

Stress as empty CV

Phonetic and phonological exponents of stress

Sasha Shikunova

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1 Phonetic realisation of stress

What is a stressed syllable like?

- (1) Native speakers and phoneticians usually find it easy to determine which syllables bear stress, and even to distinguish varying degrees of stress, but the phonetic characterization of stress is exceedingly difficult: stress is variously associated with

- ♥ *greater loudness*,
- ♥ *higher pitch*,
- ♥ and *greater duration*, any of which may be most important in a given case,
- ♥ and sometimes also with *vowel quality*. (Trask 1996: p. 336)

1.1 Stress-related phenomena

There is a limited range of phenomena that are conditioned by stress, as argued by Giavazzi (2010)

- (2) It is surprising fact that a large number of phonological features never participate in stress-conditioned processes. (Giavazzi 2010: p. 12)

➤ the preservation or neutralisation of segmental contrast in the vicinity of stress

- (3) In Italian, [k] is preserved next to stressed vowels

a. /an.'ti.k-i/ [an.(ti)_σ.ki] 'antique', Masc. Pl.

b. /'ko.mi.k-i/ [(ko)_σ.mi.tʃi] 'comic', Masc. Pl. (Giavazzi 2010: p. 13)

➤ the enhancement of the acoustic properties of the releases in stress-adjacent consonants (e.g. affrication, aspiration)

(4) In English, initial and pre-stress voiceless stops are aspirated

- a. *pay* [p^heɪ]
- b. *spare* [speə^r]
- c. *potato* [p^hət^hero]

(5) In Southern Saami, codas of stressed syllables are preaspirated/geminated

(1)		Unstressed	Gloss	Stressed	Gloss
a.	k/ ^h k	t͡ʃa <u>al</u> -ə <u>k</u> ə ²	<i>deverbal suffix</i>	prɔ̌wnaalt-a ^h <u>k</u> ə ³	<i>deverbal suffix</i>
b.	O/OO	u <u>rr</u> -ə <u>p</u> ə	<i>new-Comp.</i>	pɔ̌araas-ɔ̌ <u>pp</u> uɔ̌	<i>old-Comp.</i>
		ma <u>an</u> -ə <u>t͡ʃ</u> ə	<i>sledge-Dim.</i>	kǐěrǐěhts-ə <u>t͡ʃ</u> ə	<i>child-Dim.</i>
		p <u>y</u> ə <u>r</u> k-ə <u>s</u> ə	<i>meat-illativeSg</i>	ka <u>a</u> mək- <u>a</u> ssə	<i>shoe-illativeSg</i>
c.	N/NN	u <u>rr</u> -ə <u>m</u> əs	<i>new-Superl.</i>	pɔ̌araas-u <u>mm</u> əs	<i>old-Superl.</i>
		pɔ̌ <u>ut</u> -ə <u>m</u> ə	<i>listen-Perf.</i>	kultəl-a <u>mm</u> ə	<i>come-Perf.</i>

O = obstruents (except k), N = nasals

(Enguehard 2014)

There is a phonetically grounded way of explaining why only certain features can be affected by the vicinity of stress. It is because of the characteristic exponents of stress: duration and loudness (loudness is followed by increased subglottal pressure which affects articulation of stops).

2 Phonological exponence

Can stress be a feature? Suppose [stress] feature exists:

- » Stress can easily be lexically encoded
- » In OT, there is now no problem with implementing prosodic structure in the input (de Lacy 2019)
- » (contrastive syllabification should not be possible)

But:

- » The feature [stress] would be characterised by OBLIGATORINESS and CULMINATIVITY
- » Is it true of any other feature?
- » How many values should [stress] have? There is primary and secondary stress

[Stress] is different from other SPE features (Lieberman & Prince 1977: pp. 262–263 as summarised by Roca 1994: pp. 208):

Stress	Other DFS
n-ary valency	binary valency
syntagmatic definition	paradigmatic definition
global effects	local effects
derivationally preserved	derivationally affected
disjunctive application	conjunctive application

What should stress be, if not a feature?

- » Be lexically encodable
- » Sensibly correspond to duration, loudness and/or pitch
- » Be responsible for the fortition effects around it

3 A flat two-tiered phonology

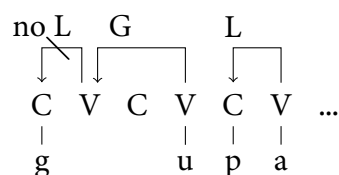
- » Strict CV (also CVCV) is a lateral autosegmental theory of phonology (Kaye, Lowenstamm & Vergnaud 1990, Scheer 2012)
- » Two tiers: syllabic and melodic
- » Uniform syllable structure – CV
- » Melody associated to the syllabic skeleton or floating

Two opposite lateral forces: government and licensing (since Government phonology). Government decreases the prominence of a segment, whereas licensing increases it.

(6) Proper Government (PG)

- a. PG is a form of internuclear Government
 - b. the governor may not itself be governed
 - c. PG cannot apply over a governing domain
- (Kaye, Lowenstamm & Vergnaud 1990)

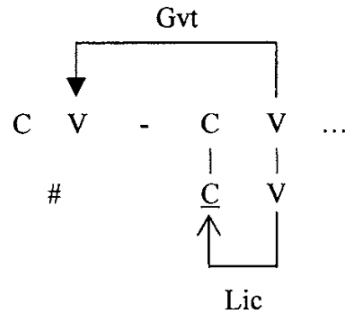
(7) Licensing: only ungoverned nuclei can license



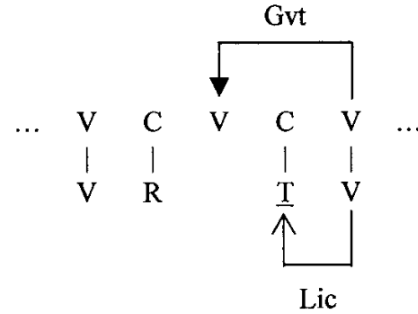
Important consequence of the universal CV syllable structure and government & licensing: the post-coda position and the initial position are the strongest, i.e. not inhibited by government and licensed at the same time (Ségéral & Scheer 2008).

(4) consonants in strong position: ungoverned but licensed

a. initial consonant #__

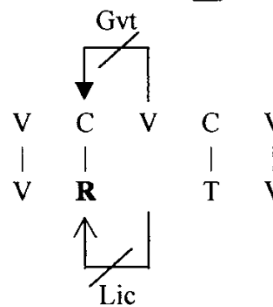


b. post-Coda consonant C.__

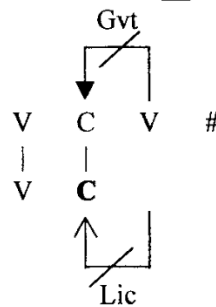


(5) consonants in Codas: ungoverned and unlicensed
intervocalic consonants: both governed and licensed

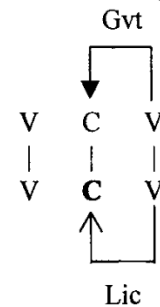
a. internal Coda __.C



b. final Coda __#



c. intervoc. V__V



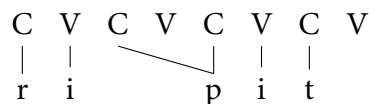
(Ségéral & Scheer 2008: p. 490)

One major way of representing stress in CVCV is an empty skeletal unit – empty CV (Larsen 1998, Szigetvári & Scheer 2005, Enguehard 2015).

(8) [fa:to] (Italian)



(9) [rip^hi:t] (English)



The effects of the empty CV depend on whether it is inserted to the right or to the left of the stressed syllable:

- » The CV inserted to the right lengthens the stressed vowel (Italian)
 - ⇒ stressed syllables are heavy
- » The CV is inserted to the left fortifies the onset of the stressed syllable (English)
 - ⇒ onsets of stressed syllables are strong

This way, fortition in stress-adjacent position is linked to fortition in strong positions. Stress as a property of vowels is linked to length. Also, weight-sensitivity of stress can be parametrised in the CVCV system:

- » Universal syllable structure
 - ⇒ CVC syllables are actually CVCØ
- » Parametrised projection of empty nuclei
 - ⇒ languages may or may not be weight-sensitive

3.1 Case studies

Enguehard (2014) proposes a modification of the empty CV analysis of stress for the Southern Saami language – a CV unit with the element h^0 , which is responsible for pre-aspiration.

- » Southern Saami has fixed initial stress
- » Initial stressed syllables “can have the structures (C)VC, (C)VV, (C)VVC, but never $^*(C)V$ ” (Enguehard 2014: p. 49)

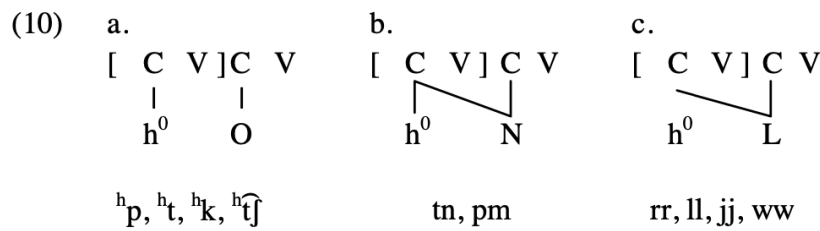
(4)		Source		Loanword	Gloss
a. O > hO		laak (swed.)	>	laa h kə	wax
		papiir (nor.)	>	pææ h pəɾə	paper
		p h aaket (swed.)	>	p h aa h kaa	pack
b. L > LL		baarə (nor.)	>	paarrə	only
c. CC > C h C		k h art (swed.)	>	k h aar h tə	map
		lampə (swed.)	>	laam h paa	lamp
		fylkə (swed.)	>	fyl h kə	county

O = Obstruent (except s), L = Liquids and glides

(Enguehard 2014: p. 49)

- » The stressed syllable does not just have to be heavy – it always becomes heavier when stressed, even if it is already CVC
- » Hence the insertion of the CV

(9)	tatnə ‘you’	
	C V C V	C V [C V] C V
	t a n	t a h^0 n ə



(Enguehard 2014: p. 54)

4 Summary

- » Empty CV as an exponent of stress can account for both weight-sensitive and weight-independent stress systems
- » Fortition effects around stress receive the same explanation as the strength of the Coda disjunction – #_/C_
- » Can be modified to include other elements

4.1 Next up...

CVCV meets metrical grids – Strict CV Metrics:

- » Mechanisms targeting grid marks: projection and incorporation
- » Parametrisation: which nuclei do and do not project?
- » How sophisticated weight hierarchies can be modelled with the universal CV syllable structure

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