

Primary stress in Misantla Totonac¹

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The Misantla dialect of Totonac has relatively straightforward rules of stress assignment for both nouns and verbs.² However, word final inflectional suffixes on verbs result in stress patterns which are difficult to account for by the normal rules. In this paper I will present the regular rules of nominal and verbal stress in Totonac and consider various solutions to the problems posed by stress assignment on verbs with inflectional suffixes.

There are two degrees of stress in Misantla Totonac: primary and secondary. Secondary stress falls on all heavy syllables. Heavy syllables are defined as having either a final consonant or a long vowel nucleus. Primary stress is the right-most stress in a word and is characterized as being stronger than all other cases of stress. Primary stress may fall on either a heavy or a light syllable. I propose to account for the placement of primary stress in terms of the notion of extrametricality, more specifically phonological and morphological extrametricality. Appealing to the concept of extrametricality permits the formulation of a single primary stress rule that stresses the final syllable.

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2 The Totonac-Tepehua language family is a linguistic isolate which is located in the highlands of the state of Puebla, parts of coastal Veracruz, and a corner of the state Hidalgo. The Misantla dialect of Totonac is the southernmost Totonac variety and is spoken in the area between Jalapa and Misantla, Veracruz.

1. Primary Stress Assignment

The domain of primary stress is the phonological word. All clitics are lexically stressed and do not affect the assignment of primary stress (e. g. /Stan/ 'PAST').³

1.1. Verbal Stress

On verbs, primary stress⁴ falls on the last syllable, whether that syllable is light or heavy.⁵

(1)	[ʔút waní]	/ut wan-ni/	's/he tells X to Y'
	[wĩš laqǽn]	/wĩš laqan/	'you see X'
	[ʔút čuulá]	/ut čuula/	's/he does X'
	[ʔút taštú]	/ut ta-štu/	's/he leaves'
	[ʔutún taskíní]	/utun ta-skinii/	'they ask for X'
	[kít ʔiktamáa]	/kit ik-ta-maa/	'I lie down'
	[wĩš paqačanqáa]	/wĩš maqa-čanqaa/	'you lose X'

1.2. Nominal Stress

The assignment of primary stress on nouns differs from that on verbs. Stress generally falls on the penult when a word final syllable is light (2), and on the final syllable when a word final syllable is heavy (3).

(2)	[minkǽn]	/min-kił-ni/	'your mouth'
	[mimpáχn]	/min-paq-ni/	'your arm'
	[misks]	/min-siksi/	'your bile'
	[páakə]	/paakə/	'comal'
	[stápu]	/stapu/	'beans'
	[kíspa]	/kíspa/	'corn kernel'
	[snápu]	/snapu/	'gnat'
	[táku]	/taku/	'woman'

3 The following abbreviations are used: PFV - perfective, 2PFV - second person perfective, IMPFV - imperfective, 2OBJ - second person object, 1SUB - first person subject, 2OBJ - second person object, 1SUB.PL - first person plural subject, 2SUB.PL - second plural subject, INC - inchoative.

4 Secondary stress will not be marked in the transcription as it is predictable and falls on every heavy syllable.

5 Pronominal subjects are not obligatory in Misanla Totonac, but have been included throughout the paper to ensure clarity.

(3)	[mimpaalúu]	/min-paa-luu/	'your intestines'
	[lawáa]	/lawaa/	'meat'
	[milaaqapín]	/min-laa-qa-pín/	'your braids'
	[tikiní? kɛ́?]	/tiki-nV? kiw/	'dry wood'

However, in contrast to the examples presented above, in Misantla Totonac, there are many cases of stress falling on a light syllable that is followed by a closed final syllable with a short vowel nucleus (CV.CVC). In these cases, stress assignment is determined by the nature of the closing consonant of the CVC syllable. A word-final syllable closed by a coronal obstruent [-son, -l- cor] is considered light by the primary stress rule and is not stressed (4). A final syllable closed by any other segment is considered heavy by the rule therefore stressed (5).

(4)	[čĩŋ kət]	/čĩŋkat/	'sugarcane'
	[múkskut]	/mukskut/	'fever'
	[kíeɪs]	/kiɛis/	'five'
	[máɛat]	/maɛat/	'salt'
	[páakiš]	/paakiš/	'beef steer'
	[číwiš]	/čiwiš/	'stone'
	[kúčiŋ]	/kučiŋ/	'knife'

(5)	[stɔqɔnú?]	/stɔqu-nV?/	'old woman'
	[hɔŋčiwáʔ]	/hun- čiwaq/	'DET scar'
	[qɛɛ ʔtún]	/qiit-tun/	'moonshine'
	[sɔpáp]	/sapap/	'warm'

As on verbs, a final syllable containing a long vowel is regarded as heavy and is therefore stressed even if it is closed by a coronal obstruent.

(6)	[mimpuwíit]	/min-puwiit/	'your in-laws (m. or f.)'
	[skananaát]	/skananaat/	'flat'

I assume that primary stress on nouns falls on the word final syllable, just as it does on verbs. To accommodate the cases of penultimate stress (2 and 4), I propose that word final light syllables are extrametrical on nouns and therefore overlooked by the rules of primary stress assignment. By analyzing word final syllables of the

form CV(C[-son + cor]) as light on nouns, it is possible to posit a unified stress rule for both nouns and verbs which places primary stress on the final syllable.⁶

The generalizations regarding nominal stress assignment may be summarized as follows:

- (7) (a) All word final light syllables are extrametrical and are thus overlooked by the stress rules;
 (i) A syllable is light when it is CV(C[-son. + cor]) or CV;
 (b) Stress all heavy syllables.
 (c) Primary stress falls on the final syllable of the word.

Within a metrical theory of stress, the rules of nominal stress assignment may be formulated as follows:

- (8) a) Word final [-son, -I- cor] segments are extrametrical;
 b) word final CoV syllables are extrametrical;⁸
 c) build right-dominant quantity sensitive feet;
 d) build a right-dominant quantity sensitive feet;
 d) build a right-dominant word tree.

There are some exceptions to the above stated rules:

- 1) Some final syllables with long vowels closed by a [-son + cor] are unstressed. I interpret these examples as having lexically specified final extrametrical syllables. If these words take an additional suffix, the stem-final syllable is no longer in absolute final position and the long vowels do attract stress.

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| (9) | [minɛɪkɪɪt] | /min- ɛɪkɪɪ-Vt/ | 'your breast' |
| | [minɛɪkɪɪtna] | /min- ɛɪkɪɪ-Vt-na/ | 'your breasts' |
| | [miNqː šwaaɪt] | /min-kiɪ- šwaaɪt/ | 'your molar' |
| | [miNqː šwaaɪtna] | /min-kiɪ- šwaaɪt-na/ | 'your molars' |

6 Treating final nominal CV syllables as extrametrical is supported by a devoicing pattern in other dialects. In all the monomorphemic CVCV examples I have found, the final syllable onset is voiceless. Note that in other Totonac dialects a final vowel following a voiceless consonant is voiceless and is never stressed.

Perhaps the extrametricality of the light syllables is related to their phonologically weakened position following a voiceless consonant.

7 Following Hayes (1981) and others, I assume that segments, syllables, or affixes can only be treated as extrametrical when they occur at the edges of stress domain.

8 Note that rule (a) feeds rule (b).

2) There are a few examples of word final CVC syllables ending in a voiceless coronal that are stressed. I must assume that these cases are either lexically stressed, or are underlyingly vowel final (cf. /atata/ 'soft' in Xicotepec de Juárez Totonac).

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| (10) | [ɕatát] | /ɕatát/ | 'soft' |
| | [ɕasás] | /ɕasás/ | 'white' |

3) There is one example of a closed syllable ending in a nasal (underlyingly a nasal + velar cluster), which is not stressed (CV.CVC). I must assume that the final syllable is marked as extrametrical in the lexicon.

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| (11) | [támɪ̃n] | /támɪ̃nk/ | 'pot' |
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1.3. Exceptions to verb stress assignment

As stated earlier, primary stress assignment on verbs is regular: stress falls on the final syllable regardless of its phonological configuration.

However, word final inflectional suffixes on verbs are exceptional in that they never carry stress in word final position. Paulette Levy (p.c.) first noted that in the Papantla dialect, suffixes of verb inflection are unstressed. This is also true of Misantla Totonac. The following suffixes of verb inflection are never stressed word finally: /-that/ '2SUB.PL', /-wa/ '1SUB.PL', /-na /'20BJ\ /-la (1)/¹⁰ 'PFV\ and /-ti/ '2PFV'.¹¹

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| (12) | [wɪ́ʃín staãyáatát] |
| | /wɪ́ʃín staã-yaa-tat/ |
| | y'all-sell-IMPV-2SUB.PL |
| | 'y'all sell X' |

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| (13) | [ʔút ɕánla] |
| | /ut ɕán-la(ɬ)/ |
| | s/he sow X-PFV |
| | s/he sowed X' |

9 Evidence for the underlying final velar stop comes from the plural form [tami na] /tamink-na/ 'pots' in which there is no simplification of adjacent nasals.

10 The perfective suffix has the full form [-la] in Yecuatla, Veracruz and [-li] in all other Totonac dialects. I assume that it has an underlying /-CV/ structure and have therefore placed the final (1) in parentheses. See MacKay 1991 for justification of this underlying representation.

11 The suffix /-kan/'REFL/IS.' is always stressed. However, it has not yet been conclusively shown that this affix is inflectional, as it has many derivational properties (see MacKay 1991). I assume that this suffix is derivational and it will not be included in this discussion.

- (14) [ʔút ɛ́ʒ na]
 /ut ɛuq-laɫ-na/
 s/he write X-PFV-20BJ
 's/he wrote you'
- (15) [wĩʃ ɕanti]
 wĩʃ-ɕan-ti/
 you sow X-2PFV
 'you sowed X'
- (16) kinan paastɪkwa]
 /kinan paa = stak-wa/
 we-remember X-1SUB.PL
 'we remembered X' (SM)¹²

The only inflectional suffix that does receive stress when it appears word finally is the aspect marker /-yaa/ 'IMPFV'. However, this suffix [-yaa] is always followed by an additional inflectional suffix underlyingly.

- (17) [kinan paśaa]
 /kinan paś-yaa-wa/
 we bathe-IMPFV-1SUB.PL
 'we bathe'

All word final verbal suffixes except /-tat/ '2SUB.PL' are segmentally /-CV/.¹³ They are therefore subject to a regular rule of CV-suffix simplification (18), which deletes the final vowel of the suffix when preceded by a vowel-final stem¹

- (18) V --> Ø / V]verb stemC__]

As a result, the inflectional suffixes only occur in their full form on consonant-final stems.

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| (19) [ʔút ɛ́ʒ ɫal] | /ut ɛuq-la(ɫ)/ | 's/he wrote X' |
| [wĩʃ ʃnaɫti] | /wĩʃ ʃnaq-ti/ | 'you deflated/lost weight' |
| [ʔút paastɪkna] | /ut paa = stak-la(ɫ)-na/ | 's/he remembered you' |
| [kinan paśwa] | /kinan paś-wa/ | 'we bathed' (SM) |

¹² The full form of the suffix /-wa/ '1SUB.PL' only appears in the San Marcos Atcsquilapan variant of Misanla Totonac.

¹³ /-tat/ '2SUB.PL' always occurs in its full form and is always unstressed.

¹⁴ A verb stem is made up of either a monomorphemic root or a derived verb consisting of a verb root and derivational morphemes.

In all other cases, it is the reduced form [-C] which appears word finally. The reduced [-C] variants of the inflectional suffixes conform to a syllable structure constraint which requires a non-sonorant consonant or /n/ in syllable final position. Thus, *HI* becomes [1] word finally, and [W], which has no licensed non-sonorant variant does not appear in the surface string at all. (Its presence is indicated by the stress pattern cf: 'we arrive' below.)

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| (20) | [ʔút tapahánuuʔ]
[kinán ċináa] | /ut ta-paha = nuu-la(ʔ)/
/kinán ċin-yaa-wa/ | 's/he passed (by)'
'we arrive here' |
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The full forms of verb final inflectional suffixes are all unstressed and therefore constitute a unified class. The reduced forms, however, are divided into two groups.

a) Syllables which include the reduced forms of /-wa/ '1SUB.PL' and /-na/ '2OBJ' are stressed.

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| (21) | [kinán ʔiksɔʔʔ]
[kít ʔiktaat ħ hwanáan]
[ʔút ləʔ ħ n] | /kinán ik-suqun-wa/ ¹⁵
/ik-taa-tihwan-yaa-na/
/ut laqan-la(ʔ)-na/ | 'we liked X'
'I look for y'all'
's/he saw you' |
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b) Syllables which include the reduced variants of the perfective suffixes /-la(ʔ)/ 'PFV' and /-ti/ '2PFV'. In these cases stress falls on the penultimate syllable.

i) The reduced variant of the perfective suffix /-la(ʔ)/ is [-ʔ].

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| (22) | [ʔút eúkuʔ] | /ut euku-la(ʔ)/ | s'/he began' |
| (23) | [ʔút táʃtuʔ]
[ʔút taʃtú] | /ut ta-ʃtu-la(ʔ)/
/ut ta-ʃtu/ | 's/he left'
's/he leaves' |

ii) The reduced form of the perfective suffix /-ti/ '2PFV' is generally [-t]. However, the application of regular morphophonemic rules sometimes results in the complete loss of the suffix (MacKay 1991). Regardless of whether the suffix is overtly present on the verb or not, stress falls on the penultimate syllable. Thus, the effects of the underlying presence of this inflectional suffix are visible even when the suffix itself is not.

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| (24) | [wĩʃ páʃti] | /wĩʃ paʃ-ti/ | 'you bathed' |
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15 See Mackay 1991 for a description of the morphophonemic rules that affect these forms.

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| (25) | [wĩʂ tapahánũt]
[wĩʂ paqačǎnqaat] | /wĩʂ ta-paha = nuu-ti/
/maqa-čǎnqaat-ti/ | 'you passed by'
'you lost X' |
| (26) | [wĩʂ qǎwǎ] | /wĩʂ qǎwǎ-ti/ | 'you talked' |
| (27) | [wĩʂ tǝhwǎ]
/wĩʂ tǝhwan-ti/
you look for X-2PFV
'you look for X' | vs. | (28) [wĩʂ tǝhwǎn]
/wĩʂ tǝhwan/
you look for X ¹⁶
'you look for X' |

In sum, any word final syllable that is closed by the reduced form of the perfective suffixes /-la(1) and /-ti/ is unstressed. But a final syllable closed by a reduced form of the personal suffixes /-wa/ 'TSUB.PL' or /-na/ '20BJ' is stressed. It is this difference in the stress patterns induced by these two sets of suffixes that needs to be explained.

2. Possible analyses

2.7. Phonological extrametricality

One possible analysis is that it is the segmental make-up of the inflectional suffixes that makes them extrametrical. For example, in order to explain the lack of stress on the inflectional suffixes this type of analysis could posit that all word final light syllables are extrametrical. Following the rules of extrametricality that apply to substantives, a light syllable could be defined as being either a CV syllable or a CVC if the final segment is a voiceless coronal.

Phonological extrametricality would then result in the following forms, which are indeed attested:

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| (29) | [kinǎn ʔikǝǝ ʔwa]
[wĩʂ pǎʂti]
[kinǎn taapaastǝkna] | /kinǎn ʔik-ǝuq-wa/
/wĩʂ paʂ-ti/
/kinǎn taa-paa = stak-wa-na/ | 'we wrote X' (SM)
'you bathed'
'we remembered you' |
| (30) | [ʔút ʂtʂq ɔʔ]
[wĩʂin tǝ hwǎntat] | /ut ʂtuqu-lǎ/
/wĩʂin tǝhwan-tat/ | 's/he sewed X'
'y'all looked for X' |

However, this analysis cannot be sustained as there are many examples of verb final stress on light syllables when there is no final inflectional suffix.

16 Second person subject inflection is marked by laryngealization.

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| (31) | [ʔút štuqʃ] | /ut štuqu/ | 's/he sews X' |
| | [ʔút qašmát] | /ut qašmat/ | 's/he hears X' |

Furthermore, this approach would predict that a final syllable with a long vowel nucleus would be stressed. However, there are cases in which a final syllable of the form CV VC is unstressed.

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| (32) | [kít ʔktámaaʔ] | /kit ik-ta-maa-la(ʔ)/ | 'I lay down' |
| | [wĩš káçii] | /wĩš kaçii-ti/ | 'you knew X' |
| | [wĩš tánuut] | /wĩš ta-nuu-ti/ | 'you entered' |

2.2. Epenthesis

It is also possible to posit that the /-CV/ inflectional suffixes are underlyingly /-C/ and that a rule of vowel epenthesis adds the final vowel after the stress rule applies. Vowel epenthesis can only occur if the stem final syllable ends in an obstruent. If epenthesis follows stress assignment the full forms of these affixes would be unstressed, which is in fact the case.

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| (33) | [ʔút šnáqlaʔ] | /ut šnaq-la(ʔ)/ | 's/he deflated/lost weight' |
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There are, however, three problems with this analysis:

a) The syllables to which the [-C] variant of the suffixes /-ti/ '2PFV' and /-la (ʔ)/ 'PFV' attach are always unstressed. The epenthesis rule alone cannot account for these cases.

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| (34) | [ʔút sʃxʃ] |
| | /ut suqun-la(ʔ)/ |
| | s/he like X-PFV |
| | 's/he liked X' |

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|------|----------------------------|
| (35) | [wĩš tápaat] ¹⁷ |
| | /wĩš ta-maa-ti/ |
| | you INC-lie down-PFV |
| | 'you lay down' |

b) To maintain this analysis, it is necessary to posit different underlying vowels to account for the surface forms of [-wa] TSUB.PL', [-na] '20BJ', [-ti] '2PFV', and

17 m/p suppletion is part of second person infection.

[-la(ɨ) 'PFV' ([-li] in San Marcos Atesquilalpan). This is unwelcome, since, generally, rules of epenthesis insert the same default vowel whenever epenthesis rules apply.¹⁸

c) This account would have trouble explaining the lack of stress on the suffix /-tat/ '2 SUB.PL'. This suffix has an underlying vowel, but it never receives stress. The rule that applies primary stress prior to vowel insertion would not preclude stress on /-tat/, /-tat/ '2SUB.PL' would have to be considered lexically extrametrical.

2.3. *Stress preceding affixation*

Another solution that comes to mind is that stress assignment in verbs precedes the affixation of the inflectional morphemes. This would account for the full forms of inflectional affixes which are unstressed. However, there are several problems with this analysis as well:

a) Although ordering stress assignment before affixation would correctly predict that the word final syllables containing the [-C] variant of /-na/ '20BJ' and /-wa/ '1SUB.PL' are stressed, it would not explain the fact that word final syllables which include the [-C] variant of /-la(ɨ) 'PFV' and /-ti/ '2PFV' are not stressed. If stress precedes affixation one expects that the final syllable of the verb stem would be stressed (particularly if it contains a long nucleus). However, as can be seen in the example below, the final syllable is unstressed when followed by the [-C] variant of the perfective suffixes.

(36)	[ʔút maqaɛ́nqaaɬ]	/ut maqa- ɛ́nqaa-la(ɨ)/	's/he lost X'
	[wĩ́ paqaɛ́nqaaɬ]	/maqa-ɛ́nqaa-ti/	'you lost X'

vs.

(37)	[ʔút maqaɛ́nqáa]	/ut maqa- ɛ́nqaa/	's/he loses X'
	[wĩ́ paqaɛ́nqáa]	/maqa- ɛ́nqaa/	'you lose X'

b) Given that a final CV syllable never receives secondary stress and can only receive primary stress, if it is assumed that primary stress assignment precedes the attachment of inflectional affixes, then a verb stem which has the form CVCV would receive final stress CVCV. Once the inflectional suffixes are added (for ex-

18 Most other Totonac dialects do have the same underlying vowel for all of these affixes, namely /i/. Diachronically it is possible that epenthesis was a productive process in Totonac, however, there is not enough data for a dialectal comparison at this time. Synchronically it is difficult to argue for epenthesis in Misantla Totonac.

ample /-yaa/ 'IMPFV' and /-na/ '20BJ'), the resulting stress would be *CVCVCVVC.¹⁹ This stress pattern never occurs.

- (38) [ʔút čapayáan] *[čăpáyáan]
 /ut čăpa-yaa-na/
 s/he grab X-IMPFV-you
 's/he grabs you'

- (39) [kít ʔikinkalayáan] *[ʔikinkaláyáan]
 /kit ik-kinkala-yaa-na/
 I 1SUB-smell X-IMPFV-20BJ
 'I smell you'

c) Ordering stress assignment before inflectional affixation predicts that all sequences of inflectional morphemes will be unstressed.

However, the only case of more than one inflectional morpheme appearing in the surface string is the suffix /-yaa/ 'IMPFV' followed by /-tat/ '2SUB.PL' or /-na/ '20BJ'. The suffix /-yaa/ which contains a long nucleus is always stressed and must be considered lexically stressed.²⁰

- (40) [wĩśín staa^áat] /wĩśín staa-yaa-tat/
 y'all sell X-IMPFV-2SUB.PL
 'y'all sell X'

- (41) [ʔút maqskiniyáan čá] /ut maq = skĩnii-yaa-na-ča/
 s/he CAUS = ask X for Y-IMPFV-2OBJ-tortilla
 's/he asks you for tortillas'

The combinations of /-la (ɬ)/ 'PFV' or /-wa/ '1SUB.PL' and /-na/ '20BJ' never co-occur in their full forms. The suffix /-na/ '20BJ' is always preceded by another inflectional suffix /-yaa/ 'IMPFV', /-la (ɬ)/ 'PFV' or /-wa/ '1SUB.PL'; and /-la (ɬ)/ never surfaces word medially and /-wa/ only surfaces word finally following an obstruent.

¹⁹ This argument was suggested by Juliette Blevins.

²⁰ A possible solution could assume that heavy syllables receive secondary stress after affixation. However, then the prediction would be that cases such as (36) [ʔút maqačaNqaaq /ut maqačanqaa - la (ɬ) / 's/he lost X' would have final stress *[ʔút maqačaNqaaq.

- (42) [ʔút kinqašmátna]
 /ut kin-qašmat-la(ʔ)-na/
 s/he 1OBJ-hear X-PFV-2OBJ
 's/he heard us'
- (43) [kít ʔikt ɿ́wán]
 /kit ik-tihwan-la(ʔ)-na/
 I 1SUB-look for X-PFV-2OBJ
 'I looked for you'
- (44) [kinán ʔiktaatɿ́hwán]
 /kinán ik-taa-tihwan-wa-na/
 we 1SUB-2OBJ.PL-look for X-1SUB.PL-2OBJ
 'we looked for you'

Thus, the ordering of primary stress assignment before the affixation of inflectional morphemes does not account for the stress patterns that emerge when the [-C] variants of the perfective morphemes are attached to the final syllable. In addition, the attachment of inflectional morphology after stress assignment would predict that a [CVCV-yaa] sequence would be incorrectly stressed as *[CVCVyaa], and that a [CVCVV-PFV] sequence would be incorrectly stressed as *[CVCVV-C]. Unfortunately, the morphophonemic variation that applies in the perfective does not allow us to see the sequence of two inflectional suffixes in the surface form.

3. Solution: Morphological Extrametricality

The solution which I propose is to posit a lexical feature [+ EM] that characterizes all verbal inflectional suffixes (except /-yaa/ 'IMPFV') as extrametrical morphemes. The suffixes are thus overlooked by the rules of stress assignment and are unstressed. The imperfective suffix /-yaa/ constitutes an exception to this rule as it is always stressed. It must be assumed that this suffix is lexically stressed.

This solution is motivated by the following facts:

- a) The full forms of these inflectional suffixes are always unstressed word final-
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|-------------------------|--------------------------|-------------------|
| (45) [ʔút paaɕiislaʔ] | /ut paa = ɕiis-la(ʔ)/ | 's/he forgot X' |
| (46) [wĩš paaɕiisti] | /wĩš paa = ɕiis-ti/ | 'you forgot X' |
| (47) [ʔút paaɕiisna] | /ut paa = ɕiis-la(ʔ)-na/ | 's/he forgot you' |
| (48) [kinán paastɿ́kwa] | /kinán paa = stak-wa/ | 'we remembered X' |

b) The stress rules treat the final suffix as extrametrical even in cases where the suffix itself has no phonological content. Thus in the following cases, stress falls on the penultimate syllable even though the affix itself has been deleted. Penultimate stress in such cases is derived by positing a feature [-I- EM] which remains even after the component segments of the suffix have been deleted.

- | | | | |
|------|------------|----------------|-------------|
| (49) | [wĩʃ ʔáta] | /wĩʃ ʔata-ti/ | 'you slept' |
| (50) | [wĩʃ láqɛ] | /wĩʃ láqan-ti/ | 'you saw X' |

The above cases, (49) and (50), provide the clearest evidence that it is the morpheme which is extrametrical, and not its constituent phonological segments. In cases where the perfective suffix is phonologically null, primary stress still falls on the penultimate syllable. In order to account for this pattern of stress assignment, I assume that the suffix itself is extrametrical. I assume further that if any part of such a suffix is resyllabified into a word final syllable, then that syllable carries the feature [+ EM].

- | | | |
|------|----------------|--|
| (51) | [wĩʃ ʃt q] | |
| | /wĩʃ ʃtuqu-ti/ | |
| | you sew X-2PFV | |
| | 'you sewed X' | |

As there are no unstressed words in Totonac, a syllable that constitutes the entire stress assignment domain cannot be considered extrametrical. Where [+ EM] affixes appear, if there is no penultimate syllable to stress, stress falls on the monosyllabic root.

- | | | | |
|------|-----------------|----------------------|---------------|
| (52) | [wĩʃ stáat] | /wĩʃ staa-ti/ | 'you sold X' |
| | [ʔút stáat] | /ut staa-la(ʔ)/ | 's/he sold X' |
| | [ʔutún tástaaʔ] | /utun ta-staa-la(ʔ)/ | 'they sold X' |

Thus, extrametricality is a lexical feature of all verbal inflectional suffixes (except /-yaa/ IMPFV')²¹, whether reduced or not. If the nucleus of the morpheme is present, the final syllable of the word is extrametrical and stress falls on the penultimate syllable. If the nucleus of the morpheme is deleted and the remaining consonant is syllabified with the preceding vowel, the feature [-I- EM] is transferred to that syllable. In sum, a syllable that contains the extrametrical suffix, whether in whole or in part, is extrametrical.

If it is assumed that all word final inflectional suffixes are extrametrical, the different surface effects of the reduced [-C] variants of these suffixes must still be

21 As stated earlier, it must be stipulated that the imperfective suffix /-yaa/ (perhaps due to its heavy nucleus) is lexically stressed.

explained. Recall that any word final syllable that contains an underlying perfective suffix (/ -la (ɬ) 'PFV' and / -ti/ '2PFV') is unstressed. However, when the reduced variant of the underlying suffixes / -wa/ '1SUB.PL' and / -na/ '20BJ' is word final, the final syllable is stressed. I propose that the variation in surface stress patterns arises from the* interaction of the morphological extrametricality of the suffixes and independent phonotactic constraints.

a) The perfective suffixes / -la (ɬ) / 'PFV' and / -ti/ '2PFV' both have reduced variants [-C]. In each of these cases, after resyllabification of the reduced variant [-C] which carries the feature [+ EM], the word final syllable is extrametrical. Following resyllabification, if the reduced variant [-t] of / -ti/ '2PFV' or (ɬ) of / -la (ɬ) / are deleted by morphophonemic rule, the feature [+ EM] remains on the final syllable.

- (53) [ʔút maasúunaɬ] /ut maa-suun-nan-la(ɬ)/ 's/he showed X'
 (54) [wɨʂ tánuut] /wɨʂ ta-nuu-ti/ 'you entered'
 (55) [wɨʂ ɕíya] /wɨʂ ɕiyan-ti/ 'you laughed'
 (56) Derivation:

/ɬata-ti/

CV-suffix simplification

ɬata-l

Resyllabification

ɬatat

t - > Ø / V [#] 2PFV

ɬata

\\
N

Stress assignment

[ɬata] 'you slept'

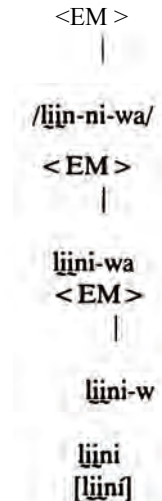
b) There is, however, word final stress on words that end in the reduced variant of /-wa/ '1SUB.PL'. Phonotactic constraints require that only the non-sonorant variants of underlying non-nasal sonorants appear in syllable final position. It is these syllable structure constraints that affect the stress pattern in the case of /-wa/ '1SUB.PL'. I assume that since [-w] has no non-sonorant variant it cannot be syllabified with a preceding vowel. Since neither it nor the [+EM] feature it bears are ever attached to the word final syllable, stress is assigned on the ultima.²²

(57) [kinán ljiní] /kinán ljin-ni-wa/ 'we took X to Y'

(58) Derivation:

Simplification of adjacent
identical consonants

CV-suffix simplification
Resyllabification ([w] syllable finally
cannot be syllabified)
Stress assignment



3) The suffix /-na/ '20BJ' is extrametrical in its full form, but when the reduced variant [-n] is part of a word final syllable, that syllable is stressed. I assume that when the [-n] variant of /-na/ appears on a vowel final stem, the feature [+EM] is transferred to that syllable but is overridden by the inherent heaviness of a syllable that ends in a sonorant consonant.

The inflectional suffix /-na/ '20BJ' is always preceded by another inflectional suffix, either /-yaa/ 'IMPFV', /wa/ '1SUB', or /-la (4) / 'PFV'. In the case where

22 Other inflectional suffixes, in contrast, lose segments by phonological and morphophonemic rules (as opposed to phonotactic constraints) and as a result do affect the stress assignment of the syllable they are attached to.

/-yaa/ ‘IMPFV’ precedes it, the extrametrical feature is blocked by the fact that /-yaa/ is lexically stressed and there is a word final sonorant. Thus, the final syllable is stressed.

- (59) [kít ʔík maqskĩniiyáan čá]
 /kit ik-maq-skinii-yaa-na-ča/
 I 1SUB-CAUS-ask for X-IMPFV-20BJ tortilla
 T ask you for tortillas’

In the case where /-la (ʔ)/ ‘PFV’ or /wa/ ‘1SUB’ precede /-na/ there is a constraint against two inflectional CV suffixes appearing in a surface string, and the penultimate suffix (i.e. /-la (ʔ)/ or /-wa/) is always deleted.

It could be assumed that the extrametrical feature of /-na/ ‘20BJ’ is passed to the preceding syllable following CV-suffix simplification and that morphophonemic rules delete the penultimate suffix so that stress on the surface form falls on the ultima, which underlyingly corresponds to the penultimate syllable. This analysis requires that CV-suffix simplification applies to the right-most inflectional suffix first and deletes the penultimate suffix after it has received the extrametrical feature.

- (60) [ʔútún tastáanín] /ta-staa-ni-la(ʔ)-na/ ‘they sold X for you’

However, examples such as (61) and (62) show that when the stem ends in a obstruent, the penultimate suffix is deleted prior to CV-suffix simplification and on the surface the second person suffix /-na/ appears in its full form.

- (61) [ʔút paastʔkna] /ut paa=stak-la(ʔ)-na/ ‘s/he remembered you’
 (62) [kinán ʔíktaacʔna] /ik-taa-ɕuq-wa-na/ ‘we wrote y’alP

Thus, morphophonemic deletion of a word-medial inflectional suffix must precede CV-suffix simplification. Based on examples (61) and (62) with obstruent final stems, I assume that inflectional-CV suffixes are deleted word medially (i.e. preceding /-na/ ‘20BJ’ the only inflectional suffix licensed to follow). I further propose that morphological extrametricality is overridden by the phonological weight of the final syllable. In essence, the transfer of extrametricality is constrained by the quantity sensitivity of the language. In this case, the phonological weight of extrametrical syllables is constrained by the sonority of the final consonant. I posit that a word final sonorant makes a final syllable ‘superheavy’ and blocks the application of extrametricality.

The final consonant of a syllable seems to be decisive in determining the weight of a syllable. As noted earlier, syllable finally nasals are the only sonorants licensed to appear. A word final syllable that ends in /n/ is always stressed. Appealing to the nominal stress pattern, there are no cases of nominal stress in which a syllable containing a word final nasal is unstressed. In contrast, a long vowel nucleus that is followed by a non-sonorant coronal is sometimes unstressed.

- (63) [iaqaat] /iaqaat/ ‘clothes’

Derivation:

- (64) [ʔut wanín]
 /ut wan-ni-la(ʔ)-na/
 s/he say- + OBJ-PFV-20BJ
 ‘s/he said X to you’

/wan-ni-la(ʔ)-na/

Simplification of identical segments

σ
 wani-la(ʔ)-na

te(4) -- > Ø / —]na]20BJ

σ
 wani-na

CV-suffix simplification
 Resyllabification ([+ EM] overridden)
 Stress assignment

σ
 wani-n
 wanin
 [wanin]

To recapitulate this discussion, verbal stress is governed by the following generalizations:

- (65) a) All verbal inflectional suffixes (except /-yaa/ ‘IMPFV’) are extrametrical.
 The lexical feature [+ EM] is associated with a word final syllable if and only if the [-I- EM] morpheme is in absolute final position. If a suffix with

the feature [+ EM] is resyllabified onto a preceding syllable the feature [+ EM] is passed to that syllable.

- b) Build right-dominant quantity sensitive feet. (i.e. place stress on all heavy syllables (a heavy syllable has a branching rhyme)).
- c) Build a right-dominant word tree. (i.e. place stress on all final syllables).

Thus although nouns and verbs do differ in how they assign extrametricality, a unified stress rule can be formulated which assigns stress to the final syllable of a word. In the case of nouns, it is the phonological make-up of the word final segments which affects their extrametricality, while in the case of verbs extrametricality applies to morphological constituents. All inflectional suffixes (except /yaa/TMPFV') are extrametrical and in the case of the reduced variant of these suffixes, the way this feature is passed onto a preceding syllable is restricted by phonotactic constraints.