Evidence against sonority-driven stress in Nanti*

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1. Overview

This paper proposes a new analysis of the stress system of Nanti, a Kampa language spoken by around 450 people in the Peruvian Amazon (Michael 2008). The Nanti data used for this study were collected in the field by Lev Michael and appeared in Crowhurst and Michael 2005 and Michael 2008.

According to Crowhurst and Michael (2005; C&M), the basic verbal stress pattern of Nanti is rhythmic iambic, as illustrated in (1). In verbs with only simple CV syllables, stress falls on every second syllable starting from the second syllable of the word. Final CV syllables in a prosodic word are never stressed. The round brackets in (1) indicate feet and the square bracket indicates the right edge of the prosodic word.

(1) *Basic rhythmic pattern*

a. (no.né).he].ro ‘I will see it’
b. (o.kò)(wo.gó).te].ro ‘she harvests it’

This basic iambic pattern is reportedly overridden by several factors, including vowel sonority. In the underlined feet in (2), the left member of the foot surprisingly receives stress. On C&M's analysis, this effect is due to vowel sonority: verbal stress in Nanti is sensitive to the fine-grained sonority scale in (3), and stress can shift leftwards within a foot to a more sonorous vowel.

(2) *Surprising trochaic stress*

a. (<u>nà.bo</u>)(bu.tái)].ro ‘I re-sew it’
b. (pi.pò)(<u>ká.kse</u>)].na ‘you came to me’

(3) *Vowel sonority scale for Nanti*

a $>$ e, o, u $>$ i

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While sonority-driven stress has been reported in other languages (e.g., Kenstowicz 1997, de Lacy 2002), recent literature has reanalyzed the majority of cases (de Lacy 2013, Shih 2018, Rasin 2018, a.o.), raising the possibility that stress might not have direct access to sonority at all. The possible non-existence of sonority-driven stress has important theoretical consequences. de Lacy (2002) and Blumenfeld (2006) argued that apart from sonority, stress is never sensitive to any segmental features (including aspiration, continuancy, stridency, roundness, and so on). If stress is also never sensitive to sonority, de Lacy and Blumenfeld's generalization would extend to all segmental features. The extended generalization was labeled "The Stress-Encapsulation Universal" in Rasin 2018:

(4) *The Stress-Encapsulation Universal*
The distribution of stress is never directly conditioned by segmental features

Rasin 2018 proposed a modular phonological architecture that derives the universal (see also Scheer 2016). On that architecture, stress can see structural properties like syllable structure and length, as well as a binary structural distinction between ordinary and structurally-defective vowels, but it can never see segmental features such as aspiration or vowel height. Nanti's verbal stress is a reported counterexample to the Stress-Encapsulation Universal. It shows a ternary qualitative distinction (a > e, o, u > i) that cannot be reduced to a binary structural distinction between ordinary and structurally-defective vowels, and since all Nanti vowels independently contrast for length, sensitivity to sonority cannot be reduced to sensitivity to different vowel lengths. If C&M's analysis of Nanti stress is correct, the universal in (4) and the architecture that derives it could not be maintained.

My goal in this paper is to revisit the status of Nanti's verbal stress as a sonority-driven system by examining the effects of Nanti's morphological and phonological structure on stress. In section 2 I develop a stratal analysis of Nanti in which apparent sonority-sensitivity is due to a sonority-blind system that is rendered opaque on the surface. For example, the surface forms in (2) are underlyingly (5a)-(5b). In (5a), vowel deletion applies after stress assignment and makes an underlying iambic foot look trochaic on the surface. In (5b), the suffix /-ak/ is lexically-stressed and keeps its stress on the surface.

(5) a. /no-abobu-áh-i=ro/ → (no.à).bo… → nà.bo
b. /pi-pok-ák-e=na/

In section 3 I present evidence in favor of the sonority-blind analysis developed in section 2 and against C&M's sonority-driven analysis. I will show that C&M's sonority-driven analysis makes the wrong predictions in a variety of cases that are correctly accounted for by the sonority-blind analysis. Section 4 concludes that Nanti's verbal stress is not a counterexample to the Stress-Encapsulation Universal.

2. Reanalysis of Nanti verbal stress

2.1 Basic assumptions

In this subsection I present some basic properties of Nanti phonology, relying primarily on the description in Michael (2008). In addition, I discuss the theoretical assumptions that will form the basis of the sonority-blind analysis of Nanti stress. The vowel inventory of Nanti, given in (6), includes five short vowels and their contrastively long variants. Nanti's surface syllable structure is CV(V)(N), where VV is a long vowel or a diphthong and N is a nasal consonant. Nasal consonants are the only permissible codas and they must be homorganic with a following stop. Onsets are required except in word-initial position.

(6)

i, i:		u, u:
e, e:		o, o:
	a, a:	

Nanti verbs are divided into two morphological domains – a stem domain and a suffix domain – as schematized in (7). The two domains behave differently with respect to multiple phonological processes (Michael 2008, pp. 239-243). In the stem domain, vowel hiatus is resolved by either glide formation or vowel deletion, whereas in the suffix domain it is resolved by [t]-epenthesis. Consonant clusters that arise through affixation are avoided through consonant deletion in the stem domain but through [a]-epenthesis in the suffix domain.

(7) [SUBJECT-IRREALIS-CAUSATIVE-ROOT]-DERIVATION-INFLECTION=OBJECT

Stem domain: [SUBJECT-IRREALIS-CAUSATIVE-ROOT]; Suffix domain: -DERIVATION-INFLECTION=OBJECT

To capture the difference between the two morphological domains, and to account for the phonological processes in each domain, I will adopt a stratal rule-based theory of phonology along the lines of Lexical Phonology and Morphology (Pesetsky 1979, Kiparsky 1982, Halle and Mohanan 1985). I assume that the stem is constructed in one cycle with its own phonology. Then, the suffixes are added cyclically, each triggering a pass through the suffix phonology (all suffixes are assumed to belong to the same stratum). While both strata and rules will make it convenient to account for Nanti stress, this paper will not argue that these are necessary choices. My focus in this paper is on the question of the existence of sonority-driven stress in Nanti, and it is possible that the analysis could be translated into constraint-based or non-stratal frameworks (though, as we will see, some serialism will be needed).

The rule-based analysis of stress will follow the model of Halle and Vergnaud (1987) in separating foot-construction rules from rules that assign stress to feet after foot construction. Stress in the stem domain works as follows. Bisyllabic feet are constructed from left to right. Then, iambic main stress is assigned to the rightmost foot and iambic secondary stress is assigned to all other feet. As an example, consider the following word:

(8) no.né.he.ro
no-neh-e=ro
1.SG-SEE-IRREAL=3.NONMASC.OBJ
'I will see it'

Here, the stem consists of the subject marker /no-/ and the root /neh/, and there is a single cyclic suffix, the irrealis marker /-e/. Clitics like =ro are extra-metrical: they are added in the end with no effect and will be disregarded in the discussion that follows. As shown in (9), the input to the stem cycle is /no-neh/. In the stem cycle, foot construction applies and is followed by stress assignment. The output of the stem cycle is [(no.néh)]. In the next cycle, the irrealis suffix /-e/ is added. Stress is transferred to the next cycle but, for reasons that will become clear below, I assume – again following Halle and Vergnaud (1987) – that foot structure gets destroyed and must be reconstructed in each cycle. In (9), foot reassignment creates the same foot structure that had been erased and has no observable effect. The final output is [(no.né).he=ro].

(9)

Word	[no.né.he.ro]
Structure	/no-neh-e=ro/
Cycle I (stem)	noneh
Foot construction	(no.neh)
Stress	(no.néh)
Cycle II	no.néh-e
Foot construction	(no.né).he
Output	[(no.né).he=ro]

The phonological processes that affect syllable structure and are reported by Michael (2008) are given as rules in (10) for the stem stratum and in (11) for the suffix stratum. I will group these rules together in each domain as "syllable rules".

(10) *Syllable rules (stem)*

a. Glide formation ($i \rightarrow j$ / # _ V)
b. Vowel deletion ($V \rightarrow \emptyset$ / _ V)
c. Consonant deletion ($C \rightarrow \emptyset$ / _ C)

(11) *Syllable rules (suffix)*

a. Vowel epenthesis ($\emptyset \rightarrow a$ / C _ C)
b. Consonant epenthesis ($\emptyset \rightarrow t$ / V _ V)
c. h-deletion ($h \rightarrow \emptyset$ / V _ V)

After adding syllable rules to each stratum, we get the first version of our grammar in (12). In the stem stratum, syllable rules are crucially ordered after stress assignment and can render it opaque. In the next subsection, I discuss this opacity and how it leads to apparent sonority-driven stress on the surface.

(12) *A fragment of Nanti grammar (to be revised below)*

– Stem rules:

1. Foot construction
2. Stress
3. Syllable rules

– Suffix rules:

4. Syllable rules
5. Foot construction

2.2 Opaque stress

Consider the word in (13), which is given by C&M as an example of surprising trochaic stress. The prefix /i-/ undergoes glide formation before another vowel. On C&M's analysis, glide formation does not interact with stress. Sonority-driven stress is assigned to the surface representation and falls on the first syllable because its vowel is more sonorous than the vowel of the following syllable.

(13) já.nu.ti
i-anu-i
3.MASC.SG-WALK-REAL
'he walked'

On my proposed sonority-blind analysis, the ordering of glide formation after stress assignment has the following consequence, illustrated in (14). In the stem domain, iambic stress is assigned to the syllable /a/ which is the right member of a foot at that stage of the derivation. Glide formation (which is part of the block of syllable rules) then applies and makes the second syllable word-initial. When the suffix is added, a foot is reassigned with no observable effect and has trochaic stress on the surface.

(14)

Word	[já.nu.ti]
Structure	/i-anu-i/
Cycle I (stem)	i-anu
Foot construction	(i.a).nu
Stress	(i.á).nu
Syllable rules	(já).nu
Cycle II	já.nu-i
Syllable rules	já.nu.ti
Foot construction	(já.nu).ti
Output	[(já.nu).ti]

The sonority-blind analysis of (13) is very different from C&M's sonority-driven analysis. The first syllable of the word gets stress for reasons that have nothing to do with the sonority of the first two vowels of the word. This means, for example, that the two analyses would diverge in their predictions for a hypothetical root in which the order of the two vowels would be reversed. In the same morphosyntactic environment as in (13), the hypothetical root /una/ (as opposed to /anu/) is predicted to surface as [(jú.na).ti] by the present analysis but as [(ju.ná).ti] by C&M's analysis. Despite this clear divergence, no relevant distinguishing examples were found in the data.

Another instance of opaque iambic stress that becomes trochaic on the surface is illustrated by examples like (15). Here, vowel deletion (which applies in around 16% of the words in the data) deletes the vowel of the first-person singular prefix /no-/.

(15) ná.ʃin.tem.pa.ra
no-aʃint-empa=ra
1.SG-OWN-IRREAL=SUBORD
'I will own'

The sonority-blind analysis attributes the surprising trochaic stress in this example to the application of vowel deletion. The derivation is given in (16). As before, iambic stress is assigned in the stem domain before vowel deletion (included in "syllable rules"). Foot construction in the second cycle (which still has no observable effect) creates a trochaic foot on the surface.

(16)

Word	[ná.ʃin.tem.pa.ra]
Structure	/no-aʃint-empa=ra/
Cycle I (stem)	no-aʃint
Foot construction	(no.a).ʃint
Stress	(no.á).ʃint
Syllable rules	(ná).ʃint
Cycle II	ná.ʃint-empa
Syllable rules	-
Foot construction	(ná.ʃin).(tem.pa)
Output	[(ná.ʃin).(tem.pa)=ra]

On C&M's analysis, stress does not interact with vowel deletion. To account for initial stress in (15), C&M propose that [a] is a heavier than [iN] for the purposes of main stress assignment, and iambic main stress shifts leftwards to the heavier first syllable. The proposal that [a] is heavier than [iN] runs into difficulties given that VN syllables seem heavier than V syllables in various other examples, including (17), where surprising trochaic stress in the first foot seems to shift leftwards from [a] to [iN], the opposite effect of that in (15).

(17) [pìŋ.ka.mo.sói.ga.kse]

According to C&M, the relevant difference between (15) and (17) is that main stress shifts leftwards in (15), while it is secondary stress that shifts leftwards in (17). C&M propose two partly-opposing weight scales for main and secondary stress: for secondary-stress assignment, VN syllables are uniformly heavier than V syllables, but for main-stress assignment,

V_i wins over V_jN if V_i is more sonorous than V_j. The opaque interaction between stress and vowel deletion on my analysis illustrates one way in which a sonority-blind theory of stress simplifies the analysis of stress in Nanti – in this case, partly-opposing weight scales for main and secondary stress can be avoided (my own account of (17), which does not invoke opposing weight scales, will be discussed below).

2.3 Stressed suffixes

The next ingredient of the sonority-blind analysis is the assumption that Nanti suffixes are divided into two classes with respect to stress: lexically-stressed suffixes, which come with initial main stress, and lexically-unstressed suffixes. My proposal regarding their classification is as follows:

(18) *Classification of suffixes with respect to stress*
All suffixes are lexically-stressed except for /-an/, /-ut/, and reality-status markers:

a. Stressed suffixes: /-áNt/, /-hɨ́g/, /-áko/, /-ápah/, /-áh/, /-ák/
b. Unstressed suffixes: /-an/, /-ut/, {/-a/, /-e/, /-i/, /-eNpa/}

On the sonority-blind analysis, part of the apparent correlation between sonority and stress on the surface is attributed to lexical stress on suffixes. Lexically-stressed suffixes keep their stress by default, and since many verbal suffixes in Nanti happen to have the sonorous vowel [a], stress appears to be attracted to [a] on the surface. Note that the classification above does not equate sonority and lexical stress: the suffix /hɨ́g/ is lexically stressed even though it has the least sonorous vowel on C&M's sonority scale, and the suffixes /-an/, /-a/, and /-eNpa/ are lexically unstressed even though they have the most sonorous vowel /a/.

Since main stress is always assigned to the stem, when the first stressed suffix is added in the derivation, the result is two main-stressed syllables. In a situation like this, the rule of STRESS REDUCTION in (19) reduces one of the two main stresses to secondary stress. After STRESS REDUCTION creates a secondary stress, the rule of 2-STRESS DELETION in (20) removes that secondary stress if it ends up in a doubly-stressed foot or in a word-final foot (doubly-stressed feet can be created in intermediate representations. The stress model of Halle and Vergnaud (1987) which I have adopted here separates foot construction from rules of stress assignment, including general rules that assign some stress to every foot and more specific rules that modify rhythmic stress by deleting it in certain environments. These rules conspire to make every foot single-stressed on the surface).

(19) STRESS REDUCTION
Given two main-stressed syllables:

– If either has a shorter nucleus, reduce its stress;[1]

– Otherwise (if the two are of equal length), reduce the stress on the stem.

[1] A nucleus is short if it consists of a short vowel. It is long if it consists of a long vowel or a diphthong.

(20) 2-STRESS DELETION
Delete secondary stress from doubly-stressed or word-final feet.

To illustrate the effect of lexically-stressed suffixes and of these rules, consider first the perfective suffix /-ák/ in (21), which has surprising trochaic stress on the third syllable.

(21) pi.pò.ká.kse.na
pi-pok-ak-e=na
2.PL-COME-PERF-REAL=1.OBJ
'You came to me'

As shown in the derivation in (22), main stress ends up on the second syllable in the stem cycle. When the stressed suffix is added, the two equally-short stressed syllables compete for main stress. According to STRESS REDUCTION, the suffix wins in this case and stress in the stem is reduced to secondary stress. The result is secondary stress on the stem and main stress on the suffix.

(22)

Word	[pi.pò.ká.kse.na]
Structure	/pi-pok-ak-e=na/
Cycle I (stem)	pi-pok
Foot construction	(pi.pok)
Stress	(pi.pók)
Syllable rules	-
Cycle II	pi.pók-ák
Syllable rules	-
Foot construction	(pi.pó).(kák)
Stress reduction	(pi.pò).(kák)
2-stress deletion	-
Cycle III	pi.pò.kák-e
Syllable rules	-
Foot construction	(pi.pò)(ká.ke)
Stress reduction	-
2-stress deletion	-
Output	[(pi.pò)(ká.kse)=na]

2-STRESS DELETION gets to apply in examples that involve both a stressed suffix and opaque stress (as a result of glide formation or vowel deletion). Such examples also demonstrate the role of cyclic re-footing. Consider (23), which involves vowel deletion. At first sight, this example seems to pose a challenge to the vowel deletion analysis, since the first syllable is followed by two stressless syllables. If the first syllable receives iambic stress before deletion, the following two syllables would be expected to form their own foot and receive stress. This is where re-footing and 2-STRESS DELETION come into play.

(23) nà.bo.bu.tái=ro
no-abobu-ah-i=ro
1.SG-SEW-REG.PERF-REAL=3.NONMASC.OBJ
'I re-sew it'

In the derivation of (23) below, iambic secondary stress is assigned to /a/ in the stem cycle and iambic main stress is assigned to /bu/. Vowel deletion eliminates a syllable, making the first foot monosyllabic. Foot structure is not transferred to the next cycle, in which the stressed suffixed is added. When bisyllabic feet are re-constructed, the syllable /na/ is now the left member of a foot. The syllable /bu/, which received iambic stress in the previous cycle as the right member of a foot, now joins another stressed syllable as the left member of a foot. Both stresses in that foot are equally short and the first of them belongs to the stem, so it gets reduced to secondary stress. This secondary stress cannot be tolerated in the same foot as another main stress and gets deleted by 2-STRESS DELETION.

(24)

Word	[nà.bo.bu.tái.ro]
Structure	/no-abobu-ah-i=ro/
Cycle I (stem)	no-abobu
Foot construction	(no.a)(bo.bu)
Stress	(no.à)(bo.bú)
Syllable rules	(nà)(bo.**bú)**
Cycle II	nà.bo.bú-áh
Syllable rules	nà.bo.bú.táh
Foot construction	(nà.bo)(**bú**.táh)
Stress reduction	(nà.bo)(bù.táh)
2-stress deletion	(nà.bo)(**bu**.táh)
Cycle III	nà.bo.bu.táh-i
Syllable rules	nà.bo.bu.tái
Foot construction	(nà.bo).(bu.tái)
Stress reduction	-
2-stress deletion	-
Output	[(nà.bo).(bu.tái)=ro]

The interaction between re-footing and 2-STRESS DELETION makes the following prediction. A main stress that gets reduced to secondary stress before an adjacent main-stressed syllable will survive as secondary stress depending on the parity of the number of syllables that precede it. If that secondary stress is preceded by an even number of syllables, as in (24), it gets deleted. In a situation where it is preceded by an odd number of syllables, it would not be parsed into the same foot as the following main stress and would therefore survive. This prediction is borne out, as illustrated by the minimal pair of verbs in (25), which differ morphologically only with respect to their reality-status markers. In the second verb, the irrealis prefix /r-/ blocks glide formation. The stressed suffix /-áko/ is preceded by an even number of syllables in (25a) but by an odd number of syllables in

(25b). In both cases it loses to a following main-stressed long vowel, but it only survives as secondary stress in (25b).

(25) a. jà.mu.ta.kói.ga.kse.na
i-amu-áko-híg-ák-e=na
3-HELP-APPL-PL-PERF-REAL=1.OBJ
'they helped us with something else'

b. i.rà.mu.tà.kói.ga.ksem.pa
i-r-amu-áko-híg-ák-empa
3-IRREAL-HELP-APPL-PL-PERF-IRREAL
'they will help someone with something'

2.4 Trochaic shift

The final ingredient of the analysis is TROCHAIC SHIFT, a group of processes that shift iambic stress the to first syllable of the foot under certain conditions. Here I inherit from C&M a strength scale, given in (26), that determines whether TROCHAIC SHIFT applies. My scale is a simplification over C&M in two ways. First, it reduces the fine-grained sonority hierarchy to the binary structural distinction $V > V_0$, where V_0 is a structurally-defective vowel. By stipulation, in Nanti this vowel is [i]. On the assumption mentioned in section 1 that stress can see the structural distinction between V and V_0, this stipulation makes Nanti stress compatible with the Stress-Encapsulation Universal. Second, as mentioned above, C&M assume partly-opposing scales for main and secondary stress. The scale in (26) avoids scale reversal. According to (27), stress shifts leftwards to a stronger syllable, or to an equally strong syllable in case of a clash with a following stressed short vowel.

(26) *Strength scale*
VV > VN > iN > V > i

(27) TROCHAIC SHIFT
In the environment $(\sigma_1\sigma_2)\sigma_3$ where σ_2 is stressed, shift stress from σ_2 to σ_1 if one of the following conditions holds:

- $\sigma_1 > \sigma_2$
- $\sigma_1 = \sigma_2$ and σ_3 has a stressed short vowel

TROCHAIC SHIFT applies in the first foot in the examples in (28) but not in (29).

(28) a. pìŋ.ka.mo.sói.ga.kse
pi-ŋ-kamoso-hig-ak-e
2-IRREAL-VISIT-PL-PERF-IRREAL
'you.PL will have visited'

b. nòŋ.ksen.tá.kse.ro
no-ŋ-kent-ak-e=ro
1-IRREAL-PIERCE-PERF-IRREAL=3.NONMASC.OBJ
'I will have pierced it (with an arrow)'

(29) a. no.nè.bi.tá.kse
no-nebi-ak-e
1-REQUEST-PERF-REAL
'I requested'

b. iŋ.ksèn.tá.kse.ro
i-ŋ-kent-ak-e=ro
3-IRREAL-PIERCE-PERF-IRREAL=3.NONMASC.OBJ
'he will have pierced it (with an arrow)'

c. noŋ.kàn.tái.ga.kse
no-ŋ-kant-hig-ak-e
1-IRREAL-SAY-PL-PERF-IRREAL
'we will have said'

This analysis is different from C&M's sonority-driven analysis in its account of examples like (29c), where TROCHAIC SHIFT does not apply. On the present analysis, misapplication is due to a following long nucleus. On C&M's analysis, a shift to a less sonorous vowel is dispreferred. As before, examples that distinguish the two analyses are easy to come up with, but no relevant examples were found in the data. The proposed grammar for Nanti, now with TROCHAIC SHIFT, is given in (30).

(30) *A fragment of Nanti grammar*

– Stem rules:

1. Foot construction
2. Stress
3. Syllable rules

– Suffix rules:

4. Syllable rules
5. Foot construction
6. Stress reduction
7. 2-stress deletion
8. Trochaic shift

3. Evidence against the sonority-driven analysis

The previous section developed a sonority-blind analysis of Nanti stress as an alternative to C&M's sonority-driven analysis. In this section I present some examples as evidence in favor of the sonority-blind analysis. The sonority-blind analysis correctly accounts for these examples, but the sonority-driven analysis makes the wrong predictions.

On C&M's sonority-driven analysis, main stress is computed globally. Its default position is the rightmost strongest syllable in the word: in words with a unique strongest syllable, that syllable gets main stress. Otherwise – if there are multiple strongest syllables – the rightmost of them wins. The minimal pair in (31) supports a role for morphology in stress assignment and poses a problem for C&M's analysis. In both examples in (31), the final syllable is a unique strongest syllable. C&M's analysis predicts final stress in both cases. In particular, it incorrectly predicts final stress in (31b): *[(i.pò)(ka.pái)]. On my analysis, the difference between the two words comes from their morphology. In (31b), main stress falls on the stressed bisyllabic suffix /-ápah/, which wins over an equally-long nucleus in the stem. In (31a), the suffix /-an/ is unstressed (in fact, it is never stressed in the data) and main stress falls on the stressed suffix /-áh/ which wins over an equally-long nucleus in the stem. Without reference to morphology, C&M's analysis has no way to distinguish between these two words in terms of the location of main stress.

(31) a. i.ʃì.ga.nái
i-ʃig-an-ah-i
3-RUN-ABL-REG-REAL
'he ran away'

b. i.pò.ká.pai
i-pok-apah-i
3-COME-ADL-REAL
'he is coming towards'

The minimal pair in (32) poses another problem for C&M's analysis. The only phonological difference between the two words on the surface (aside from stress) is the irrealis prefix /N-/ in (32b), which creates a VN syllable.[2] On C&M's analysis, a VN syllable is strictly stronger than a V syllable with an identical vowel. Since main stress should fall on the rightmost strongest syllable, C&M's analysis incorrectly predicts initial main stress in (32b): *[(óŋ.ko)(wo.gò).te=ro)]. On my analysis, main stress is computed locally and normally only shifts rightwards from the stem. In the stem cycle, main stress is assigned to the final syllable of the quadrisyllabic stem (o(ŋ).kò)(wo.gó) in both words regardless of the presence of the irrealis prefix, which does not change the syllable count. Since there are no stressed suffixes, main stress remains on that syllable. TROCHAIC SHIFT creates the initial trochaic foot in (32b). This minimal pair suggests that C&M's 'rightmost strongest' condition for main stress is incorrect. Many of the examples that motivated that condition were examples with suffixes with the vowel [a] which on my analysis are lexically stressed and can attract stress rightwards from the stem.

[2]The realis suffix /-i/ lowers to [e] in some environments. This is presumably what happens in (32a).

(32) a. o.kò.wo.gó.te.ro
o-kowogo-i=ro
3.F-HARVEST-REAL=3.NONMASC.OBJ
'she harvests it'

b. òŋ.ko.wo.gó.te=ro
o-ŋ-kowogo-e=ro
3.F-IRREAL-HARVEST-IRREAL=3.NONMASC.OBJ
'she will harvest it'

The pair in (33) illustrates another problem with C&M's analysis for main stress. We already saw (33a) and its derivation above in (23)-(24): on my analysis, main stress on the final syllable comes from the lexically stressed suffix. (33b) can be analyzed in a similar fashion, assuming that the suffix /-há/ is lexically stressed. My assumption that (33b) includes that suffix is based on the following reasoning. The root *kamoso* means 'visit' while the meaning of the verb in (33b) is 'visit by water'. The inflectional morphemes /no/ and /i/ could also be identified, and Nanti has a suffix /-há/ which means 'water'. I do not have independent evidence that /h/ could be pronounced as [w] intervocalically, but this seems like a reasonable assumption given that /h/ is sometimes pronounced as the front glide [j] intervocalically after a front vowel (e.g. /i-neh-ako-e=ro/ → [i.nè.já.ko.te.ro]). Assuming that the suffix /-há/ is stressed, it attracts main stress from the stem and nothing special needs to be said beyond what has been already said for (33a).[3] For C&M's analysis, main stress on the final foot in (33b) is problematic. On C&M's analysis, the default location of main stress is on the rightmost strongest syllable. But this default can be overridden by a dispreference for stressing word-final feet: in words with multiple strongest syllables, if the rightmost strongest is in a word-final foot, a syllable of equal strength further to the left gets the main stress. This principle predicts that penultimate stress should be avoided in (33b) in favor of the second syllable, which is of equal strength. In other words, C&M's analysis incorrerctly predicts *[(no.ká)(mo.sò).wa.ti] for (33b).

(33) a. nà.bo.bu.tái=ro
no-abobu-ah-i=ro
1.SG-SEW-REG.PERF-REAL=3.NONMASC.OBJ
'I re-sew it'

b. no.kà.mo.sò.wá.ti
no-kamoso-?ha?-i
1-VISIT-?WATER?-REAL
'I visited (by water)'

[3] To account for the location of secondary stress on [sò] in (33b), I assume a complication to the conditions of application of TROCHAIC SHIFT that prevents it from applying in case of it would create another clash.

4. Conclusion

This paper presented a new sonority-blind analysis of Nanti's verbal stress. This analysis is by no means comprehensive: while I believe to have discussed a representative sample of the stress data in Crowhurst and Michael 2005 and Michael 2008, corners of the data require some modifications to the analysis that I have not discussed for reasons of space. Those modification, however, are minor, and do not challenge the core argument that sensitivity to sonority can be replaced with opaque stress, lexically-stressed suffixes, and a simple structural strength scale that affects TROCHAIC SHIFT. Beyond arguing that a sonority-blind analysis can account for a representative sample of the data, I presented evidence that C&M's sonority-driven analysis of Nanti makes incorrect predictions in a variety of cases that are correctly accounted for by the sonority-blind analysis. This evidence supports the Stress-Encapsulation Universal in (4) according to which stress is never directly sensitive to any segmental features, including sonority.

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