

What stress generally is

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EGG2023, last updated June 9, 2023

1 Stress is part of prosody, right?

Following Hyman (2006):

- » One end of the prosody scale is tone and the other is stress accent
- » There are systems in between that are not best categorised as either prototype
- » In-between is sometimes called *pitch accent*

- (1) A language with stress accent is one in which there is an indication of word-level metrical structure meeting the following two central criteria:
- a. OBLIGATORINESS: every lexical word has at least one syllable marked for the highest degree of metrical prominence (primary stress);
 - b. CULMINATIVITY: every lexical word has at most one syllable marked for the highest degree of metrical prominence. (Hyman 2006: p. 231)

Why is the 'exactly one stress per word' property split into OBLIGATORINESS and CULMINATIVITY in Hyman's definition?

- (2) A language with tone is one in which an indication of pitch enters into the lexical realisation of at least some morphemes. (Hyman 2001: p. 1367)

- » Both tone and stress are properties of syllables. Why not of vowels?
- » Tone is featural; there may be several different tones (e.g. H/L)
- » Stress is prominence; can there be several different stresses?
- » Which one of the properties in (1) is therefore more important?

Apart from pure tone and pure stress, there is pitch accent (PA), which supposedly is in the middle. Some syllables are lexically marked with *accents*, which influence pitch placement. Similarly, accents can mark prominence. How do we tell PA from stress accent (SA)?

- » If a language uses PA, the use of pitch elsewhere should be restricted
- » If a language uses SA, pitch can be used elsewhere, say, for phrase-level intonation
- » Also, SA is phonetically different, i.e. not exposed by pitch alone (like in PA systems)

We will be primarily interested in stress.

2 What stress can count

Syllables:

- » Each one has a nucleus – usually something sonorant, like a vowel
- » Optionally, there is an onset or a coda
- » Varying syllable structures; languages can tolerate very few to almost any structure
- » Depending on the structure, syllables can be *heavy* or *light*

(3) Example rule: stress the penultimate syllable (Polish)

- a. Ag·**niesh**·ka
- b. u·ni·wer·si·**te**·tu

Moras (as in Metrical stress theory, Hayes 1995):

- » Less than syllables; syllables consist of 1 or 2 moras
- » Heavy syllables have 2 moras, light syllables have 1
- » Another version of the rule for Latin could be: stress the syllable containing the antepenultimate mora
- » Heavy syllables (closed or containing long vowels)

pa·pa	Eu·rō·pa
fī·gū·ra	per·sō·na
pan·thē·ra	hal·lū·ci·nā·tus
me·mo·ri·a	si·mi·lis
pa·ra·dox·us	fun·dā·men·tum
ū·ni·cor·nis	cal·ci·trō

Latin: stress the penultimate syllable; if short, stress the antepenultimate syllable [source]

Feet:

- » Composed of 1 or 2 syllables
- » One metrically prominent syllable per foot
- » A syllable that is not in a foot cannot be stressed (is *extrametrical*)

2.1 How accent placement is determined

There can be parametric variation wrt. foot parsing and stress assignment (Hayes 1980)

- » Split into feet: *right-to-left/left-to-right*
- » Find the head syllable: *left-headed/right-headed*
- » Find the head foot: *leftmost/rightmost*
- » For penultimate stress there is extrametricality – one syllable is not counted

păsa'nema	(pă·sa)·(nɛ·ma)
'laraś	(la·raś)
'laraśa	(la·ra)·<śa>

Khanty: right-headed word structure, right-to-left left-headed feet

3 Primary accent vs foot structure: what comes first

Every word (in some languages, at least) has a primary accent. Does it make a difference, whether the primary accent or the foot structure is determined first in the computation of stress?

van der Hulst (2009) argues against Metrical theory, which says that feet are computed before the primary stress.

- » Rhythmic accent is secondary to the primary accent
- » This is controversial: what if a system exists where the order can only be the reverse?

There are, however, several reasons to believe in the primary-accent-first theory:

- i. Different criteria for assigning primary and rhythmic stress
- ii. Foot structure for primary stress from one side, rhythmic from the other – two distinct foot types?
- iii. Different foot headedness
- iv. Primary accent can be lexically set, not so with rhythmic stress (van der Hulst 2009)

3.1 What can a primary-accent-first system generate?

The primary stress assignment process works via weight projection to a suprasegmental level:

- a. Project syllable weight to level 1: *yes/no*
- b. If level one is empty – default projection strategy: *leftmost/rightmost* syllable
- c. Primary accent assigned to *leftmost/rightmost* syllable projected to level 1

Heavy syllables project in weight-sensitive languages; also, projecting syllables can be diacritically marked. We already have $2 \cdot 2 \cdot 2 = 8$ options, but that is not all parametrisation available. Consider the domain settings:

- a. *Bounded/unbounded domain* – the whole word versus two edge syllables (a foot)
- b. If bounded, *leftmost/rightmost* foot
- c. Extrametricality – one syllable does not matter for stress assignment: *yes/no*
- d. If extrametricality: extrametrical syllable to the *left/right* of the domain

This gives us $8 \cdot 3 \cdot 3 = 72$ possible systems. Weight-sensitive systems are rather restricted, whereas if special syllables can be diacritically marked, the lexical arbitrariness makes many more systems possible.

3.2 What can't a primary-accent-first system generate?

A so-called *count system*, where primary accent crucially depends on the word being fully parsed into feet: say, penultimate stress in words with $2N$ syllables and final stress in words with $2N + 1$ syllables.

(4) A made-up count system

- a. ka·ga·gu·ga
- b. u·ga·ga

The workaround: count systems may actually lack primary accent, so stress assignment only proceeds via feet parsing without placing any primary accent. How such situations may come to be, according to van der Hulst (1997):

- » Historical change from one anchor side to the other
- » Fragile notion of word in polysynthetic languages: stress more like phrasal accent

Why can't we have both 'metrical' languages and primary-accent-first languages?

4 Summary

- » Stress contrasts with tone and pitch accent
- » Primary accent can be different from rhythmic accent in important respect, that's why it makes sense to assign primary accent first
- » Some systems may have no primary accent whatsoever

4.1 Next up...

We have located stress among prosodic phenomena and reviewed some stress assignment algorithms, but there is much more to it:

- » Phonetic and phonological exponents of stress
- » How exactly stress and syllable weight can interact
- » How stress assignment domains are formed

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