Binary laryngeal systems in a privative model of melodic representations

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Aims

• binary laryngeal obstruent systems
• represented in a model based on unary subsegmental primes
• both “laryngeal realism” and “laryngeal relativism” are necessary for a proper account of the full attested laryngeal typology
• **phonetic** similarities/differences vs. **phonological** categorisation
Roadmap

• two-way laryngeal systems

• “laryngeal realism”: [voice] languages vs. [spread glottis] / aspiration languages ~ Element Theory: L-systems vs. H-systems

• “laryngeal relativism” (E. Cyran): both the marked and the unmarked sets may receive any (more or less arbitrary) phonetic interpretation

• proposal: “classical” aspiration languages do not fit into Cyran’s typology -> three subtypes of binary laryngeal systems: L-systems vs. H-systems vs. unmarked systems (h-systems)
Two-way laryngeal contrasts in obstruents

<table>
<thead>
<tr>
<th>Examples</th>
<th>p ~ ṣ</th>
<th>b</th>
<th>pʰ</th>
<th>p’</th>
</tr>
</thead>
<tbody>
<tr>
<td>English, German, Welsh, Mandarin Chinese</td>
<td>[ ]</td>
<td></td>
<td>[sg]</td>
<td></td>
</tr>
<tr>
<td>French, Spanish, Russian, Hungarian, Dutch</td>
<td>[ ]</td>
<td>[voice]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K'ekchi (Q'eqchi'), Mam</td>
<td>[ ]</td>
<td></td>
<td></td>
<td>[cst gl]</td>
</tr>
</tbody>
</table>
English-type vs. French-type lang’s

- traditional Generative Phonological view: the **phonetic** manifestation of an underlying voiceless vs. voiced distinction

- “the narrow interpretation of [voice]” or “laryngeal realism” (e.g., Honeybone 2005, Iverson & Salmons 2008): spread glottis/\textit{aspiration lang’s} vs. \textit{voice lang’s}

- the difference is primarily **phonological**: two totally different phonological mechanisms – in voice lang’s the [voice] feature is phonologically active (→ assimilation processes), in aspiration lang’s no signs of any laryngeal activity are detectable (cf. Huber & Balogné Bérces (2010) and elsewhere) – \textit{to be illustrated below}
The phonological epistemological principle

“The only source of phonological knowledge is phonological behaviour.”

(Jonathan Kaye, p.c.)

-> the presence/absence of phonological behaviour (in our case, RVA) implies the presence/absence of the representation of some phonological agent (in our case, some laryngeal prime/component)

English: `match` [-tʃ] + `box` [b-] -> `matchbox` [-tʃb-] vs. Hungarian: `matchbox` [-dʒb-] ‘small toy car’

English `obtain` [-bðtʰ-] vs. French `obtenir` [-pt-]
## Element Theory (GP)

(Harris 1994: 135)

<table>
<thead>
<tr>
<th>Voiced</th>
<th>Element</th>
<th>English</th>
<th>French</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>—</td>
<td>bo ‘beautiful’</td>
</tr>
<tr>
<td>Neutral</td>
<td></td>
<td>⟨bay⟩</td>
<td>po ‘skin’</td>
</tr>
<tr>
<td>Voiceless aspirated</td>
<td>H</td>
<td>⟨pay⟩</td>
<td>—</td>
</tr>
</tbody>
</table>

-> L-systems vs. H-systems
“Laryngeal relativism”

• Cyran (various publications, e.g., 2014)

• as long as a sufficient phonetic distance is kept between the two sets of obstruents to maintain phonological contrast ("sufficient discriminability in production and perception"), both the marked and the unmarked sets may receive any (more or less arbitrary) phonetic interpretation

• phonetic interpretation is partly systemic (phonological)
“Laryngeal relativism”

- it may even be the case that two laryngeal systems which are phonetically identical stem from two phonological settings in which the marked / unmarked relation is reversed
- Polish: **Warsaw Polish** (WP) vs. **Cracow Polish** (CP)
- differ phonologically but are phonetically identical in terms of laryngeal features:
  - WP: “classical” [voice] system (analysed as an “L-system” by Cyran)
  - CP: “H-system”, with phonologically active H
- Voice assimilation in both WP and CP: L-spreading vs. H-spreading
  - CP: “cross-word pre-sonorant voicing”
  - H-system: unmarked lenis obstruents + passive voicing

<table>
<thead>
<tr>
<th></th>
<th>WP</th>
<th>CP</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>brak oceny ‘lack of mark’</td>
<td>[k ɔ]</td>
</tr>
<tr>
<td>b.</td>
<td>brak jasności ‘lack of clarity’</td>
<td>[k j]</td>
</tr>
<tr>
<td>c.</td>
<td>brak wody ‘lack of water’</td>
<td>[g v]</td>
</tr>
<tr>
<td>d.</td>
<td>brak pieczątki ‘lack of stamp’</td>
<td>[k p]</td>
</tr>
<tr>
<td>e.</td>
<td>obraz anioła ‘picture of angel’</td>
<td>[s a]</td>
</tr>
<tr>
<td>f.</td>
<td>obraz mistrza ‘picture of master’</td>
<td>[s m]</td>
</tr>
<tr>
<td>g.</td>
<td>obraz burzy ‘picture of storm’</td>
<td>[z b]</td>
</tr>
<tr>
<td>h.</td>
<td>obraz człowieka ‘picture of man’</td>
<td>[s tʃ]</td>
</tr>
</tbody>
</table>
Typology of two-way systems

*phonetic categories*

<table>
<thead>
<tr>
<th>WP, Slavic &amp; Romance</th>
<th>[b]</th>
<th>[p]</th>
<th>[pʰ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP, Dutch?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Icelandic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>???</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cyran (2016)
“Laryngeal relativism”

• re-defines the category of H-systems: active H that spreads

• but: recall: in their “classical” version, e.g., in (standard) English and German, no laryngeal activity in the form of any kind of spreading is attested – suggesting the absence of any laryngeal element (following Huber & Balogné Bérces 2010)

• -> we arrive at a typology with three systems:
Three subtypes of binary laryngeal systems

a) the absence of a source element
b) L in the marked series of obstruents
c) H in the marked series of obstruents
a) the absence of a source element: h-systems

· (true) aspiration languages like English and German
· fortisness/aspiration is dominant obstruency (h) dependent on licensing, i.e., on prosodic position (Huber & Balogné Bérces 2010)
· no laryngeal spreading
· the lenis series undergoes word-internal and cross-word passive voicing
a) the absence of a source element: h-systems

- *obtain* [əˈbɛɪt]  
- *cheesecake* ['tʃiːzkeɪk]  
- *bigfoot* ['bɪɡfʊt]  
- *egghead* ['eɡhed]  
- *roadster* ['rɔʊdstrə]  

- *matchbox* ['mætʃbɒks]  
- *baseball* ['beɪzbɔːl]  
- *cookbook* ['kʊk'bʊk]  
- *life gear* ['laɪfgɪə(r)]  
- *Shoot back!* ['ʃuːt 'bæk]
a) the absence of a source element: h-systems

- plus: “laryngeal relativism” predicts languages in which the lenis series is phonetically voiced -> account for Swedish (“the [voice] fallacy of [sg] languages” – Balogné Bérces & Huber 2010)

- Swedish simply “overshoots” the phonetic distance required for discriminability

Swedish initial plosives

- [pʰ]acka 'pack'
- [tʰ]ak 'roof'
- [kʰ]ub 'cube'
- [b]ad 'bath'
- [d̥]äck 'deck'
- [g]ap 'mouth'
a) the absence of a source element: h-systems

Cyran (2016), incorporating van der Hulst (2015)
b) L in the marked series of obstruents

- (true) [voice] languages/L-systems like Warsaw Polish, French or (Standard) Hungarian, in harmony with Cyran

- rattól ['rɒptoːl]
- rézkarc ['reːskɔːrts]
- hangfal ['hɒŋkfɔl]
- éghez ['eːkhez]
- roadshow ['roːtʃɔː]

(glosses: 'from prisoner'
'copper etching'
'loudspeaker'
'to sky'
'ibid."

- matchbox ['mɛdʒboks]
- baseball ['beːzboːl]
- tőkből ['tɔːɡbɔːl]
- afgán ['ɒvɡaːn]
- kertből ['kɛrdbɔːl]

(glosses: 'toy car'
'ibid.'
'from pumpkin'
'Afghan'
'from garden')
c) H in the marked series of obstruents

- (Cyran’s) **H-systems**, i.e., languages like Cracow Polish
- H-spreading only
- in harmony with Cyran, if such languages also have final obstruent delaryngealisation, they also exhibit **cross-word passive voicing** manifested in “pre-sonorant voicing” (cf. Slovak, Catalan, Southern Dutch/West Flemish, Ecuadorian Spanish)
c) H in the marked series of obstruents

- if final obstruent delaryngealisation does not take place in an H-system, a “simple” devoicing assimilation system with word-internal and cross-word passive voicing of the lenis series is found, e.g., North-of-England English varieties displaying “Yorkshire assimilation”
c) H in the marked series of obstruents


<table>
<thead>
<tr>
<th>jazz</th>
<th>[dʒaz]</th>
<th>pass</th>
<th>[pas]</th>
</tr>
</thead>
<tbody>
<tr>
<td>jazz music</td>
<td>[dʒazmjuːzɪk]</td>
<td>pass Molly</td>
<td>[pæsmɒlɪ]</td>
</tr>
<tr>
<td>jazz band</td>
<td>[dʒazbænd]</td>
<td>pass Barry</td>
<td>[pæsbɑːri]</td>
</tr>
<tr>
<td>jazz dance</td>
<td>[dʒazdɑːns]</td>
<td>pass Dave</td>
<td>[pæsdeːv]</td>
</tr>
<tr>
<td>jazz club</td>
<td>[dʒasklub]</td>
<td>pass Keith</td>
<td>[pɑːskiːθ]</td>
</tr>
<tr>
<td>jazz pub</td>
<td>[dʒaspub]</td>
<td>pass Pete</td>
<td>[pæspət]</td>
</tr>
</tbody>
</table>

**matchbox**: YE=StE [-tʃb-]  
(cf. Hung. [-dʒb-])

**jazz club**: YE [-skʰ-] vs. StE [-ʒkʰ-]
Conclusion

- fundamental theoretical assumption: the phonological epistemological principle -> phonetic similarities/differences vs. phonological categorisation
- a model with unary subsegmental primes
- both “laryngeal realism” and “laryngeal relativism” are necessary for a proper account of the full attested typology of binary laryngeal obstruent systems
- “laryngeal realism” highlights the very existence of a typology (as opposed to the phonological uniformity of languages, traditionally assumed since SPE)
Conclusion

• “laryngeal relativism” clarifies the relation btw. phonological system and phonetic realisation (“sufficient discriminability in production and perception”) and explains how two different systems may receive identical phonetic interpretation

• the present paper: adds the insight of Huber & Balogné Bérces (2010, etc.) concerning representations in aspiration languages

• -> proposal: three subtypes of binary laryngeal systems: L-systems vs. H-systems vs. unmarked systems (h-systems)
Conclusion

• it is assumed that 3- and 4-way systems (Thai, Korean; Hindi) can be accounted for in a similar vein

• here: binary distinctions that can be phonetically related to voice onset time (VOT) (i.e., distinctions of voicing and aspiration/spread glottis) – systems based on constricted glottis (e.g., K'ekchi) are left for future research
References


