of the larger ramifications of this analysis: ‘as readers may note, this ranking contradicts McCarthy and Prince’s (1995) so-called “universally-fixed metaranking” between FAITH-ROOT and FAITH-AFFIX, which states that root faithfulness universally dominates affix faithfulness.’ (p. 193)

Since the ranking MAX-AFFIX >> MAX-ROOT is so unusual, Ussishkin devotes some space in his article to explaining why affix faithfulness ranks high in Hebrew. Basically, vowels—replacement vocalism—play a large role in the morphology of Hebrew, and ‘since the number of vowels [5] is so small, the number of potential affixes that may be constructed from vowels is small, in contrast to the number that would be possible if both vowels and consonants were used.’ (p. 200) Therefore, ‘given the nature of the vowel inventory, the language cannot afford confusion or deviation from underlying affixal material that is limited to vowels.’ (p. 200) Ussishkin also considers whether or not the Hebrew facts could be analyzed as a case head dominance. He concludes that head dominance is an inadequate model of the facts for Hebrew because ‘inflectional affixes do not constitute morphological heads, and they should therefore not be protected by high-ranking HeadFaith. This is an empirical problem for Hebrew, because fixed prosodic effects in Hebrew are in force even in the sole presence of inflectional morphology.’ (p. 206)

<sup>8</sup>MAX-AFFIX is defined as ‘every input segment affiliated with an affix has a correspondent in the output.’ (p. 193).

#### 4.2 Sahaptin as a case of affix-controlled accent

The ranking in (17) shows that Yakima Sahaptin must be considered another case of high-ranking affix faithfulness. Sahaptin simply does not fit Alderete's predictions. In Sahaptin, the accent preserving properties of suffixes are characteristic of suffixes as a whole, not idiosyncratic to particular suffixes, as should be the case for affix-controlled accent. Recall also that Alderete predicted that 'there are no roots which idiosyncratically cause the deletion of an accent in a neighboring affix'. Yet the only idiosyncratic accent preserving properties in Sahaptin are found with roots, namely the class of strong roots we have identified for YS! Another difference between Yakima Sahaptin and the languages described by Alderete is that in Yakima Sahaptin there are very few unaccented roots, as noted in 3.2. In fact, the only unaccented lexical (non-functional) root morpheme appears to be /wa/ 'be'. Consequently, Sahaptin has no circumstances under which affix-controlled accent as defined by Alderete would manifest itself.

#### 4.3 Inadequacy of head-dominance

We next consider whether Revithiadou's theory of Head-Dominance can describe the Sahapin facts. Could Faith-Head could do the work of Faith-Suffix?

We note that many of the accented suffixes of Yakima Sahaptin are category-changing, as predicted by Revithiadou's theory:

(18) Category-changing accented suffixes

- łá: ]<sub>V</sub>\_\_]<sub>N</sub> agent
- áł ~ -náł: ]<sub>V</sub>\_\_]<sub>N</sub> negative agent
- lí: ]<sub>Adj</sub>\_\_]<sub>N</sub> '-like'
- núł: ]<sub>N</sub>\_\_]<sub>Adj</sub> '-less'
- t'áwaas ~ -áwaas: ]<sub>V</sub>\_\_]<sub>N</sub> instrument

However, many of the accented suffixes are non-category-changing, including the genitive case marker, a clearly inflectional suffix:

(19) Non-category-changing accented suffixes

- tʃáʃa, -káʃa: ]<sub>V</sub>\_\_]<sub>V</sub> 'on, in'
- twii: ]<sub>V</sub>\_\_]<sub>V</sub> 'with'
- núu ~ -úu: ]<sub>V</sub>\_\_]<sub>V</sub> 'at, towards'
- pamá: ]<sub>N</sub>\_\_]<sub>N</sub> 'for'
- nmí: ]<sub>N</sub>\_\_]<sub>N</sub> genitive
- jáj: ]<sub>N</sub>\_\_]<sub>N</sub> 'legendary'
- wáakuł: ]<sub>{N,Adj}</sub>\_\_]<sub>{N,Adj}</sub> '-like'

The problem for Head-Faithfulness is that while affixal heads of words are usually suffixes (Williams 1981), not all suffixes are heads. However, in Yakima Sahaptin, the phonology of each class of affixes is uniform, even if their morphological properties are diverse.

## 5 Conclusions

In this article we have suggested that the accentual phonology of Yakima Sahaptin presents an example of high-ranking affix (namely suffix) faithfulness, like modern Hebrew as described by Ussishkin 2005. As a descriptive contribution to Sahaptin linguistics, we have identified a class of 'strong' roots, whose accent preserving properties are intermediate between prefixes and suffixes; namely suffixes > "strong" roots > prefixes > roots. Using OTSoft, we have formally modeled culminativity effects in Yakima Sahaptin as FAITH-SUFFIX >> FAITH-STRONG >> FAITH-PREFIX, ALIGN-EDGES >> RIGHTMOST. FAITH-ROOT is in fact so low ranking in the analysis that it is not needed to describe in any of the crucial cases in Yakima Sahaptin.

Yakima Sahaptin is therefore problematic for the universality of the ranking FAITHROOT >> FAITHAFFIX, and is a counter-example to the predictions of Alderete's theory of root- vs. affix-controlled accent. Since Alderete had proposed a novel type of constraint, Transderivational Anti-Faithfulness constraints, to describe the effects of affix-controlled accent, we must consider whether this type of constraint is really warranted, or whether the affix-controlled accent cases brought up by Alderete might instead represent additional cases of high-ranking affix faithfulness. Recall that these Transderivational Anti-Faithfulness constraints were highly ranked constraints which were idiosyncratic to particular morphemes in Alderete's theory. Despite the conclusions we have drawn in this article, it is nonetheless true that cases of high-ranking affix faithfulness are rare relative to high-ranking root faithfulness, and this fact remains to be explained.

We have also considered whether the Sahaptin facts could be considered a case of Head-faithfulness >> Faithfulness. We have seen that this model does not fit Sahaptin either since not all accented affixes are heads.

## References

- Alderete, John (1999) *Morphologically Governed Accent in Optimality Theory*, Department of Linguistics, University of Massachusetts, Amherst, Ph.D dissertation.
- Anttila, Arto (2001) Review of *Headmost accent wins. Head dominance and ideal prosodic form in lexical accent systems*. *Glott International*, 5.101-08.
- Beavert, Virginia and Hargus, Sharon (in preparation) *Ichishkíin S̓n̓wít. Yakima Sahaptin Bilingual Dictionary: Sahaptin-English and English-Sahaptin*. Ms., University of Washington, 512 pp.
- Gordon, Matthew (2002) A Factorial Typology of Quantity-Insensitive Stress. *Natural Language & Linguistic Theory*, 20.491-552.
- Hargus, Sharon and Beavert, Virginia (2002a) Predictable vs. underlying vocalism in Yakima Sahaptin. *International Journal of American Linguistics*, 68.316-40.
- Hargus, Sharon and Beavert, Virginia (2002b) Yakima Sahaptin clusters and epenthetic [ʃ]. *Anthropological Linguistics*, 44.1-47.
- Hargus, Sharon and Beavert, Virginia (2006) Word-initial clusters and minimality in Yakima Sahaptin. *Phonology*, 23.21-58.
- Hargus, Sharon and Beavert, Virginia (to appear) A note on the phonetic correlates of stress in Yakima Sahaptin. *University of Washington Working Papers in Linguistics*, 24.
- Hayes, Bruce, Tesar, Bruce and Zuraw, Kie (2003) OTSoft 2.1, software package: <http://www.linguistics.ucla.edu/people/hayes/otsoft/>
- Jacobs, Melville (1931) A sketch of Northern Sahaptin grammar. *University of Washington Publications in Anthropology*, 4.85-291.
- McCarthy, John J. and Prince, Alan S. (1995) Faithfulness and Reduplicative Identity. *University of Massachusetts Occasional Papers in Linguistics 18: Papers in Optimality Theory*, ed. by Linda Walsh, 249-384. Amherst: Graduate Linguistics Student Association.
- McCawley, James D. (1978) What is a tone language? *Tone: A Linguistic Survey*, ed. by Victoria Fromkin, 113-31. New York: Academic Press.
- Revithiadou, Anthi (1999) *Headmost Accent Wins: Head Dominance and Ideal Prosodic Form in Lexical Accent Systems*, University of Leiden, Holland, Ph.D. dissertation.
- Rigsby, Bruce and Rude, Noel (1996) Sketch of Sahaptin, a Sahaptian Language. *Languages*, ed. by Ives Goddard, 666-92. Washington DC: Smithsonian Institution.
- Ussishkin, Adam (2005) A Fixed Prosodic Theory of Nonconcatenative Morphology. *Natural Language and Linguistic Theory*, 23.169-218.
- Williams, Edwin (1981) On the notions 'lexically related' and 'head of the word'. *Linguistic Inquiry*, 12.245-74.

# Proceedings of the 25th West Coast Conference on Formal Linguistics

edited by Donald Baumer,  
David Montero, and Michael Scanlon

Cascadilla Proceedings Project Somerville, MA 2006

## Copyright information

Proceedings of the 25th West Coast Conference on Formal Linguistics  
© 2006 Cascadilla Proceedings Project, Somerville, MA. All rights reserved

ISBN 1-57473-415-6 library binding

A copyright notice for each paper is located at the bottom of the first page of the paper.  
Reprints for course packs can be authorized by Cascadilla Proceedings Project.

## Ordering information

Orders for the library binding edition are handled by Cascadilla Press.  
To place an order, go to [www.lingref.com](http://www.lingref.com) or contact:

Cascadilla Press, P.O. Box 440355, Somerville, MA 02144, USA  
phone: 1-617-776-2370, fax: 1-617-776-2271, e-mail: [sales@cascadilla.com](mailto:sales@cascadilla.com)

## Web access and citation information

This entire proceedings can also be viewed on the web at [www.lingref.com](http://www.lingref.com). Each paper has a unique document # which can be added to citations to facilitate access. The document # should not replace the full citation.

This paper can be cited as:

Hargus, Sharon and Virginia Beavert. 2006. High-Ranking Affix Faithfulness in Yakima Sahaptin. In *Proceedings of the 25th West Coast Conference on Formal Linguistics*, ed. Donald Baumer, David Montero, and Michael Scanlon, 177-185. Somerville, MA: Cascadilla Proceedings Project.

or:

Hargus, Sharon and Virginia Beavert. 2006. High-Ranking Affix Faithfulness in Yakima Sahaptin. In *Proceedings of the 25th West Coast Conference on Formal Linguistics*, ed. Donald Baumer, David Montero, and Michael Scanlon, 177-185. Somerville, MA: Cascadilla Proceedings Project. [www.lingref.com](http://www.lingref.com), document #1447.