On Nez Perce Nouns with Irregular Metrical Behavior or

"Why 'Grizzly Bear' Has Horrible Stress"

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1. Introduction. Stress plays an important role in speech production and recognition. Pronounce a word with non-standard stress placement, and native speakers look at you quizzically until they at last understand. Then they immediately repeat the word with the "correct" stress. Stress location must therefore be predictable (i.e., governed by regular rules) or be lexical, so that native speakers share knowledge of its location in any given word. The disadvantages of lexical stress are that one will not know how to stress neologisms and that if secondary, ternary and possibly other levels of stress are factored in, a very great deal of information would need to be stored. Lexical stress usually also results in some forms that are incongruent with principles of rhythm. As Hayes (1995) argues and makes clear with abundant illustration, the stress systems of a vast proportion of the world's languages are ultimately based upon rhythmic fundamentals that probably are at some level part of general human cognition.

In Nez Perce, by far the majority of nouns obey regular principles of stress assignment. Nevertheless, there is a considerable residue of nouns with unpredictable stress under some or all grammatical inflections. This paper explores that residue for patterns that may help to explain their existence, at least in part. Only main stress assignment will be considered, since stress at lower levels follows regular principles. This is consistent with what is seen cross-linguistically. While a number of languages have lexical primary stress for some or all of their words, in most cases, regular principles derive stress at the lower levels.

I begin with an account of regular stress placement so that the nature of irregular nouns can be appreciated. The nouns with irregular stress are then treated, grouped by their various commonalties. A final section discusses some possible conclusions. I have restricted the scope of the discussion to nouns because the morphological issues involved with Nez Perce verbs are too complex for treatment in a paper of this size. The sources from which I have collected irregular nouns are Aoki (1970), Aoki (1979), Aoki (1994), Aoki and Walker (1989), Rude (1985), and my own field notes.

2. Regular stress assignment. Regular principles govern the assignment of stress in most words (2.1). Words with final consonant clusters (2.2.) or vowel reduction (2.3.) create extra complications, but ultimately fit into patterns of regularity as well. Optimality Theory provides a formal means of examining the interaction of principles of the grammar (2.4). Morphological factors must also be taken into account (2.5.).

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2.1. Fundamental principles. Several principles interact to determine where stress is located in the majority of Nez Perce nouns (1).

(1) a. Morphology: Stress placement respects certain morphological principles.
b. Weight to Stress: Place stress on a long vowel if there is one.
c. Non-Finality: Do not place stress on the final syllable.
d. Rightmost syllable: Place stress as close as possible to the word's right edge.

These principles are arranged in order of priority. Temporarily setting aside the issues of morphology and stress (see (2.5.)), let us consider the other three principles. In (2), the syllable with the long vowel receives main stress in each example, whatever its position in the word.

(2)[2]	a.	ʔiníit	'house (nom)'[3]
	b.	wéeptes	'eagle (nom)'
	c.	háamana	'man (obj)'
	d.	híisemtuksnim	'sun, moon (erg)'

The principle of Weight to Stress, which follows that of Prince (1991), requires main stress go to the heavy syllables.

In Regularly stressed nouns that lack long vowels, stress is penultimate; when light case suffixes are added, stress "shifts" one syllable to the right.[4]

(3)	a.	cóqoy	'smokehole (nom)'
	b.	coqóyna	'smokehole (obj)'
(4)	a.	talátat	'cedar (nom)'
	b.	talatátki	'cedar (inst)'
(5)	a.	téhes	'ice (nom)'
	b.	tehésnim	'ice (erg)'

Note that these examples illustrate the interplay of principles (1c) and (1d). While stress stays close to the right edge of the word, it is not assigned to the ultima.

An alternative approach to these data is to say stress is assigned to the rightmost foot (the Nez Perce foot being a moraic trochee) (6),(7).

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[2] The Nez Perce phonemes: ptckq? ɬsxχh mnwyl p't'c'k'q' m'n'w'y'l'.

[3] Nez Perce has an unusual tripartite, ergative case system in the sense of Dixon (1994). An ergative (erg) subject has one case inflection, a direct object (obj) has a different case marker, and an absolutive subject (nom) is different from both in that the noun is uninflected. Other case inflections abbreviated in this paper are locative (loc), instrumental (inst), allative (allt), and vocative (voc).

[4] Light syllables are CV and CVC word finally.

(6)	a. ER:	*		b.	*
		(* .)			.(* .) .
		cóqoy			**coqóyna**
		'smokehole (nom)'			'smokehole (obj)'
(7)	a. ER:	*		b.	*
		(* .)			(* .)(*.) .
		talátat			**tàlatátki**
		'cedar (nom)'			'cedar (inst)'

2.2. Nouns with final clusters. An additional complication is found in the class of nouns that end in consonant clusters. The final consonant (be it extrametrical or a syllabic consonant) prevents a violation of the principle against the realization of the final (voweled) syllable with main stress (1c).

(8)	a.	**nacó?χ**	'otter (nom)'
	b.	**naco?óχnim**	'otter (erg)'
(9)	a.	**miyá?c**	'child (nom)'
	b.	**miya?ásna**	'child (obj)'
(10)	a.	**me?éqs**	'skin, hide (nom)'
	b.	**me?qéspe**	'skin, hide (loc)'

We would otherwise expect to see examples like ***náco?χ** , ***míya?c**, and ***mé?eqs** in the nominative forms.

2.3. Vowel Reduction. There is a further characteristic of nouns with regular stress properties – vowel reduction. Many syllables have long vowels which exist underlyingly but which only appear when the syllable is penultimate. In other positions, the vowel shortens (11).

(11)	a.	UR	/paapas/	**páaps**	'red fir (nom)'
				papáski	'red fir (inst)'
	b.	UR	/sik'eem/	**sík'em**	'horse (nom)'
				sik'éempe	'horse (loc)'
	c.	UR	/weeptees/	**wéeptes**	'eagle (nom)'
				weptéesne	'eagle (obj)'

d.	UR	/heepey/	héepey	'middle (nom)'
			hepéynim	'middle (erg)'
e.	UR	/coqoy/	cóqoy	'smokehole (nom)'
			coqóyna	'smokehole (obj)'

In each case, the underlying long vowel is reduced to a short version if it is not penultimate. Sometimes there is more than one long vowel underlyingly (11c), so only the one which is penultimate receives main stress and is realized as long. Note that vowels must be underlyingly long to surface as such. Several vowels in the examples in (11) are underlyingly short and do not surface as long when they have main stress (11a,b,d). If no vowels are underlyingly long, then no vowel will surface as long (11e).

Of nouns with long vowels, those that undergo reduction are in the majority. There are exceptions, however, as we see in (12), (13).

(12)	UR	/ʔiniit/	ʔiníit	'house (nom)'
			ʔiníitne	'house (obj)'
(13)	UR	/hiisemtuks/	híisemtuks	'sun, moon'
			híisemtuksnim	'sun, moon'

In these irregular words, where non-penultimate long vowels do not reduce, main stress is awarded to the syllables with the long vowel. This implies that the principle of Weight to Stress (1b) outweighs that of the principle which mitigates against final stress (1c) and which favors stress being as close as possible to the right edge (1d).

2.4. Optimality Theoretic formalization.[5] Optimality Theory, as developed originally by Prince and Smolensky (1993) and by McCarthy and Prince (1993), provides a cogent means of illustrating the interaction of principles in the grammar. In this approach, the grammar produces a surface form by first generating a set of candidates from a given underlying representation. The grammar then chooses among the candidates to determine which is the best surface form.

The principles of the grammar are cast in terms of **constraints**. The candidate with the least serious set of violations of those constraints is the winner and becomes the surface form. Every or almost every candidate will violate some constraint or set of constraints, but what is crucial is the nature of the violations. The constraints are ranked in order of importance, and the violation of a highly ranked constraint will outweigh any number of violations of constraints that have a lower ranking.

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[5] While I did not present my Optimality Theoretic analysis at the 1994 Conference, it had already been developed. I present a summary here that will be relevant for those interested in this theory of phonology. Other readers may pass over it without detracting from their understanding of the rest of the paper. Although the purposes of this paper are primarily descriptive, I include this discussion since it provides a useful means of representing the interplay of the stress principles.

The Nez Perce stress principles may be converted to constraints as follows:

(14) a. Weight to Stress: Any long vowel realized without main stress is a violation.
b. Non-Finality: Stress realized on the final syllable is a violation.
c. Edge Right: Every syllable between main stress and the right edge counts as a violation.
d. Faithfulness: A long vowel realized as a short vowel is a violation (i.e., faithfulness to lexical information: Don't needlessly reduce a long vowel).

These constraints are listed in (14) in order of their priority. The following tableaux show how the correct surface form is produced for wéeptes 'eagle (nom)'(15).

(15)

UR: weeptees	Weight To Stress	Non-Finality	Edge Right	Faithfulness
a. wéeptes			*	*
b. wéptees	*		*	*
c. wéptes			*	**
d. wéeptees	*		*	
e. weeptées	*	*		
f. weptées		*		*
g. weeptés	*	*		*
h. weptés		*		**

The winning candidate (15a) has two violations, but they are not as bad as any other candidate. Note how vowel reduction prevents the violation of Weight to Stress that takes place in the candidates without vowel reduction on the unstressed syllable (15b,d,e,g). By contrast, some candidates have a reduced vowel on the stressed syllable. This is unnecessary to avoid a Weight to Stress violation, and so the violations of Faithfulness rule these candidates out (compare especially (15a) and (15b)).

In the inflected form, weptéesne 'eagle (obj),' it is the second syllable of the stem that is penultimate, and so that syllable is realized with the long vowel and the first syllable's vowel is reduced as seen in the abbreviated table in (16).

(16)

UR: weepteesne	Weight To Stress	Non-Finality	Edge Right	Faithfulness
a. weptéesne			*	
b. weeptéesne	*		*	*
c. wéepteesne	*		**	
d. wéeptesne			**	*

Example (16b) is more faithful to the underlying representation, but the long vowel in the antepenult results in a violation of Weight to Stress. Both (16c,d) have antepenultimate stress which violates the Edge Right constraint twice.

As mentioned above, if a syllable has a non-reducing long vowel, then main stress is awarded to that position. I interpret this as a consequence of the priority of the Weight to Stress constraint. This is illustrated in (17) for **hîisemtuks** 'sun, moon.'

(17)

UR: hiisemtuks	Weight To Stress	Non-Finality	Edge Right	Faithfulness
a. hîisemtuks			**	
b. hiisemtúks	*		*	*
(c. hisemtúks)			*	*

We would expect, all things being equal, that the third candidate (17c) would win, since it does not violate Weight to Stress and has penultimate stress. Given the Optimality framework, it must be assumed that an additional constraint (or set of constraints) exists that is ranked even higher than Weight to Stress which prevents the reduction of long vowels in these irregular words (Thus (17c) is represented in parentheses).

2.5. Morphology. As noted in (1a), morphology also interacts with stress assignment. Certain suffixes are stress attracting while others repel stress.[6] The first kind is seen in (18) where the intensifier -nîx attracts stress to itself.

(18) a. **háamt'ic** 'fast'
b. **haamt'isnîx** 'very fast'
(haamt'ic 'fast' + -nîx 'intensifier')

The second kind is shown in (19) where the suffix -?ees is realized with a long vowel that would otherwise be expected either to shorten or to be realized with main stress (compare the noun ?inîit, ?inîitne 'house (nom)/(obj)').

(19) a. **wepîɬq'ees** **wepîɬq'eesne** 'drill (nom)/(obj)'
(wepiɬq 'to puncture' + -?ees 'instrument')

b. **?ilayáq'aas** **?ilayáq'aaspa** 'wood stove (nom)/(loc)'
c. **wehéyq'ees** **wehéyq'eeski** 'necktie (nom)/(inst)'

The existence of such morphemes complicates the stress picture, but this does not

[6] These attributes can be formulated in Optimality Theoretic terms as well, although to do so would go beyond the limitations of this paper.

invalidate the generalizations about stress previously noted. We cannot go further into the issues of stress and morphology, but the ability of morphemes to attract or repel stress is noted because this may help to explain some of the sets of exceptional nouns discussed below. None of the light case suffixes have unusual stress properties, so they can be used to test the nature of a noun's stress assignment.

3. Nouns with irregular stress. Summarizing from the previous section, regular nouns have penultimate stress, and long vowels are realized only there. Suffixation with light case suffixes serves to test what kind of stress behavior a noun has. Nouns are identified as irregular when a non-penultimate long vowel does not reduce. Although such nouns are phonologically irregular in one aspect, they may be seen as otherwise conforming to the principle Weight to Stress. Another kind of irregular noun has stress lexically assigned to a syllable that does not have a long vowel, although there may be long vowels in the word that do not receive main stress and do not reduce. The word χáχaac, χáχaasna 'grizzly bear (nom)/(obj)' (*Ursus horribilus*) is a particularly "horrible" example; it does not shift stress, it has a non-reducing long vowel, and this long vowel does not receive main stress.[7] In the following sections, irregular nouns are considered according to properties that may help to explain their aberrant behavior. Nouns that are compounds or incorporate a productive word-forming affix are not included since additional principles are at work in such items

3.1. Non-native vocabulary. Borrowings are notorious among languages for having irregular properties, and so it is not surprising that a portion of the irregular nouns in Nez Perce are non-native.

(20)	a.	célmen (< likely from English china-man)	célmenne	'Chinese (nom)/(obj)'
	b.	kapóo (< Spanish capa)	kapóoki	'coat (nom)/(inst)'
	c.	kóta	kótana	'quarter (nom)/(obj)'
	d.	núyee	núyeeki	'New Year (nom)/(inst)'
	e.	tímeti	timetíine	'Timothy hay (nom)/(obj)'
	f.	?átamoos		'automobile (nom)'
	g.	lémhaay	lémhaaypa	'Lemhi, ID (nom)/(loc)'
	h.	siláyloo		'Celiloo, OR (nom)'
	i.	yáqamoo	yáqamoopa	'Yakima, WA (nom)/(loc)'

[7] I have analyzed the speech signal of 'grizzly bear' and other nouns of this kind in the UCLA Phonetics Lab and found that the perceptions are borne out by the spectrographs. The duration of the second vowel in χáχaac is twice that of the initial vowel, but the initial vowel has the highest pitch and is slightly lengthened, the most consistent phonetic correlate of main stress in Nez Perce.

In most cases, stress is simply fixed on the syllable corresponding to the stressed syllable in the source word. (20e) is an exception as its inflected form has stress on the penult. Note also that the last three examples are also place names, and as such receive treatment under (3.3.) also.

3.2. Morphological fossils. As shown above in (2.5.), morphology can have an effect on the realization of stress (attracting or repelling). While this is clearly the case with productive morphology, it appears that several nonproductive morphological fossils may be responsible for some sets of nouns with irregular stress assignment.

The Associative or Stative case suffix -iin/ -i?n, which is used as a productive case marker, is stress resisting:

(21) a. χálpχalpnim pisítiin
Gusty Wind-erg father-Assoc.
'Gusty Wind with her father' Phinney (1934) 329:7

b. kii hipapáayna wewúxye miyá'ciin
this arrived elk child-Assoc
'Now Elk arrived with his child' Phinney (1934) 440:4

There are, however, two nouns (at least) that include this suffix as part of a no longer productive composition of their stems.

(22) a. hímiin hímiisne 'wolf (nom)/(obj)'
b. púxnin' púxni?sne 'shawl (nom)/(obj)'

The word for 'wolf' is literally 'the one with the mouth' (him' 'mouth' + associative) while 'shawl' is 'the thing with the fringes' (púukin 'fringes' + associative). That these formations are nonproductive is seen in the loss of the glottalization on the final consonant of 'mouth' and the loss of length of the initial vowel of 'fringes.'

A second fairly clear set of cases involves what appears to incorporate a nonproductive allomorph of the locative -nwe:s or a remnant of it. This suffix is used productively in the formation of words as seen in (23).

(23) hípnwees hípnweesne 'restaurant'
(hípt 'food' + -nwees)

That this suffix is stress repelling is seen in the fact that the long vowel does not reduce and that stress is not attracted to this vowel from the stem, even when the long vowel is penultimate.

There are a number of nouns, however, that appear to form their stems with a fossil of this locative suffix that is not used productively. Aoki (1994) suggests that -ees

may be isolable from -nwees, but this is by no means clear (It does not seem to be used to coin neologisms).

(24)	a.	téemees (teemek 'to roast underground')	téemeeski	'camas pit (inst)'
	b.	wéeyees (weyeece 'to dance')	wéeyeespe	'dance floor (nom)/(loc)'
	c.	ʔéewtees (ʔewii 'to shoot')	ʔéewteesne	'bullet hole (nom)/(obj)'
	d.	wéepees (wepee 'to go into the forest')	wéepeesne	'spookiness (nom)/(obj)'
	e.	túkees	túkeespe	'drying rack (nom)/(loc)'
	f.	ʔéemees	ʔéemeesne	'menstruation (nom)/(obj)'

All of these items except the last two have related verbs from which they were derived at some point in history. Also, they are mostly either locations or are easily related to a location.

In a third and less certain set are four words ending in a short, stressed **e/a** finally (**ee/aa** non-finally), and preceded by a glottalized consonant (the alternation of vowel quality is by Vowel Harmony). This suggests the former existence of a lexically stressed suffix -ʔé/ -ʔée.

(25)	a.	k'oy'am'á	k'oy'am'áana	'cougar (nom)/(obj)'
	b.	pixwew'é	pixwew'éene	'bull snake (nom)/(obj)'
	c.	tipl'é	tipl'éene	'firewood pile (nom)/(obj)'
	d.	tuy'é	tuy'éene	'blue grouse (nom)/(obj)'

There is a productive rule of glottal merger which derives a glottalized consonant from a series of consonant and glottal stop: **C? → C'**.

(26)	a.	ʔilp'ílp	(<ʔilp + ʔilp)	'red'
	b.	ʔíit'it	(<ʔiit + ʔiit)	'end'

The existence of a suffix -ʔé would account for the glottalization of the preceding consonant, and it would be parallel to a productive suffix -ʔí that derives adverbials. Aside from the forms in (25), there is no other modern evidence for a -ʔé, but it probably did exist at one time.

A fourth and considerably more speculative group of examples (28) might include a fossilized form of the vocative suffix -e? or be motivated on analogy with it. This suffix is added to kinship terms to derive the vocative form (27).

(27)	a.	qaláca?	'(paternal) grandpa! (voc)'
	b.	piláqa?	'(maternal) grandpa! (voc)'
	c.	tóota?	'Dad! (voc)'

The words in (28) are irregular because stress does not shift to the penult in the inflected form. The first two items could conceivably have a remnant of -e?; animal names are used as proper names in the traditional narratives.

(28)	a.	tilípe?	tilípe?ne	'fox (nom)/(obj)'
	b.	tíske?	tíske?ne	'skunk (nom)/(obj)'
	c.	qeqépe?	qeqépe?ne	'corn husk bag (nom)/(obj)'
	d.	wiwíce?	wiwíce?ne	'log (nom)/(obj)'

The other two examples could only be related by phonological analogy. Their resemblance to the items in (27) is probably purely by chance.

When we propose that morphological fossils are responsible for irregular stress patterns, what we are really saying is that the stress patterns were present during that period when the affix was productive, and then, as productivity was lost, if the stress pattern was not regularize, then it was lexicalized as part of the word's unpredictable nature, along with the morphological remnant. We turn now from morphological motivations to proper nouns, place names, and their stress properties.

3.3. Proper nouns and place names. Place names (30) are in most cases a special case of proper name (29), and in Nez Perce, irregular stress properties are commonly found in these nouns.

(29)	a.	ʔóq'oχc	ʔóq'oχsna	'a man's name (nom)/(obj)'
	b.	cíceqiy	ciceqíyne	'Coyote's youngest child'
	c.	támimo?	támimo?pa	'man's name (nom)/(loc)'
(30)	a.	teχséhe	teχséhene	'Bedrock Canyon (nom)/obj)'
	b.	yáwwinma	yáwwinmana	'Rapid River (nom)/(obj)'
	c.	cáky'ax	cáky'axpx	'left (nom)/(allt)'
	d.	lémhaay	lémhaaypa	'Lemhi, ID (nom)/(loc)'
	e.	siláyloo		'Celiloo, OR'
	f.	yáqamoo	yáqamoopa	'Yakima, WA (nom)/(loc)'

Note that the man's name in (29a) contrasts almost minimally with ʔóoq'oχc, ʔoq'óoχsna 'ankle.' The common noun has regular stress but the proper noun has lexical stress. It is difficult to say why these kinds of nouns have irregular stress properties more often than other nouns, but we note that unusual stress behavior is documented for proper nouns/place names in other languages.

(31) Modern Turkish[8]

bodrúm	bodrumá	'basement (nom)/(dat)'
bódrum	bódruma	'Place name (nom)/(dat)'

In the next section, we turn to names for animals, which in some cases might actually be proper nouns.

3.4. Animal names. Most animal names in Nez Perce have regular stress. Since there are a great number of names for different kinds of animals, it is not surprising that animal names would be included in the set of irregular nouns as well. Note that in the following list, some items have regular forms depending on the dialect of the speaker.[9]

(32)	a.	cílmi	cílmiine	'pine squirrel'
		cilmíine	cilmíine	(less preferred)
	b.	c'íɬiɬee	c'íɬiɬeene	'ermine (nom)/(obj)'
		c'íɬiɬe	c'íɬiɬéene	(less preferred)
	c.	qáya	qáyana	'snake hawk (nom)/(obj)'
	d.	títe?wxc	títe?wxcne	'chisselmouth (nom)/obj)'
	e.	qósalat	qósalatna	'male mtn. goat (nom)/(obj)'
	f.	wewúkye	wewúkyene	'bull elk (nom)/(obj)'
	g.	wetyétmes	wetyétmesne	'trumpeter swan (nom)/(obj)'
	h.	ʔálok'at	ʔálok'atna	'mountain sheep (nom)/(obj)'
	i.	qaasíʔ	qaasíʔna	'bumblebee (nom)/(obj)'
	j.	χáχaac	χáχaasna	'grizzly bear (nom)/(obj)'
	k.	hímiin	hímiisne	'wolf (nom)/(obj)'
	l.	tilípe?	tilípe?ne	'fox (nom)/(obj)'
	m.	tíske?	tíske?ne	'skunk (nom)/(obj)'

It is possible that some of these animal terms may in fact be proper nouns. In the myths (see Phinney 1934, Aoki 1970, Aoki and Walker 1984), the animal characters are usually called by the names we find here. It might also be the case that for the Nez Perce people, animal names, which we think of as common nouns, were in some sense proper names.

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[8] I am grateful to my friend Abby Kahn for this example.

[9] My consultants have supplied their ersonal evaluations that the irregular forms are usually typical of older speakers and are "preferred."

For some animal terms, taboo avoidance or deformation is a further possibility. Watkins (1985) has pointed out for Indo-European how words like bear and wolf have undergone change through taboo avoidance or deformation. The Indo-European word for 'bear' was something like ṛ̥tko (c.f., Greek arktos and Latin ursus), and the word for 'wolf' something like wl̥kʷo. In Germanic, taboo avoidance resulted in complete replacement of the cognates of ṛ̥tko by bear and bruin etc. In Latin, deformation applied to wl̥kʷo (from which English gets wolf without deformation) to produce lupus.

For the Nez Perce animal terms, it is very possible that some of these words would have been deformed or replaced for reasons of taboo avoidance. The word for wolf "the one with the mouth" seems straightforwardly to be a taboo replacement (33a). Grizzly bear seems to be a good candidate as well since this animal was and still can be a terror to poorly armed humans in the Rocky Mountains. Reasons for avoiding skunks seem fairly obvious.

(33)	a.	hímiin	hímiisne	'wolf (nom)/(obj)'
	b.	χáχaac	χáχaasna	'grizzly bear (nom)/(obj)'
	c.	tilí́pe?	tilí́pe?ne	'fox (nom)/(obj)'
	d.	tí́ske?	tí́ske?ne	'skunk (nom)/(obj)'

The unusual stress properties of these items may have added to the deformation that was imposed to distance them from the original word. Deformation based on stress and vowel length is clearly involved in the derivation of 'yellowjacket wasp' (34).

(34)	?alatálo	'yellowjacket wasp'
	(Not *?alatáalo)	from ?aalaa 'fire' + **taalo** 'testes')

Given usual compound formation we expect *?alatáalo or even *?aláatalo. One of my consultants pointed out the fact that if you said 'yellowjacket' the first way, people would know what you meant, but that they would giggle.

3.5. Nouns with final fricative codas: χc/χs. This set of nouns is irregular because stress is expected to be on the final vowel of the word. In the examples shown in (2.2.), a final CC cluster suspended the proscription against final stress that otherwise prevents assignment of stress to the last vowel. However, a final cluster χc/χs does not confer this kind of exemption on a word.

(35)	a.	cát'oχc	cát'oχsna cat'óχsna	'wild hyacinth (nom)/(obj)'
	b.	mác'aχs	mác'aχsna mac'áχsna	'ear (nom)/(obj)' (rare)
	c.	sí́t'eχs	sí́t'eχsne sit'éχsne	'liver (nom)/(obj)'

d.	píyeχs	piyéχsne	'rawhide rope (nom)/(obj)'
e.	sísteχs	sistéeχsne	'crotch (nom)/(obj)'
f.	?íspeχs	?ispéeχsne	'groin,' 'crotch (nom)/(obj)'

Since stress does shift in some or all of these examples, depending on the dialect, it appears that the nouns are regular in other aspects. The unifying aspect is the uvular fricative before another fricative/affricate (the other fricatives do not appear in such a position). This stands in contrast to the other examples in which a stop precedes a fricative/affricate. If the uvular fricative forms a complex coda with a following fricative/affricate but a stop does not, this would provide a formal explanation for the difference in the behavior of these two kinds of nouns. In the case of a word ending in χc/χs, the preceding vowel would be part of a word final syllable, and so subject to the principle that prevents that kind of stress pattern. In the cases where ?χ/qs end the word (e.g., nacó?χ, naco?óχna 'otter (nom)/(obj)'), if the members of the cluster are heterosyllabic, then it follows that the rightmost vowel is not in a final syllable and can therefore receive main stress.

3.6. Nouns where long vowels are unstressed. These nouns are unusual in that their long vowels are expected to reduce if they do not receive stress. If they do not reduce, then stress is expected to be assigned to them because of the Weight to Stress principle. In spite of these principles, stress shifts from them to a vowel closer to the right.

(36)	a.	teemísquy	teemisqúuyne	'syrup (nom)/(obj)'
	b.	taamámno	taamamnóona	'hummingbird (nom)/(obj)'
		tamáamno	tamamnóona	(regular but less preferred)
	c.	seewí?s	seewi?ísne	'mussel (nom)/(obj)'
		sewí?s	sewi?ísne	
	d.	t'ulúulux	t'uluulúxne	'kingfisher (nom)/(obj)'
	e.	t'íican	t'iicána	'buttocks (nom)/(obj)'

In the first two cases, stress shifts to a vowel which is then realized as long. Since Weight to Stress would be equally satisfied with stress on either long vowel, the penultimate long vowel should win by virtue of the principle that favors stress closer to the right edge (while this explains the inflected form, it does not explain the uninflected). For the other examples, it is difficult to see what the explanation would be. One possibility is that once stress has been assigned to a syllable following a long vowel, this implies that the long vowel can be ignored for further purposes of stress assignment. Note that stress never moves leftwards under inflection.

3.7. Residue. There remain a number of nouns for which there seems to be no reason – obvious or speculative – for their irregular stress properties.

(37)	a.	mástaps	mastáapsna	'deaf person (nom)/(obj)'
	b.	χóyχa?c	χóyχa?sna	'javelin (nom)/(obj)'
	c.	?ením'	?enímʼne	'winter (nom)/(obj)'
	d.	lilóqop	lilóqopnim	'a berry (nom)/(erg)'
	e.	títux	títuxne	'elk thistle (nom)/(obj)'
	f.	mímqas	mímqasna	'orange (fruit) (nom)/(obj)'
	g.	táaqmaaɬ	táaqmaaɬna	'hat (nom)/(obj)'
	h.	k'apác	k'apácna	'edge (nom)/(obj)'
	i.	wiwáyko?	wiwáyko?na	'new shoots (nom)/(obj)'

4. Conclusions. The existence of nouns with irregular stress is by no means calamitous for the grammar. As in any natural language, the Nez Perce lexicon is able to accommodate words with extra unpredictable characteristics. However, it is heartening to see that many of the irregular nouns have in their history an explanation for their odd behavior. This allows us to have greater confidence in a theory that seeks to provide an explanation for regular stress assignment.

References

Aoki, Haruo (1970). *Nez Perce Grammmar.* University of California Press, Berkeley.

Aoki, Haruo (1979). *Nez Perce Texts.* University of California Press, Berkeley.

Aoki, Haruo (1994). *Nez Perce Dictionary.* University of California Press, Berkeley.

Aoki, Haruo, and Deward E. Walker (1989). *Nez Perce Oral Narratives.* University of California Press, Berkeley.

Dixon, R.M.W. (1994). *Ergativity: Cambridge Studies in Linguistics 69.* Cambridge University Press.

Hayes, Bruce (1995). *Metrical Stress Theory: Principles and Case Studies.* University of Chicago Press, Chicago.

McCarthy, John J., and Alan Prince (1993). "Prosodic Morphology I." Unpublished Manuscript, University of Massachusetts, Amherst.

Phinney, Archie (1934). *Nez Perce Texts.* University of Columbia Press, New York.

Prince, Alan (1991). "Quantitative Consequences of Rhythmic Organization," in Karen Deaton, Manuela Noske, and Michael Ziolkowski, eds., *CLS 26-II: Papers from the Parasession on the Syllable in Phonetics and Phonology,* Chicago Linguistic Society, Chicago.

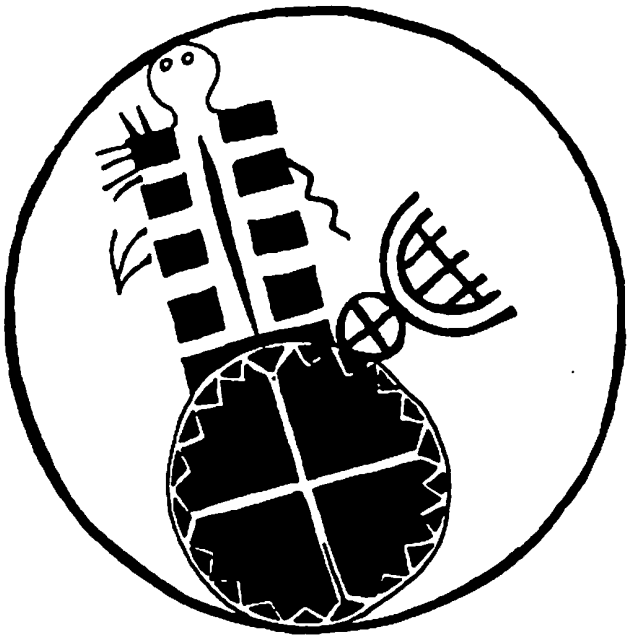
Prince, Alan, and Paul Smolensky (1993). "Optimality Theory: Constraint Interaction in Generative Grammar." Unpublished Manuscript, Rutgers University.

Rude, Noel (1985). *Studies in Nez Perce Grammar and Discourse.* Ph.D. Dissertation, University of Oregon, Eugene.

Watkins, Calvert ed. (1985). *The American Heritage Dictionary of Indo-European Roots.* Houghton Mifflin Company, Boston.

REPORT 9

SURVEY OF CALIFORNIA AND OTHER INDIAN LANGUAGES



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INTRODUCTION

The papers in this volume were originally presented at the meetings of the Hokan-Penutian Workshops in Eugene, Oregon, July 8-9, 1994, and in Albuquerque, New Mexico, July 5-6, 1995. The 1994 Workshop was held in conjunction with a two-week invitational conference on Comparative Penutian Linguistics (the proceedings of which will be published in a forthcoming issue of the *International Journal of American Linguistics*) and was organized by the coordinators of that conference, Scott DeLancey and Victor Golla. The 1995 Workshop was one of a series of meetings on Americanist linguistics that formed part of the 1995 Linguistic Institute at the University of New Mexico, and was organized by Victor Golla under the auspices of SSILA.

A special feature of the 1995 Hokan-Penutian Workshop was a half-day session on the *Present Status of Hokan Linguistics* specially organized by Margaret Langdon and William H. Jacobsen, Jr. A substantial part of the present volume is given over to Appendices containing the bibliographies and short summaries of pronominal reference and case systems that were prepared for this session. Also included is the draft of a lexicon of Seri, prepared by Stephen A. Marlett and Mary B. Moser for Mary Ritche Key's "Intercontinental Dictionary Series," a lexical database designed to facilitate crosslinguistic research. The format of this database is derived from Carl Darling Buck's *Dictionary of Selected Synonyms in the Principal Indo-European Languages.*

This is the second volume of Hokan-Penutian Workshop Proceedings to be published by the Department of Linguistics, University of California, Berkeley, as one of the *Reports* of the Survey of California and Other Indian Languages, under the general editorship of Leanne Hinton.

Victor Golla
Volume Editor

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