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Locational relations in Yagua narrative

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NEW APPROACHES TO COPING WITH STRESS:

A Case Study in Conchucos Quechua

by

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1 Introduction

In recent years, various alternative theoretical approaches have been presented for the study of prosodic features in the phonological systems of natural languages. Among these is the metrical theory of stress, originally proposed in Liberman and Prince (1977). Metrical theory has typically been applied to languages that have already been analyzed in segmental frameworks, in an effort to illustrate the superior effectiveness of the metrical theory in providing straightforward analyses which are predictive of the way stress systems of natural languages behave. (For example, Hale and White Eagle 1980.) The primary purpose of this present study is, however, not to argue for the superior effectiveness of the metrical approach by comparing it with another approach, but to demonstrate its effectiveness by applying it to the description of a stress system which has not been previously studied, that of the Quechua of Conchucos, spoken in the eastern portion of the Department of Ancash, in northern central Peru. The analytical framework is as outlined in the first three chapters of Hayes (1980).[1]

In the metrical theory of stress as proposed by Hayes (1980), everything about stress can be reduced to a tree structure. The metrical rules give the directions for the construction of a hierarchy of binary branching metrical trees with each pair of nodes labeled **s** and **w**. Typically, at least two hierarchial levels are constructed: that of the **foot**, a unit containing one stressed syllable, and the **word tree** grouping together the feet (see Hayes p. 39). The two levels are separated by a horizontal line in the representation. "Branching is the central, unmarked criterion of prominence." (Hayes p. 45). Trees are uniformly branching: "All metrical rules must specify whether in the structures they create it is right nodes or left nodes that are dominant," (Hayes p. 47) that is, susceptible to internal complexity. The unmarked labeling convention is that dominant nodes are strong (**s** in the tree structure). Correspondingly, recessive (non-branching) nodes are weak (**w** in the tree structure).

The metrical rules most often refer to the **rime projection** (Hayes p. 13) of the syllable; that is, everything but the segments preceding the syllable peak (i.e. the onset). The rules may also be sensitive to branching below the rime level, in the syllabic nucleus. In such cases, they are said to be **quantity sensitive**.

The main stress of a word falls on the syllable dominated only by **s´s**. The other metrically strong syllables receive lesser stress. The labeling has a purely relative meaning, and the tree structure geometrically represents the degrees of relative prominence among syllables.

Although the primary purpose of the paper is a descriptive one, some of the implications of this analysis for other dialects of Quechua, specifically that of Huaraz, will be mentioned. It is to be hoped that, in proposing a particular analysis for one dialect of Quechua, a strategy for dealing with the stress systems of related dialects is presented.

2 Background

2.1 The Quechua syllable

The canonical syllable structure for Quechua is (C)V(C). There are two degrees of contrastive vowel length (the first person marker, for example, consists simply of length); however, long vowels may not occur in closed syllables. Tautosyllabic consonant clusters in native words are not permitted, but consonant clusters may occur across syllable boundaries. The possible syllable shapes for Conchucos Quechua (ConQ hereafter) are thus: V, V:, VC, CV, CV:, VC, and CVC.[2]

The vast majority of noun and verb roots in ConQ are disyllabic. Noun roots may end with a short or long vowel or a single consonant. Verb roots must end with a vowel, either short or long. Quechua is polysynthetic and agglutinating. Most of the suffixes, which are

numerous, begin with a consonant. They may be either mono- or disyllabic.

2.2 Data base

The data base for this study was a group of texts (spoken) recorded in Peru, as well as isolated words, phrases and field notes.[3] The transcriptions are in the official Peruvian Quechua orthography, which is, for the most part, phonemic. However, a few words of explanation are in order:

1. Long vowels are represented as geminates.
   Syllables containing long vowels are considered
   to be **heavy** for the purposes of stress
   assignment; in metrical tree structure, this is
   represented as a branching nucleus. (All other
   syllables, with few exceptions -to be discussed- are
   light).

2. **aw, ay, uy** and **iy** represent diphthongs, which
   behave like the long vowels (ie. branching nuclei) for the
   purposes of stress assignment.

3. **q** is a uvular fricative.

4. The alveolar affricate represented as **ts** is
   interpreted as a single segment in the phonology
   of ConQ, as is the palatal lateral **ll**.

2.3 Previous analyses

The study of stress has not been a "hot topic" in Quechua studies. Because stress rarely performs a contrastive function at the word level, it is often dismissed as "predictable" and left for the greener pastures of morphology and syntax. Most recently, Adelaar (1984:27) comments: "In most Quechua dialects... stress is usually assigned to the penultimate syllable in a word-form... However, word-final long vowels are stressed when they include a first-person marker consisting of length." Adelaar notes, however, that in Huaraz, a neighboring dialect to ConQ, this pattern is **not** followed.

A tendency towards word-**initial** stress is reported for Huaraz by Parker (1976), Weber and Landerman (to appear), and Larsen and Levengood (1982). In Pomabamba, just on the other side of the hill, so to speak (a ConQ area), Larsen and Phelps (circa 1975) report that "stress is on the penultimate syllable with few exceptions." To my knowledge, however, in neither dialect has a thorough study of stress been undertaken. The ConQ dialect is a good place to begin an investigation into Quechua stress for at least two reasons:

1. The reported penultimate strength indicates that it
   may be typical of the majority of Quechua dialects
   in central Peru.

2. Its close geographical proximity to the Huaraz dialect, where initial stress has been reported in the literature, alerts us to the possibility of a similar tendency in ConQ.

3 Preliminary metrical analysis

In ConQ, word-level main stress typically falls on the penultimate syllable, secondary stress on the initial syllable, and tertiary stresses on alternating syllables preceding the penult. Disregarding vocalic length for the moment, and thus, quantity sensitivity in metrical tree construction, the following rules will account for the system:

(1) **Metrical Analysis** (Initial Version)

Foot construction
a. Projecting (+syl) segments within the rime, assign a binary left-dominant foot at the left edge of the word.
b. Assign a binary left-dominant foot at the right edge of the word.
c. Group the remaining syllables of the word into similar feet, going from right to left.

Word-tree construction

d. Form a right-dominant word tree. Remove non-branching non-initial feet in weak position.

(1) will yield forms such as the following:

(2) Apply:

1a. kùpakàchaskírnin   'having patted it down'

1b. kùpakàchaskírnin

1c. kùpakàchaskírnin

1d. kùpakàchaskírnin
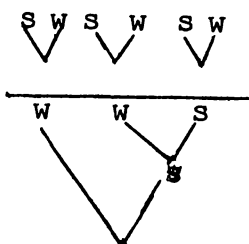
(3)   tìmputsíntsik   ´we boil it.´

Notice that (1c) is not applied in (3) because all of the syllables are already footed by (a) and (b).
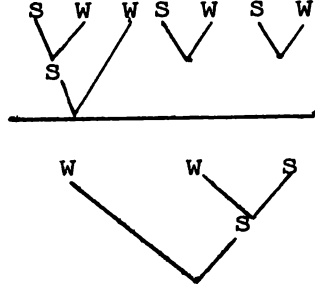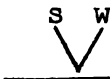
The word tree in (3) nicely expresses the relative strength of the secondary and tertiary stresses according to their depth of embedding in the tree. (4) illustrates the need for the right-to-left directionality clause in (1c), as well as the clause in (1d) about removing non-branching feet in weak position:

(4) a. màyllakachàskirnínqa   ´having washed it up´

b. màyllakachàskirnínqa

c. màyllakachàskirnínqa

d. màyllakachàskirnínqa
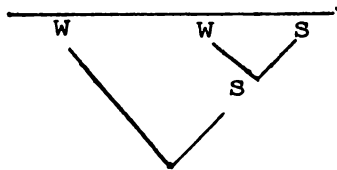
The above rules will account for lexical stress in ConQ words of any length, provided that they only contain short syllables. Further examples follow:

(5)   tsáy   ´that´

(6)   márka   'town'

S W
\/
___

(7)   wàyratsipàskirnínqa   'having aired it out'

S W W S W S W
\/ / \/ \/
  S
  \/
_____

W   W   S
         \/
          S
     \/

(8)   yakúman   'towards the water'

S W
\/
___

(8) Has an optional variant with main stress falling **initially:** **yákuman.** This situation is typical of three-syllable words with light syllables only, among them the following:

(9)   yakú-ta ~ yáku-ta   'to the water'
        water-Acc

(10)   riká-kan ~ ríka-kan   'it is seen'
        see-pass-3

(11)   runá-pa ~ rúna-pa   'of the man'
        man-Gen

Notice that the **root** stress in each of the above examples (the root being the initial two syllables) is predictable by clause (a) of the Foot Construction Rules:

(9) a. yáku   'water'

(10) a. ríka-   'see'

(11) a. rúna   'man'

When the final syllables, **-ta, -kan** and **-pa** are affixed, speakers

apparently opt either to retain the original stress or to permit the affixed suffixes to cause the stress to shift rightward. This initial stress is precisely what has been reported as a general tendency in the neighboring Huaraz dialect. In effect, the root stress is preserved and the final syllables are extrametrical, that is, "skipped over in foot construction" (Hayes 1980:72), in the cases where they do not shift the stress. A suggested derivation for **yakuman** with initial stress follows, with extrametricality indicated by parentheses:

(12)   yáku(man)   Yáku(man)
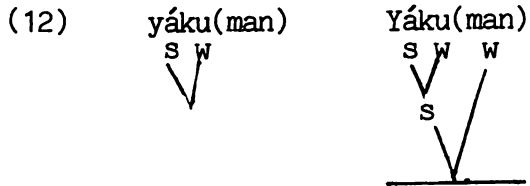
4 Analysis incorporating quantity sensitivity

4.1 Disyllabic words

Were we to conclude our analysis of Quechua stress at this point, we would be making a grave error, as we would be disregarding a fairly crucial fact about the language: namely, that words are more likely than not to contain at least one long vowel. Furthermore, as long vowels have been reported to attract main stress in other dialects of Quechua word-finally, the relevant data from ConQ needs to be perused.

Disyllabic words in ConQ are main-stressed initially (ie. penultimately) regardless of whether or not either or both syllables have branching nuclei. Vowel length in either syllable **does** attract secondary stress, however, so quantity sensitivity is not irrelevant.

Compare the following pairs:

(13)
	(a)			(b)	
kútìi	'I return'	and	kúti	'turn'
wámràa	'my child'	and	wámra	'child'
cháarìi	'I arrive'	and	chári	'yes indeed'

The difference between the long and the short vowels in the second syllables (13a) and (13b) indicates the need to incorporate **quantity sensitivity** (QS) into the rules. (QS) insures that no long vowels (branching nuclei in tree construction) will be labeled recessive, since, in Hayes' framework, recessive (weak) nodes cannot branch:
> **Foot Construction** (a) (revised): Assign a **binary quantity** sensitive left-dominant foot at the right edge of the word, where quantity is defined as a branching nucleus.

As a result, the second syllable in (14) **kútìi** cannot be labeled **w**, but must be given independent foot status (i.e. degenerate).

Clearly, the difference in secondary stress between groups (13a) and (13b) needs to be incorporated into the tree geometry:

(14)   Two Feet: One Foot:
             (a)   (b)
            kútli   kúti
            s v   s w

We are also obliged to construct a **left**-dominant instead of a right-dominant word tree to complete the derivation of **kútli**:

(14) a. (Revised version)   kútli
                             s

                            s   w

The Word-Tree Construction Rule is modified accordingly:
> **Word-tree construction** (revised): Form a
> left-dominant word tree iff the word is
> disyllabic (a biped!) Otherwise, form a
> right-dominant word tree. Remove non-branching
> feet in weak non-initial position.

Trees can now be freely constructed for words such as these:

(15)   wáatày   'to take care of'

              s   w

(16)   wámrà   'my child'

              s   w

Notice that this modification will not affect the tree structure for forms like (14b) **kuti**, because (1d) does not apply in these cases.

4.2 Polysyllabic words

The assignment of **final** main stress in polysyllabic words ending with heavy syllables is predicted by the Foot Construction (FC) rules, as revised for Quantity Sensitivity (QS). Since final long vowels usually attract main stress when following a short penult, the metrical rules accomodate themselves economically to the realities of the language. The word-tree, however, remains right-dominant:

(17)   yàchakàakuyashkáa   'I have become completely adjusted.'

S W S W

W W W S

(18)   yàrpanqàntsiknóo   'just as we have thought'

S W S W

W   W S
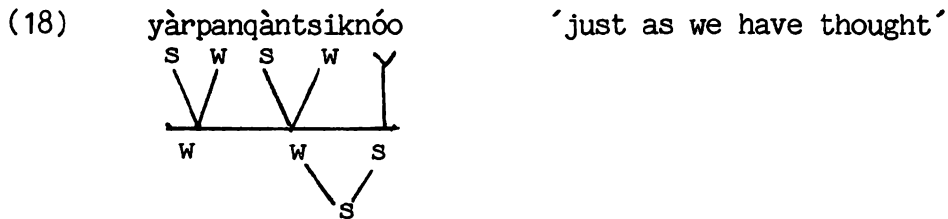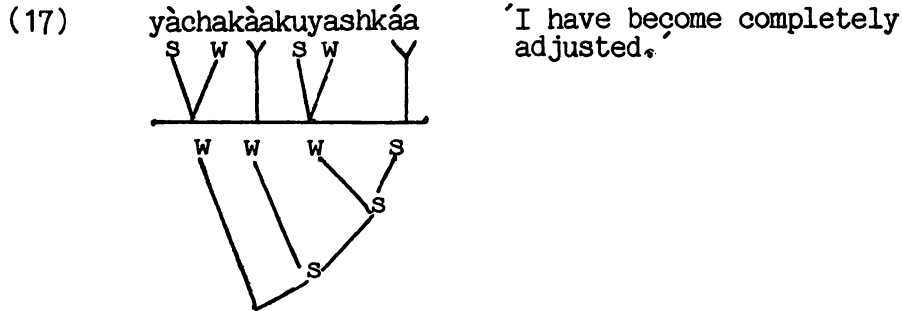
Notice that (QS) or quantity sensitivity is required also in the assignment of the initial foot at the left edge of the word. Contrast (19) and (20):

(19)   wàamikàchaskíntsik   'We beat it up.'

S W S W S W

W W S

(20)   warᶻaninpáraq   'yet for tomorrow'

```
        S   W   S   W
       |    \/  \ /
       |    V   V
       |_____
        W    W      S
         \    \    /
          \    \  /S
           \    \/
            \   /
             \ /
              V
```
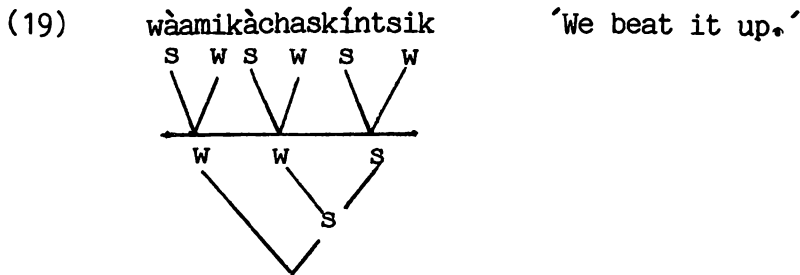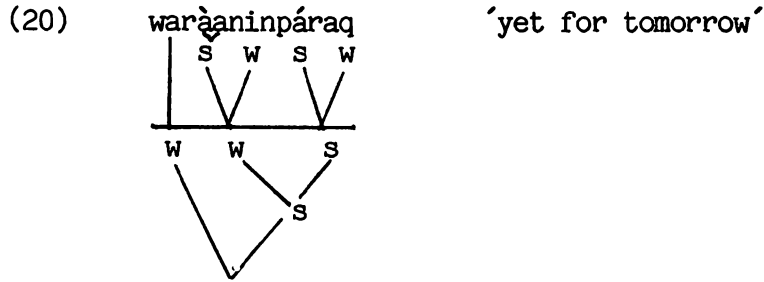
Quantity sensitivity in the assignment of the initial foot in (20) insures that the initial syllable is a separate foot, as the long vowel (branching nucleus) in the second syllable must be labeled **s**, to avoid a branching recessive node. To accomodate Quantity Sensitivity in all cases, FC (b) and (c) are revised as follows:

Foot Construction (revised): (b) Assign a binary
QS foot at the left edge of the word. (c) Going from right
to left, group the remaining syllable of the word into QS
left-dominant feet.

FC (a) stands as revised in Sect. 4.1.

In summary, QS is required throughout the tree construction process.

4.3 Quantity Sensitivity Suppression

As mentioned above, final long vowels **usually** attract stress when they follow a **short** penult. However, this is not **always** the case. Consider the following:

(21)   làqyaykàchaskíshàa   'I will repeatedly slap.'

```
   S   W   S   W   S   W
    \ /   \ /   \ /
     V     V     V
   _____
    W     W      S
     \     \    /
      \     \  /S
       \     \/
        \    /
         \  /
          \/
           V
```

(22)   rùratsiyáràa   'We caused it to be done.'

```
   S  W  W S  W
    \/  \/  \/
     V   V   V
   _____
    W        S
     \      /
      \    /
       \  /
        \/
         V
```
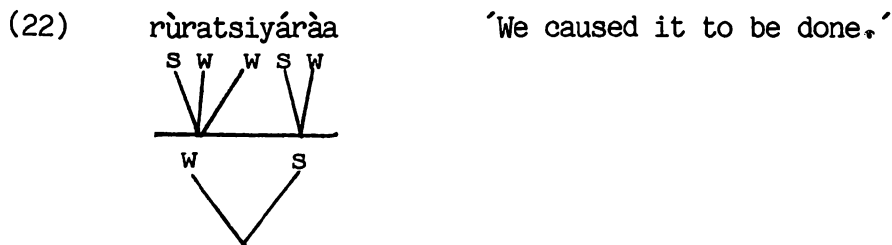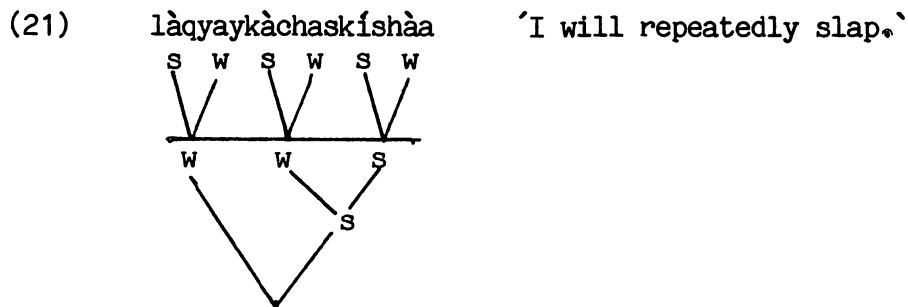
The above examples illustrate the fact that, if a heavy final syllable is preceded by a light penult, the penult may still receive main stress. Stress **always** falls on the penultimate syllable in words ending in two heavy syllables:

(23)   wiyàasiyaámày   ´Accompany me in listening.´
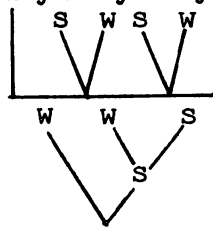
(24)   hìpiskayàalláamày   ´Get me out of here!´
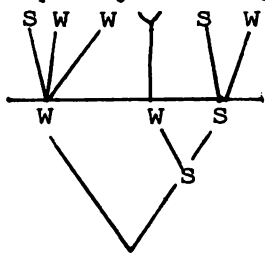
To accomodate the above patterns in the FC rules, the following clause may be added to FC:

Suppress QS in the two final syllables if nuclei
in both syllables are branching. Optionally, suppress
QS in final heavy syllables following a light penult.

I shall call this Quantity Sensitivity Suppression (QSS). QSS applies only to the final two syllables. Since there is no length asymmetry in the relationship between two heavy syllables, it is not surprising that penultimate main stress "wins out." In any case, length consistently attracts secondary stress, as the following examples illustrate:

(25)   hànalàallàachóomi   ´just way up there´

```
      S  W  Y    Y  S  W
      |  |  |    |  |  |
      V  |  V    |  V  |
   ___\_/_____/__\_/___
      W   W   W      S
       \   \   \    /
        \   \   S__/
         \   \_/
          \  S
           \_/
            |
            V
```
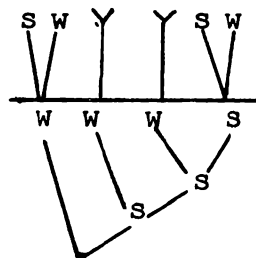
(26)   rìkachakàykayàapamánki   ´You all look after it
                                     carefully for me.´

```
    S  W  W  S  W  S  W  S  W
     \ | /  \ | /  \ | /  \ | /
      V      V      V      V
   _____/_____/___
       W         W      S
        \        \     /
         \        S___/
          \      /
           \    S
            \  /
             \/
```
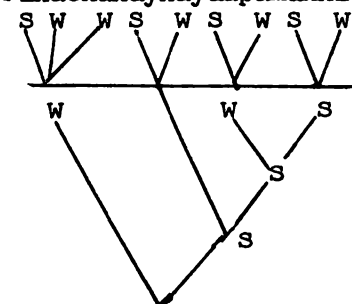
5 The three-syllable level

As mentioned above, three-syllable words tend to bear initial main stress; on the other hand they often bear penultimate main stress. In the first case, they behave as has been reported for Huaraz, in the second, as has been reported in other dialests of Quechua. In this section, we will explore this hybrid system in more detail, with special reference to the influence of QS.

In our initial analysis of three-syllable words without long vowels, the optional initial main stress variants (of penultimate stress) could be expressed in metrical terms as having an optional extrametrical final syllable. This mechanism averted the need to construct a left-dominant word tree. When long vowels are admitted into the picture, however, we lose this option: here, just as in disyllabic and polysyllabic words, long vowels attract secondary stress and need to be taken into consideration in tree construction, at least at the foot level. It is thus difficult to avoid the construction of a left-dominant word tree in cases where primary stress is initial and final secondary stress is present because of vowel length. Since our analysis of disyllabic words with final vowel length led us to essentially the same conclusion, we need only extend the stipulation about left-dominance in word-tree construction to include three-syllable words optionally.

There are, however, some additional facts to be considered at the three-syllable level:

1. Heavy penults **always** attract main-stress.
   Heavy penults in three-syllable words include
   syllables with branching **rimes** (closed syllables)
   as well as branching nuclei:[4]

(27)   wa˳ráa˳nin   ´day after tomorrow´

        qay˳wín˳tsik   ´we stir it´

        mu˳náy˳kàa   ´I want (it)´

2. Light penults preceded by a heavy initial **never**
   bear main stress. It is always initial in these cases.
   Light penults may bear stress if the preceding initial
   is light:

(28) a. cháa˳ra˳mun   ´he arrives´

         yáy˳ku˳skìi   ´I enter (perfective)´

(28) b. qó˳ya˳ràa   qo˳yá˳ràa   ´I stayed´

3. Final heavy syllables may, but need not necessarily,
   bear main stress if and only if the preceding syllables are
   both light:

(29)   qóyáràa ʌ ·qoyáràa ʌ qòyaráa   ´I stayed´

        yúriràa ʌ yuríràa ʌ yùriráa   ´I was born´

In other words, the only insurance that main-stress will be penultimate is if that syllable has a long vowel or is closed. Otherwise the main-stressed syllable will be the initial, with the following gray areas:

a) If only the final syllable[5] has a long vowel, main-stress
   may optionally fall there,

or,

b) The case treated in Sect. 3, where stress is **likely** to
   be penultimate **in words** when all three syllables are
   short.

In order to accommodate these facts into the existing
rule-system, we will need to qualify QS in FC (a), which in its
present form, is sensitive only to branching nuclei:

Quantity Sensitivity: In three-syllable words,
penults with branching rimes are counted as heavy.

In order to formalize the fact that, at times, we will want to
construct right-dominant word trees for three-syllable words, (as for
polysyllabic words) and, at others, left-dominant word trees (as for
disyllabic words), we can add a stipulation that the dominant node in
three-syllable words must branch in order to be labled **s**:

In word-trees for three-syllable words, label the right
node strong IFF it branches.

This will inhibit construction of the correct trees for forms like
ràn°tish°káa and **qò°ya°ráa**, where the dominant node does not branch,
but main stress is on the final degenerate foot with a branching
nucleus. Note that for **ràn°tish°káa**, however, our rules predict
*ran°tísh°kàa, anyway. Since I know of no cases where **-shkaa** ´first
person perfect´ does not bear the main stress in a word it appears in,
the reasonable solution here is to mark this suffix as ¡+MS¿ (+main
stress) in the lexicon. Cases like **qòyaráa** will simply have to be
marked as final-stressed in the lexicon, optionally. This takes the
baggage of "might" or "may" be stressed out of the rules and places it
in the lexicon, where it belongs. This is not unreasonable, since
final syllable weight has very peripheral influence at the
three-syllable level, anyway. The revised form of the Word-tree
construction rule now reads as follows:

(1d) **Word-tree construction** (revised): Form a
right-dominant word tree. In words of less than four
syllables, label the right node as **s** iff it branches.

Notice that, for words with two heavy syllables at the right edge,
such as **munáykàa** ´I want´ and **yàchakúykàa** ´I am learning´, QSS is
invoked.

In summary, instability at the three-syllable level for ConQ
words may indicate a growing tendency towards initial stress, as in
the Quechua of Huaraz.[6]

6 **Summary of metrical rules**

Foot Construction:

a) Projecting (+syl) segments within the rime, assign a
   binary quantity sensitive left-dominant foot at the
   right edge of the word, where quantity is defined as
   a branching nucleus. Penults with branching rimes
   in three-syllable words are counted as heavy.

b) Assign a binary quantity sensitive left-dominant foot
   at the left edge of the word.

c) Going from right to left, group the remaining
   syllables of the word into quantity sensitive
   left-dominant feet.

Quantity Sensitivity Suppression: Suppress QS in the final two final
syllables of a word if the nuclei in both are branching. Optionally,
suppress QS in final heavy syllables following a light penult.

Word-Tree Construction

d) In word trees for words of three syllables or less, label
   the right node strong iff it branches. Otherwise, form
   a left-dominant word tree. In word trees for words of more
   than three syllables, form a right-dominant word tree
   following the unmarked labeling convention. Remove
   non-branching feet in weak non-initial position.

These rules provide a working mechanism for the assignment of
word-level stress in ConQ.

7 Lexical levels in stress assignment

Levinsohn (1976:20) mentions the following about Inga, a variety
of Quechua spoken in Colombia: "The grammatical word does not coincide
with the stress group." This is an intriguing statement in light of
the fact that it can be understood to refer either to a state of
affairs in which more than a single word is the domain of lexical
stress assignment, or, conversely, that less than a single word can be
a sufficient unit for the application of word-level stress assignment.
Levinsohn does not elaborate further about Inga. Also in ConQ,
either interpretation can be applied and can be used to explain some
otherwise puzzling cases. Considering the first situation, where more
than a single word is the domain of lexical stress assignment, notice
the stress pattern in the following example:

(30)   Áchikày mikùkuskínàa,   'The "Achikay" (wicked
        S W S   W S W S W   old woman) ate it up.'

Unless the two words are taken as a single unit for stress purposes, it is difficult to explain, if not impossible, why **mikùkuskínàa** does not bear initial secondary stress, (Notice that QSS is invoked to derive the correct main stress,) In other words, the stress rule applies **after** the two words have been concatenated, Borrowing some terminology from lexical phonology, one could say that the concatenation takes place at level (n-1), while stress applies at level (n),

Moving to the second situation, where stress applies at levels beneath the word, consider the following cases with **two** main stresses within the word:

(31)   hákàakunáta   'my guinea pigs (acc,)'

(32)   púriqkunáman   'towards those who are walking'

(33)   kèedanantsíkpaqkáqta 'that which is to stay for us'

(34)   taríntsikpístsu   'we don't find it at all'

If each of the above examples is divided in the following manner, the metrical tree construction rules for words can apply:

(31) a, hákàa kuná-ta

(32) a, púriq kuná-man

(33) a, kèedanantsíkpaq káq-ta

(34) a, taríntsik pís-tsu

The pluralizer **-kuna**, the definitivizer **-kaq** and, frequently the clitic **-pis** 'also, behave as separate words for stress placement, Drawing again on the insights of lexical phonology, we can say that these, and other suffixes like them, are affixed at level (n+1), following the assignment of stress at level (n),

Even with a level-oriented approach in which the phonological word is not necessarily to be equated with the syntactic word, we are left with a considerable number of words with **antepenultimate** stress. These can be understood systematically if we consider the notion of stress-neutral clitics which are affixed at level (n+1). These are never considered to be "words" for the purposes of stress placement, at level (n), and can therefore be determined as extrametrical for the purposes of stress placement. Among the clitics which behave in this manner, the most consistent is the ablative **-pita**, but others are typical as well, including **-lla** ´just´, **-lla-raq** ´just yet´, **-ta** ´accusative´, **-na** ´now´, and at times, the so-called ´topic´ marker **-qa**. Consider the following:

(35)   wàtukàykayàamunqáyki(ta)   ´your having visited here (acc.)´

(36)   ràkikàayanqáa(pita)   ´after our separation´

(37)   yànapàasháyki(llam)   ´I will just accompany you.´

In short, extrametricality and the layered interaction of affixation and stress assignment provide systematic explanations for a large number of words which would otherwise have to be marked for their idiosyncratic behavior regarding stress.

8 Concluding remarks

This study has shown the metrical approach to be an effective means for describing the stress system of ConQ. Furthermore, the metrical framework has enabled us to make graphic distinctions between relative degrees of stress in a way not feasible in a strictly linear approach. Metrical theory has thus proven to be an insightful vehicle for ConQ stress analysis at the word level. An extension of this approach to the phrase level and above should prove fruitful, as should its application to the analysis of other languages in the Quechua family.

Notes

1. I wish to thank Peter Landerman, Steve Anderson and Bruce Hayes for their valuable input in the preparation of this paper, and Hu Mathews, Dan Everett and Diana Weber for their insightful editing comments. Any remaining errors or inconsistencies are the sole responsibility of the author.

2. The suffix **-ski** (with its morphophonemic variant **-ska**) in ConQ, a marker of perfective aspect, patterns as a single syllable with an

initial consonant cluster. This is the only exception to the tautosyllabic cluster constraint that I am aware of.

3. These were collected during field work in Peru from 1979-82 under the auspices of the Summer Institute of Linguistics.

4. In the data available, all medial syllables in trisyllabic words are c;psed bu respmamts, but, in the absence of evidence to the contrary, it is best to state the rules in the most general terms possible. A dot indicates syllable boundary.

5. Some three-syllable words which should be able to bear final main stress are apparently marked for initial stress only. One example is **mállaqày** ´to hunger.´ Peter Landerman (personal communication) mentions that this may be an instance of a general tendency in the direction of disyllabicity in Quechua, and that the medial "a" may be on its way "out."

6. Interestingly, Larsen and Levengood (1982:10) mention that trisyllabic words with closed penults in the Quechua of Huaraz have primary stress on the penult. This may be one of the Huaraz-like features of ConQ. Some three-syllable words which should be able

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