

2.4 Stress

2.4.1 Regular primary stress

2.4.1.1 Stress in non-compounds

For the most part, stress in Kamyá is predictable. In words of sufficient length, primary stress (´) regularly falls on the antepenultimate—i.e. third from last—syllable of a word.¹ This is illustrated in (1) with three-syllable words, in (2) with four-syllable words and in (3) with a pair of five-syllable words.

(1)	a.	óσσ	námeka	‘girl’
	b.	óσσ	hánarta	‘reservoir’
	c.	óσσ	gídoşa	‘on (a/the) table’
	d.	óσσ	málardit	‘(they) saw’
(2)	a.	σóσσ	kodísoça	‘closed’
	b.	σóσσ	alyádaman	‘impossibility’
	c.	σóσσ	detárumca	‘(they) returned’
(3)	a.	òσσóσσ	gìrenáriça	‘wine cellar’
	b.	òσσóσσ	rìdhohúlardit	‘(they) kicked with spurs’

Examples of longer words will be discussed further on in this section (see especially §2.4.2); primary stress is found on the antepenult in these instances too. In words with three or fewer syllables, stress regularly falls on the initial syllable, as exemplified in (4) and (5) below for one- and two-syllable words respectively.

(4)	a.	ó	éş	‘frost’
	b.	ó	fér	‘copse’
	c.	ó	rágh	‘harm’
(5)	a.	óσ	çéra	‘woman’
	b.	óσ	gíngi	‘go shopping’
	c.	óσ	féşek	‘peach’

1 Languages that exhibit fixed antepenultimate stress are somewhat typologically uncommon (see e.g. Hyman 1977; Gordon 2002; Goedemans & van der Hulst 2013). Examples of languages that have been claimed to show regular antepenultimate primary stress are Macedonian (Beasley & Crosswhite 2003: *passim*; which lacks secondary stress), Georgian (Aronson 1990: 18; said to have word-initial secondary stress) and Paumarí (Everett 2003: §2.2; in which secondary stress falls on each odd-numbered mora, counting from right to left).

As might be inferred from the forms and translations of certain examples above, stress is generally not fixed to a specific position in a given stem, root or affix in Kamya and is mobile upon affixation or compounding.² For example, as shown in (6), nouns may take plural-marking, case-marking and/or derivational suffixes.

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|-----|----|------|------------|-----------------|
| (6) | a. | σόςσ | tanér-işa | ‘ticket-LOC’ |
| | b. | σόςσ | şobóç-ada | ‘duck-PL’ |
| | c. | σόςσ | varíça-zen | ‘parish-ABL’ |
| | d. | σόςσ | rudí-da-şa | ‘forest-PL-LOC’ |

Verbs—which may take suffixes marking, for example, plurality, valency changes, mood and/or tense (as well occasionally aspectual-augment suffixes)—are no different in this respect, as the examples in (7) demonstrate.

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|-----|----|-------|-----------------|------------------------|
| (7) | a. | σόςσ | atíč-ar-dit | ‘be.born-PL-NPST’ |
| | b. | σόςσ | baş-ávi-cuz | ‘count-CMPL-FUT’ |
| | c. | òσόςσ | kòç-uk-ó-r-umca | ‘link-REV-MDP-PL-FPST’ |

Stress in Kamya is also quantity insensitive. As such, whether or not a syllable is heavy/closed (σ) or light/open (σ) does not come into play in the language’s stress system.³ That is, closed syllables do not attract stress due to their weight.

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|-----|----|------|-------------|--------------|
| (8) | a. | óσ | fárab | ‘cotton’ |
| | b. | óσσ | búkardit | ‘(they) hit’ |
| | c. | σóσσ | targáhuldit | ‘plugged up’ |

Note that the examples in (3) and (7c), in addition to primary stress, also have secondary stress. This will also be seen in §2.4.1.2 and secondary stress will be specifically discussed later on in §2.4.2.

Although regular primary stress is usually limited to the antepenultimate syllable, there are occasions on which it may be found on the preceding—i.e. the preantepenultimate—syllable. This only occurs regularly if the word has at least four syllables and the antepenultimate syllable contains a high vowel (i.e. /i/ or /u/) that is then immediately followed by a homorganic glide (i.e. /j/ or /w/ respectively) in the onset of the subsequent syllable.

2 In practice, affixation usually means suffixation since prefixes are somewhat rare in Kamya (though see, for example, reduplication in §2.4.1.3 and *bí-* in §2.4.3).

3 Since there is no phonological contrast between short and long vowels in Kamya and diphthongs can be interpreted as being a vowel in the nucleus followed by a glide in the coda, the terms “open” and “closed” are perhaps preferable to “light” and “heavy”, though this makes no real analytical difference here.

- (9) a. $\acute{\sigma}\sigma\sigma$ Kazákiyaşa 'in Kazakhstan'
 b. $\acute{\sigma}\sigma\sigma$ Lítuwazen 'from Lithuania'
 c. $\acute{\sigma}\sigma\sigma$ zákiyardit '(they) frolicked'
 d. $\acute{\sigma}\sigma\sigma$ rétuwarcuz '(they) will fall'

If such words only contain three syllables then stress does fall on the antepenultimate syllable rather than, for example, the penultimate syllable.

- (10) a. $\acute{\sigma}\sigma\sigma$ gíyardit '(they) sat down'
 b. $\acute{\sigma}\sigma\sigma$ lúware 'of tin'

Note that preantepenultimate stress in words of this shape feeds high-vowel syncope in which an unstressed high vowel may be deleted when immediately followed by a homorganic glide.⁴ This is illustrated in (11) with transcriptions of those examples already seen in (9).

- (11) a. Kazákiyaşa /ka'zakijafa/ [ka'zakjafa ~ ka'zaki.jafa]
 b. Lítuwazen /'lituwazen/ ['litwazen ~ 'litu.wazen]
 c. zákiyardit /'zakijardit/ ['zakjardit ~ 'zaki.jardit]
 d. rétuwarcuz /'retuwardzuz/ ['retwardzuz ~ 'retu.wardzuz]

Although this is an optional process, it is nevertheless extremely common, even in otherwise careful speech. This means that as seen in (11) above, although words such as *Lítuwazen* and *zákiyardit* have four syllables underlyingly, they usually surface with only three syllables, and in such cases, stress falls on the antepenultimate surface syllable.⁵

2.4.1.2 *Stress in compounds*

Compounds behave slightly differently from non-compounds with respect to the placement of primary stress. In their uninflected form, e.g. the nominative singular for nominal compounds, primary stress falls on the first element of the compound in the same way it would if it were a non-compound word and secondary stress (`) falls on the second element in a similar manner but replacing what would be primary stress in an independent word.

4 Syncope or devoicing of unstressed high vowels may also occur in other inter-consonantal positions, though this is considerably less common than in the glide context, as in (11), and is largely restricted to casual running speech. See ?? for more information on syncope.

5 When syncope occurs and primary stress appears on the antepenultimate surface syllable, there is typically no secondary stress but if syncope does not occur, secondary stress appears on the penultimate syllable (see §2.4.2).

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|------|----|------|------------|----------------------------|
| (12) | a. | óσóσ | şíde-dàru | ‘ill-car (= ambulance)’ |
| | b. | óσóσ | gára-kòdha | ‘many-tongue (= polyglot)’ |
| | c. | óσóσ | énçe-stìni | ‘animal-park (= zoo)’ |

This contrasts with, for example, adjective–noun phrases where there is a primary stress on both words according to the regular rules of non-compound words.⁶

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|------|----|---------|---------------|--------------------------|
| (13) | a. | óσ óσ | şiki kúdi | ‘red book’ |
| | b. | óσ óσ | gára kòdha | ‘many tongues/languages’ |
| | c. | σóσσ óσ | ruzáçula úzun | ‘pebbly beach’ |

However, once enough extra syllables are added to such words—for example, by inflectional or derivational suffixes—for secondary stress to fall on the antepenultimate syllable (or further back), the second element becomes dominant and bears primary stress according to the regular rules of primary stress placement.

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|------|----|-------|----------------|------------------|
| (14) | a. | òσóσσ | şide-dàru-ta | ‘ambulance-INST’ |
| | b. | òσóσσ | gàra-kòdha-zen | ‘polyglot-ABL’ |
| | c. | òσóσσ | énçe-stìni-şa | ‘zoo-LOC’ |

If an affix does not add sufficient extra syllables to the word then this change does not occur, as illustrated below in (15) and (16) with the post-vocalic allomorphs of the accusative and dative case-marking suffixes, *-z* and *-ş*, respectively.

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|------|----|------|--------------|-----------------|
| (15) | a. | σóσσ | şide-dàru-z | ‘ambulance-ACC’ |
| | b. | σóσσ | gára-kòdha-z | ‘polyglot-ACC’ |
| | c. | σóσσ | énçe-stìni-z | ‘zoo-ACC’ |
| (16) | a. | σóσσ | şide-dàru-ş | ‘ambulance-DAT’ |
| | b. | σóσσ | gára-kòdha-ş | ‘polyglot-DAT’ |
| | c. | σóσσ | énçe-stìni-ş | ‘zoo-DAT’ |

2.4.1.3 Stress and reduplication

As seen in ??, there are three separate patterns of reduplication in Kamyá: prefixed partial reduplication, postposed partial reduplication and total reduplication. Each of these interacts with the placement of stress in a slightly different way.

Firstly, prefixed partial reduplication can be thought of as applying in the same way as normal affixation. That is, the normal rules for the placement of stress apply to the resultant word, as shown in (17).

6 Notice that (12b) and (13b) are in fact minimal pairs in that they are distinguished only by their slightly different stress patterns.

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|------|----|------|-------------|------------------------------|
| (17) | a. | óσσ | rá-raca | ‘somewhat quickly’ |
| | b. | óσσ | krén-kreci | ‘hover in the air for a bit’ |
| | c. | σσσσ | çan-çánawla | ‘kind of earthy’ |

Next, for postposed partial reduplication, the unaffected base is treated as it would if were not reduplication and the prefix *var-* that is added to the following reduplicant is treated as invisible to stress, as in (18).

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|------|----|------------|------------------|----------------------------------|
| (18) | a. | ó (σ)σ | rúz var-úz | ‘stones and debris’ |
| | b. | óσ (σ)óσ | Yúhan var-úhan | ‘John and his friends’ |
| | c. | óσσ (σ)óσσ | şébeke var-ébeke | ‘gerbils and other such animals’ |

Finally, total reduplication simply results in two separate words which both follow regular stress rules, as exemplified in (19) below.

- | | | | | |
|------|----|---------|-------------------|--------------------------|
| (19) | a. | ó ó | kút kút | ‘tins/cans strewn about’ |
| | b. | óσ óσ | wáça wáça | ‘trees here and there’ |
| | c. | óσσ óσσ | lérteska lérteska | ‘peas scattered about’ |

2.4.2 Regular secondary stress

The presence and placement of regular secondary stress is predictable based on the syllable on which primary stress falls, regular or not.⁷ Secondary stress is assigned iteratively, falling on every other syllable to the left and right (in the irregular cases; see §2.4.3) of a primary stress, except that it cannot occur word-finally. In practice, this either prevents many words from having secondary stress or results in only one secondary stress to the left of the primary. Nonetheless, words of sufficient length may bear two, or very occasionally more, secondary stresses.

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|------|----|--------|-------------|---------------------|
| (20) | a. | óσ | rájan | ‘fennel’ |
| | b. | óσσ | vádişa | ‘tomorrow’ |
| | c. | σσσσ | elérobak | ‘pencil case’ |
| | d. | óσσσ | tèhizánya | ‘vegetables’ |
| | e. | óσσóσ | bíbukàre | ‘no one’s’ |
| | f. | óσσóσσ | àlyadámaniş | ‘impossibility.DAT’ |

Certain examples in (20) above contain instances of irregular primary stress (for which see §2.4.3), though this does not change the rule of secondary stress placement.

The examples in (21) show the placement of secondary stress in particularly long words illustrated with various inflected forms of the noun *ruvàşanáriça* ‘planetarium’.

⁷ See §2.4.3 for details on the limited instances of irregular primary and secondary stress.

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|------|----|-----------|--------------------|----------------------------|
| (21) | a. | σσσσσ | ruvàṣanáriça | ‘planetarium’ |
| | b. | òσσσσσ | rùvaṣànaríçaṣa | ‘planetarium.LOC’ |
| | c. | σσσòσσσ | ruvàṣanàriçádazen | ‘planetarium.PL.ABL’ |
| | d. | òσσσσòσσσ | rùvaṣànaríçadáṣava | ‘planetarium.PL.LOC.INESS’ |

As one might expect, words of such extreme length—i.e. of six, seven or more syllables—are quite infrequent in Kamya, especially in normal spontaneous speech.

2.4.3 Irregular stress

Although the placement of stress in Kamya is, for the most part, predictable based on the principles discussed in §§2.4.1 and 2.4.2 above, there are certain subsets of words which exhibit stress patterns not captured by these rules. These fall into two categories: (i) morphologically-complex words containing certain stress-attracting affixes and (ii) recent unintegrated loan words.

This first category includes words containing one of three particular affixes: the collective suffix *-ánya*,⁸ the allative case-marking suffix *-zùri* and the negative prefix, *bí-*, which attaches to pronouns or pro-adverbs.

The suffix *-ánya* attaches to nouns and, more rarely, verbs. If the base to which it is suffixed ends in a vowel, that vowel is elided.

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|------|----|------|-----------|----------------------|
| (22) | a. | σσσ | staçánya | ‘onion (mass)’ |
| | b. | òσσσ | ṣòboçánya | ‘duck (group, meat)’ |
| | c. | σσσ | gidánya | ‘furniture’ |
| | d. | σσσ | kadánya | ‘men’ |
| | e. | σσσ | gedhánya | ‘readership’ |
| | f. | σσσ | dhuránya | ‘audience’ |

Although this affix is still productive, it is also found in fossilised forms, i.e. nouns which cannot necessarily synchronically be broken down into a stand-alone root and *-ánya*. Such examples are provided in (23) below.

- | | | | | |
|------|----|-----|---------|------------|
| (23) | a. | óσ | yánya | ‘medicine’ |
| | b. | σσσ | açánya | ‘progeny’ |
| | c. | σσσ | bigánya | ‘bouquet’ |

8 Though generally referred to as forming “collective” nouns, the derivational suffix *-ánya* may also create nouns denoting, for example, universal categories or mass-noun materials (such as the names of meats derived from the corresponding animal). It is also used to form the irregular plural form *kadánya* ‘men’, as shown in (22d). See ?? for more information on this suffix.

In addition, this is very occasionally seen non-etymologically in loan words analysed as containing the suffix, as the two examples from French and Italian in (24) show.

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|------|----|-----|----------|-------------|
| (24) | a. | σ́σ | şampánya | ‘champagne’ |
| | b. | σ́σ | lazánya | ‘lasagne’ |

However, this is not a general property of the sequence of segments /anja/. This can be seen in the examples in (25) below where stress falls on the antepenultimate syllable of the word as it does regularly.

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|------|----|-----|---------|--------------|
| (25) | a. | σ́σ | Árbanya | ‘Albania’ |
| | b. | σ́σ | Kódanya | ‘Copenhagen’ |

Note that, as might be expected, the suffix *-ánya* generally retains its primary stress when case-marking suffixes are attached to the noun.

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|------|----|------|---------------|-----------------|
| (26) | a. | σ́σσ | kajánya-re | ‘poultry-GEN’ |
| | b. | σ́σσ | zaránya-şa | ‘foliage-LOC’ |
| | c. | òσσσ | nòçeránya-zen | ‘army-ABL’ |
| | d. | òσσσ | kàmazánya-ta | ‘diaspora-INST’ |

The second irregularly stressed suffix in Kamyá is *-zùri*, which marks the allative case (see ??). Unlike *-ánya*, however, *-zùri* does not ordinarily bear primary stress but instead usually carries secondary stress. It does, however, by virtue of this, influence the placement of primary stress in the word to which it is attached. The examples in (27) below illustrate the consistent presence of secondary stress on *-zùri*.

- | | | | | |
|------|----|-------|--------------|------------------|
| (27) | a. | σ́σσò | şírta-zùri | ‘city-ALL’ |
| | b. | σ́σσò | kém-azùri | ‘lake-ALL’ |
| | c. | σ́σσò | hiríça-zùri | ‘parliament-ALL’ |
| | d. | σ́σσò | sucák-azùri | ‘bathhouse-ALL’ |
| | e. | σ́σσò | Ángliya-zùri | ‘England-ALL’ |

However, the above examples also serve to illustrate the fact that primary stress falls not on the directly preceding antepenultimate syllable but instead recedes to the pre-antepenultimate syllable—or even very rarely the propreantepenultimate syllable if the preantepenultimate syllable contains a high vowel followed by a homorganic glide (similar to the effect discussed around examples (9) and (11) in §2.4.1.1).

A further complication is found in situations where *-zùri* takes on primary rather than secondary stress. This is most often encountered when an orientative or inessive case augment is suffixed to the word in addition to the allative case marker, thereby

making the first syllable of *-zùri* the antepenultimate syllable in the word.⁹ In such cases, a secondary stress is acquired by the fifth syllable from the end of the word as in (28a), (28b) and (28c) or, if repelled by a high vowel and following homorganic glide, the sixth syllable from the end of the word as in (28d).

(28)	a.	òσσσσ	sòma-zùri-va	‘house-ALL-INNESS’
	b.	òσσσσ	tègi-zùri-la	‘wall-ALL-ORIENT’
	c.	òσσσσ	zarànya-zùri-va	‘foliage-ALL-INNESS’
	d.	òσσσσσ	Frànkiya-zùri-la	‘France-ALL-ORIENT’

The third and final affix that shows an exceptional stress pattern is *bí-*, the negative prefix which attaches to pronouns and pro-adverbs. This almost always bears primary stress regardless of the syllable’s position in the word; however, similarly to the pattern shown by *-zùri* above, once words contain a total of five or more syllables, *bí-* instead takes on secondary stress and primary stress falls on the antepenultimate syllable.

(29)	a.	óσ	bíde	‘nothing’
	b.	óσσ	bívaka	‘never’
	c.	óσσσ	bíbukà-re	‘no one-GEN’
	d.	óσσσ	bíhe-zùri	‘nothing-ALL’
	e.	óσσσ	bíhe-ṣà-va	‘nothing-LOC-INNESS’
	f.	òσσσσ	bìbuká-ta-la	‘no one-INST-COM’
	g.	òσσσσσ	bìhe-zùri-va	‘nothing-ALL-INNESS’

In addition to the affixes discussed above, for some speakers, certain personal names loaned from other languages may have realisations with exceptional stress retained from their source language (see ??). The same is not usually the case with place names, however. Nevertheless, unintegrated place names may also sometimes carry exceptional stress.

2.4.4 Unstressed items

An additional point to note is that certain function words—which are for the most part mono- or disyllabic—do not bear any stress at all unless given stress for pragmatic or information-structural reasons. Examples of these are provided in (30) below.¹⁰

⁹ See ?? for more information on case augments.

¹⁰ Note that some of these have pre-vocalic allomorphs in which the final—or sometimes only—vowel is elided. These are the only items in Kamyá that (routinely) exhibit such apocopic allomorphy (see ??).

(30)	a. ani, an'	'and, but'	e. na, n' ¹¹	'the'
	b. bala	'or, otherwise'	f. ši, ş'	'a, an'
	c. be, b'	'not'	g. va, van	'and'
	d. mana	'or'		

This is not the case, however, for all function words. For example, the demonstrative adjectives *kína* 'this', *hánda* 'that' and *dúma* 'that' do ordinarily consistently bear stress.

2.4.5 Acoustic correlates of stress

Potential acoustic correlates of stress are longer duration, higher intensity (AKA amplitude, loudness or volume) and pitch (either higher or lower) as well as vowel reduction (e.g. mid-centralised formant values) in unstressed syllables. These properties are commonly found to correlate with stress in the languages of the world, though not all are necessarily always meaningful in a given language and the relative importance of these factors for the perception of stress may also differ from language to language.¹² In American English, for example, in addition to vowel reduction, the main correlate of stress is a higher pitch, with less important correlates being higher intensity and longer vowel duration (see e.g. Fry 1955, 1958; Lieberman 1960 et seq.).

In Kamyá, it is phonetic duration that is the most reliable acoustic correlate of primary stress and it is also a somewhat weak correlate of secondary stress. This was investigated with a small-scale acoustic study. Vowels in primary-stressed syllables were indeed found to have consistently longer durations, being approximately 40% longer than unstressed vowels; vowels in secondary-stressed syllables on the other hand are roughly 15% longer (see Figure 1). A relatively higher intensity was also found to be a moderately important cue for primary stress, although secondary-stressed and unstressed syllables tend to have roughly the same maximum intensity (see Figure 2). Pitch appears to be a less important cue to both primary and secondary stress (see Figure 3) and, lastly, vowel reduction in unstressed syllables, as measured acoustically by differences in formant values, despite apparently exhibiting a consistent effect, was very small in magnitude and should not be considered a meaningful correlate of stress.

11 The article *na* may also bear primary stress in the relativiser *na sídh* or the conjunction *na waş* depending on the prosodic environment.

12 For a recent cross-linguistic survey of the acoustic correlates of stress, see Gordon & Roettger (2017).

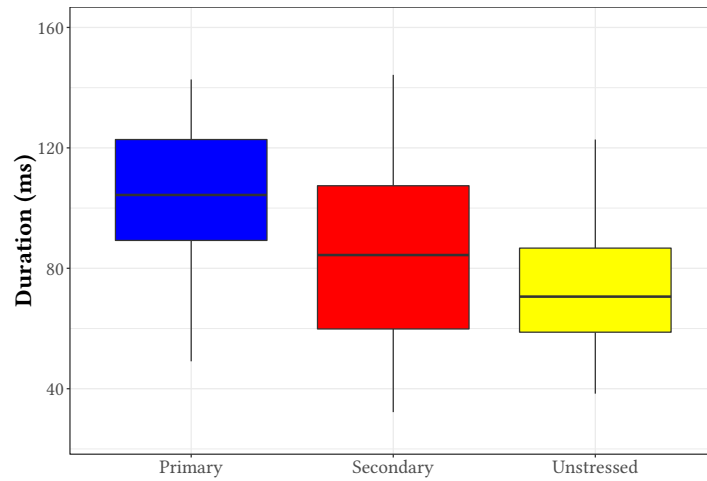


Figure 1: Duration in primary-stressed, secondary-stressed and unstressed syllables

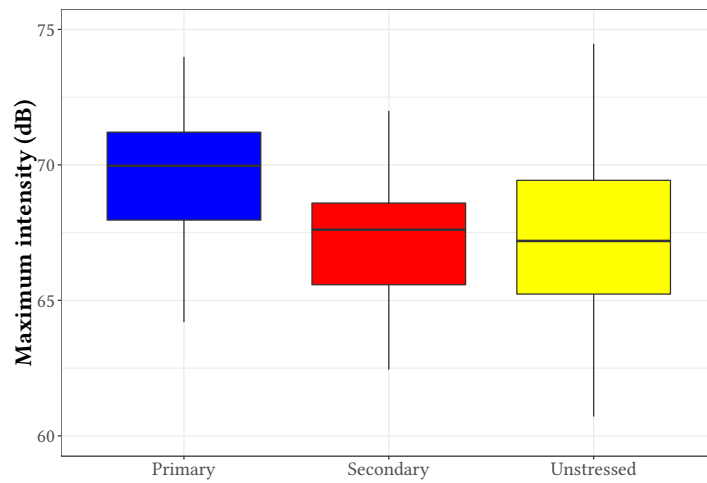


Figure 2: Intensity in primary-stressed, secondary-stressed and unstressed syllables

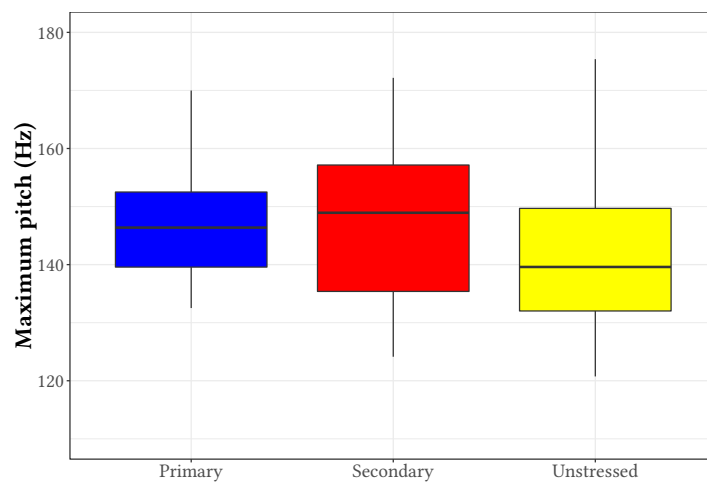


Figure 3: Pitch in primary-stressed, secondary-stressed and unstressed syllables

Abbreviations

ABL	ablative	INESS	inessive
ACC	accusative	INST	instrumental
ALL	allative	LOC	locative
CMPL	completive	MDP	mediopassive
COM	comitative	NPST	near past
DAT	dative	ORIENT	orientative
FPST	far past	PL	plural
FUT	future	REV	reversive
GEN	genitive		

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