

Sg on [sg] and [voice] in GP1.x and GP2.0

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1. Aims:

- **binary laryngeal systems: [voice] languages (voiceless unaspirated vs. prevoiced) and [sg] languages (voiceless aspirated vs. devoiced/voiceless unaspirated)**
- **laryngeal realism: difference does not simply lie in the phonetic manifestation of an underlying voiceless vs. voiced distinction, but is of phonological relevance → must be expressed in phonological representations**
- **some of the previous accounts in GP1.x**
- **a move away from a purely melodic analysis: “the modified Leiden model”**
- **towards a (more) configurational solution in GP2.0 (at least for [sg] languages – tentative)**

2. Laryngeal realism

Iverson and Salmons (1995 etc.), Honeybone (2005), etc.:

- **phonological behaviour (rather than spelling, theoretical conservatism, etc.) should be taken into account in defining laryngeal type, in combination with a phonologically relevant measure of phonetic detail (hence, "realist"):**
- **the difference between, e.g., initial plosives in [voice] languages (where they are voiceless unaspirated vs. prevoiced) and [sg] languages (voiceless aspirated vs. devoiced/voiceless unaspirated) does not simply lie in the phonetic manifestation of an underlying voiceless vs. voiced distinction, but is of phonological relevance as it has serious consequences for the patterning of the whole system of obstruents**
- **all obstruents in a given system will have the same laryngeal opposition (fricatives cannot have a different laryngeal specification from stops in a given system)**

3. Laryngeal systems

one set of plosives

	/p ~ b/	/b/	/p ^h /	/p̚/
Hawaiian	[]			
K'ekchi	[]			[cst gl]
Spanish	[]	[voice]		
English	[]		[spr gl]	

two series

+ three/four-way distinction...

Two-way distinction in obstruents:

[voice] vs. [spread glottis] languages*
("laryngeal realism" – Honeybone 2005):

$b \sim p$ vs. $b̥ \sim p^h$ (lenis ~ fortis)

[p]=[b̥] -> "fortis" / "lenis"

* cf. Iverson & Salmons 1995 (and subsequent publications), etc.

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VOT correlates of stops in Spanish vs. English (LaCharité & Paradis 2005)

Phonetic Implementation

Phonological value

SPANISH

ENGLISH

voiced /b, d, g/

-VOT (-40 to 0 msec)

+ VOT (0 to 30 msec)

voiceless /p, t, k/

+ VOT (0 to 30 msec)

+ VOT (> 50 msec)



4. Two totally different mechanisms

•voice totally inactive in [sg] languages (English, German, etc.): no assimilation!

•instead: "bidirectional devoicing":

obtain [əb₀t^heɪn]
cheesecake [tʃi:z₀k^heɪk]
bigfoot [b₀ɪg^hfʊt]
egghead [e₀g^hhed₀]
roadster [rəʊd₀stə(r)]

matchbox [mætʃ₀b₀ks]
baseball [beɪsb₀ɔ:t]
cookbook [k^hʊkb₀ʊk]
life gear [laɪfgɪə(r)]
Shoot back! [ʃu:t b₀æk]

•=> nothing happens! UR->SR

4. Two totally different mechanisms

• "initial and final de-voicing":
nothing happens!

UR -> SR:

Utterance-initial	Utterance-final
(a)	(b)
<i><u>B</u>ravo!</i> ['brɑ:vəʊ]	<i>Ma<u>d</u>!</i> ['mæd̥]
<i><u>G</u>ood!</i> ['gʊd̥]	<i>Go ahea<u>d</u>!</i> [ə'hed̥]
<i><u>Z</u>any!</i> ['zeɪni]	<i>Think bi<u>g</u>!</i> ['bi:g]
<i><u>D</u>amn!</i> ['dæm]	<i>Bo<u>b</u>!</i> ['bɒb̥]
<i><u>V</u>ery much!</i> ['veri]	<i>Lea<u>v</u>e!</i> ['li:v̥]

4. Two totally different mechanisms

- plus: intersonorant voicing of lenis:

reading, reads it, Gardner, badly, bingo,

big name, give it, Play Ball

- phonetics: the influence of the spontaneous phonetic voicing of the flanking sonorants, surface string-adjacency is the only requirement, applies automatically irrespective of phon/morph/synt context/structure

4. Two totally different mechanisms

As opposed to

•[voice] languages: "Distinctive [voice] implies regressive voicing assimilation" (van Rooy & Wissing 2001)

- Spanish, French, Slavic, Hungarian, etc.**

4. Two totally different mechanisms

RVA in Hungarian:

rabtól ['rɒptɒ:l]

rézkarc ['re:skɒrts]

hangfal ['hɒŋkfɒl]

éghez ['e:khez]

roadshow ['ro:tʃo:]

(glosses: 'from prisoner'

'copper etching'

'loudspeaker'

'to sky'

'ibid.')

matchbox ['mɛdʒbɒks]

baseball ['be:zbo:l]

tökbööl ['tøgbø:l]

afgán ['ɒvga:n]

kertbööl ['kɛrdbø:l]

(glosses: 'toy car'

'ibid.'

'from pumpkin'

'Afghan'

'from garden')

4. Two totally different mechanisms

As opposed to

- [voice] languages: "Distinctive [voice] implies regressive voicing assimilation" (van Rooy & Wissing 2001)

- true laryngeal activity!

4. Two totally different mechanisms

Voicing assimilation triggered by sonorants

a. Sanskrit (Nespor & Vogel 1986: 118, 230)

sat – aha *sad – aha* 'good day'

samyak uktam *samyag uktam* 'spoken correctly'

tat namas *tad namas* 'that homage'

b. Slovak (Blaho 2004: 46)

vojak [k] 'soldier Nom.Sg.' *vojaka* [k] 'soldier Gen.Sg.'

vojak ide [g] 'the soldier goes'

les [s] 'forest Nom.Sg.' *lese* [s] 'forest Loc.Sg.' *les je* [z] 'the forest is'

c. Cracow Polish (Kiparsky 2003: 334, Simon ms., Gussmann 1992, Rubach 1996, Michalski 2008)

ja[g] *nigdy* 'as never' (cf. Warsaw Polish *ja*[k] *nigdy* 'as never')

4. Two totally different mechanisms

Voicing assimilation triggered by sonorants

d. Catalan (Bermúdez-Otero 2006: 2-3, Simon ms.)

/p/ *escu[b] molt* '(s)he spits a lot'

/f/ *bu[v] brusc* 'abrupt puff'

/f/ *bu[v] enorme* 'enormous puff'

/s/ *go[z] alat* 'winged dog' cf. *go[s]a* 'bitch'

/s~z/ *be[z]-avi* 'great-grandfather'

(Also in West Flemish (Simon ms. and references therein))

Sonorant transparency: Russian *i[s#mts]enska* 'out of Mtsensk'

5. Element Theory

- L, H (e.g., Harris 1994)
- doesn't capture the fact that there are two different mechanisms! (see above)

Harris' (1994) system

	Element	English	French
Voiced	L	-	[b]
Neutral	-	<i><u>b</u>ay</i>	[p]
Voiceless asp-ed	H	<i><u>p</u>ay</i>	-

5. Element Theory

- **sometimes even language typology is not observed: Brockhaus (1999:198)**

"final devoicing consists in the depletion of a-licensing potential, resulting in the withdrawal of an a-license from the source element L"

5. Element Theory

problems with L:

i) does not obey the Autonomous Interpretation Hypothesis (Harris & Lindsey 1995)

ii) connection and overlap between voicing, nasality and low tone > L / N

> if L=N, then in nasals this element finds autonomous interpretation (some have opted for exclusive L, some have gone for N)

5. Element Theory

problems with H:

- i) voicelessness is distinct from aspiration > different elements are needed**
- ii) virtually no interaction between H and nuclei (apart from some claims about tonogenesis)**
- iii) the Autonomous Interpretation Hypothesis: redundancy: is /h/ the interpretation of lone H or h?**

Voice

- ~ nasality
- e.g., GP's Revised Element Theory:
nasality=low tone > L is low tone, nasality
and voicing
- Nasukawa (1997 and subsequent
publications): [voice] and nasality
expressed by {N}
- (may turn out to be merely notational variants)

laryngeal elements:

- i) **h** = [spread glottis] (that is, aspiration is dominant obstruency)

- ii) 'voicelessness' needs no element since it is unmarked in a [voice] system

- iii) **N/L** = [voice], [nasality], (and low tone?)

6. An alternative for [sg]

Activate α (Backley & Takahashi 1996, 1998)

- worked out for vocalic representation only (harmony processes specifically)
- it assumes *all melodic elements* (I, U, A) to be present *in all positions*
- it respects the strict Structure Preservation Principle
- it introduces **ACTIVATION** (and tier complement): it is a lexical instruction to activate an element lying dormant on its tier (or on the tier complement)

***Activate α* (Backley & Takahashi 1996, 1998)**

tier complement	>	[comp]	[]
		/	/
melodic tier	>	[I]	[I]
aperture tier	>	[A]	[A]
		[e]	[ϵ]

Leiden paper model (Nasukawa & Backley 2005)

- **Feature geometry: elements are grouped into EDGE, SOURCE, RESONANCE and FUNDAMENTAL sets:**

EDGE {?, h}

SOURCE {L, H}

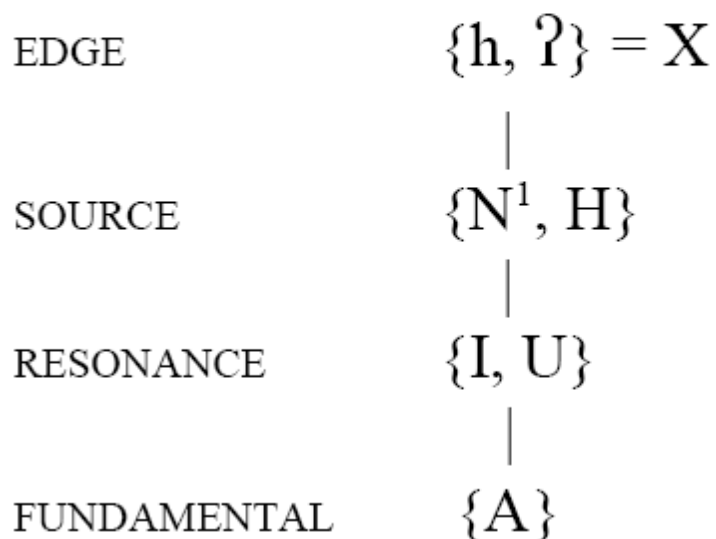
RESONANCE {I, U}

FUNDAMENTAL {A}

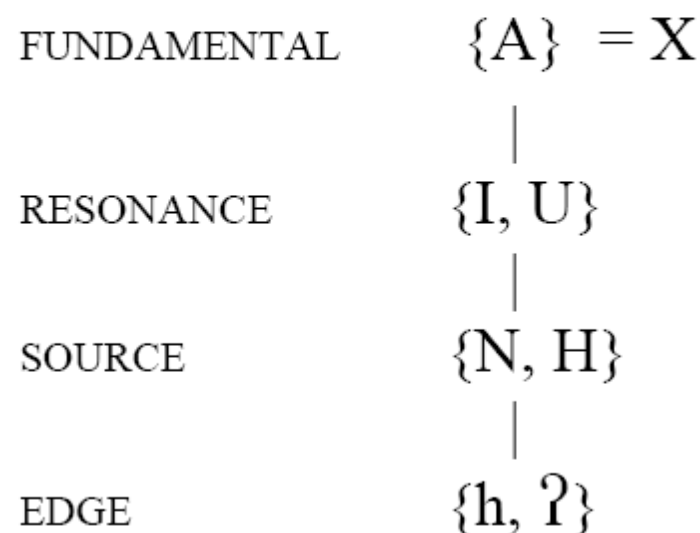
- ***all elements* are present *in all positions* -> “vowels” and “consonants” are composed of exactly the same elements...**
- **...in the reverse order of dominance:**

Leiden paper model (Nasukawa & Backley 2005)

consonants



vowels



¹ This representation already has $\{N\}$ for Nasukawa and Backley's $\{L\}$.

- **Fortis obstruents: {h} in [comp]**
- **aspiration (in the form of a “dominant” {h} element): part of the underlying representation of fortis plosives (-> when it surfaces it is default rather than the result of a fortition process – cf. Vaux 2002) *tick* [t^hɪk]**
- **but: allowed to surface only when it is licenced to be realized (= in a strong phonological position) (in the spirit of Coda Mirror – Ségéral and Scheer 1999)**
- **lenis obstruents: no source/voice element, no dominant {h} (=> phonologically inert); no obstruent devoicing or voice assimilation of any kind in the analysis!**
matchbox [ˈmætʃb₀ɒks] *bad* [b₀æd₀]

Summary:

- Only [voice] languages have L/N
- Voice assimilation is simple element spreading
- Only [voice] languages have voice assimilation – in [sg] languages there is nothing to spread
- Aspiration is {h} in [comp] dependent on licensing, i.e., on prosodic position
- Two different mechanisms

7. Possibilities in GP 2.0

expectations:

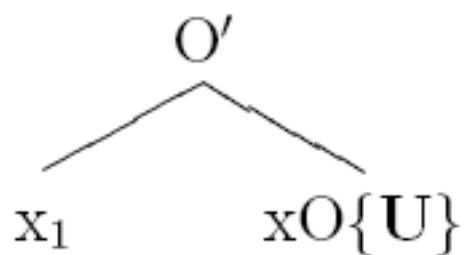
- i) binary laryngeal oppositions involving [spread glottis] must have a different representation from binary laryngeal oppositions involving [voice]
- ii) voicing is true laryngeal activity: melodic
- iii) aspiration is not (simply) melody
- iv) aspiration in a [sg] system and voicing in a [voice] system must have a more complex representation than the non-aspirated and the voiceless segment in that system

7. Possibilities in GP 2.0

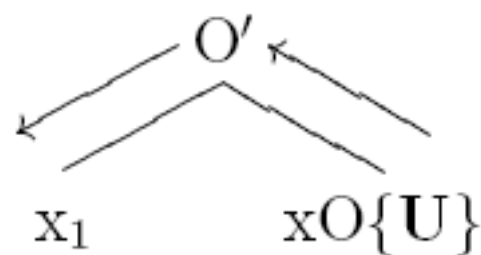
- GP2.0: fortis vs. lenis
- 'fortis' is more complex because the lexical operation called m-command is active ('lenis' obstruents lack such m-command):

fortis = m-command of highest unannotated x

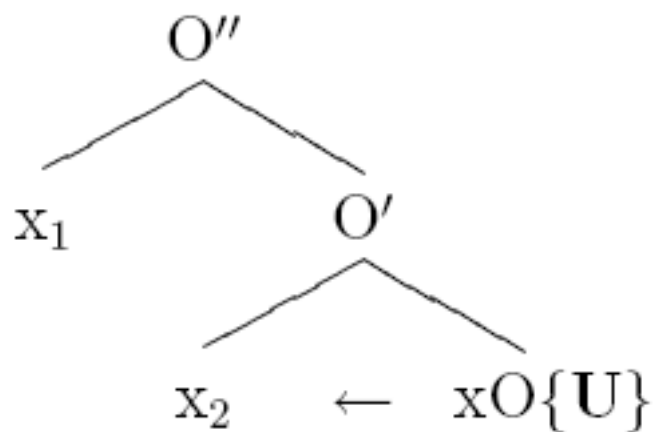
a. lenis v



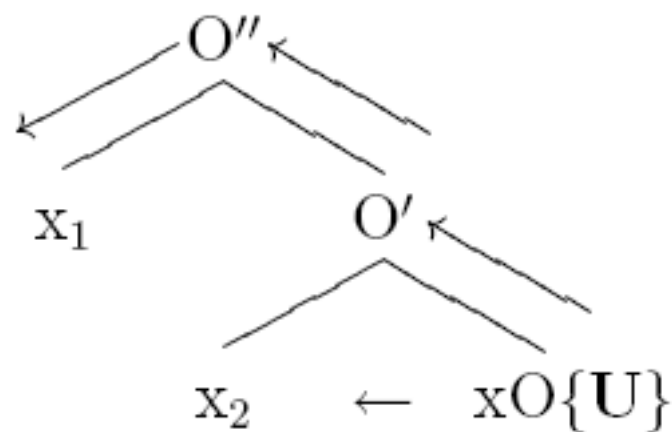
b. fortis f



c. lenis b



d. fortis p



7. Possibilities in GP 2.0

- Proposal: [spread glottis] is to be expressed as m-command, and that [voice] is the melodic element **L** (or **N**):
- The fortis/lenis distinction in [sg] languages is configurational (configurations cannot spread)
- The fortis/lenis distinction in [voice] languages is melodic (elements *can* spread)
- Prediction: more interaction betw. vowel length (=quantity, a structural property) and the following fortis consonant in [sg] languages

7. Possibilities in GP 2.0

- Prediction: more interaction betw. vowel length (=quantity, a structural property) and the following fortis consonant in [sg] languages:

English: vowels before fortis stops are cca. 50% as long as vowels before lenis stops; French: the ratio is cca. 70% (Fox and Terbeek 1977)

Conclusions

- Laryngeal realism: there is difference in phonological behaviour between the two language types – need to have some manifestation in phonology
- [sg] may be more configurationally driven than [voice], which is melodic

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