The (hi)story of laryngeal contrasts in Government Phonology

Katalin Balogné Bérces
PPKE University, Piliscsaba, Hungary
bbkati@yahoo.com

Dániel Huber
Sorbonne Nouvelle, Paris 3, France
huberd@freemail.hu[*]

---

[*] The authors are listed in alphabetical order.

the proposal

a)   laryngeal properties are all privative

b)   laryngeal properties are represented as follows

    [h] =   [spread glottis]   (English, German)

    [N] =   [voice]   (Hungarian, French)

    [ʔ] =   [constricted glottis]   (Korean)

c)   these elements define the following configurations

aspirated	unaspirated	released
[h̲]	[ ]	[h]
voiceless	voiced	nasals
[ ]	[N̲]	[N]
voiceless	ejective	occlusion
[ ]	[ʔ̲]	[ʔ]

d)   their interpretation depends on governing and licencing relations they engage in:

    laryngeal constrasts need to be licenced

e)   elements are only assumed if there is evidence for their presence in the system

theoretical framework – 1

The privative Element Theoretical approach of Government Phonology
(GP – Kaye et al. 1985, Harris 1994, Backley & Takahashi 1998, etc.)

The beginnings of GP

Element	*Common interpretation*	
{h}	Aperiodic noise	audible friction, release burst
{ʔ}	Edge, drop in amplitude	occlusion in stops and laterals
{N}	Murmur	Nasality
{H}	Stiff vocal cords	voiceless/aspiration, high tone
{L}	Slack vocal cords	active voicing, low tone
{I}	Dip	frontness, palatal resonance
{U}	Rump	rounding, labial resonance
{A}	Mass	non-high, pharyngeal
{R}	Rise, high spectral peak	Coronality

theoretical framework – 2

Reducing the set of elements

Charette and Kaye (1993): no {ɨ}, ATR differences are
to be expressed by headship

Backley (1994):
No need to assume {R} for coronality

Jensen (1994):
No need to assume {ʔ} for occlusion.
Non-segmentalist approach started: laryngeal
properties ({ʔ}) and friction ({h}) are purely
encoded in terms of structure, not in terms of
elements

Revised Element Theory (Jonathan Kaye, p.c.)
nasality=low tone > L is low tone, nasality and
voicing

Nasukawa (1997:13, 1998, 2005):
[voice] and nasality expressed by {N}

GP 2.0 (Kaye et al. 2009):
radical non-segmentalism:
structure rather than elements
–while we wish to leave open this line of
research, it is not adopted here

theoretical framework – 3

Towards a constrained "neo-segmental" view

Backley and Takahashi (1996, 1998):
    notion of tiers, tier conflation, activate α, tier
    complement

Nasukawa (1997, 1998, 2005):
    [N] stands for both voicing and nasality

Nasukawa and Backley (2005):
    the Leiden Model

theoretical framework – 4

Activate α (Backley & Takahashi 1996, 1998)

a) worked out for vocalic representation only (harmony processes specifically)

b) it assumes *all melodic elements*, {I, U, A}, to be present *in all positions*

c) it respects the strict Structure Preservation Principle

d) 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)

```
tier complement >     [comp]            [ ]

                        /                /
melodic tier    >     [I]              [I]
                       |                |
aperture tier   >     [A]              [A]

                      [e]              [ɛ]
```

theoretical framework – 5

Leiden paper model (Nasukawa & Backley 2005)

a) *elements are grouped* into EDGE, SOURCE, RESONANCE and FUNDAMENTAL sets:

EDGE	{ʔ, h}
SOURCE	{L, H}
RESONANCE	{I, U}
FUNDAMENTAL	{A}

b) *all elements* are present *in all positions* > "vowels" and "consonants" are composed of *exactly the same elements…*

c) …in the reverse order of dominance:

consonants   vowels

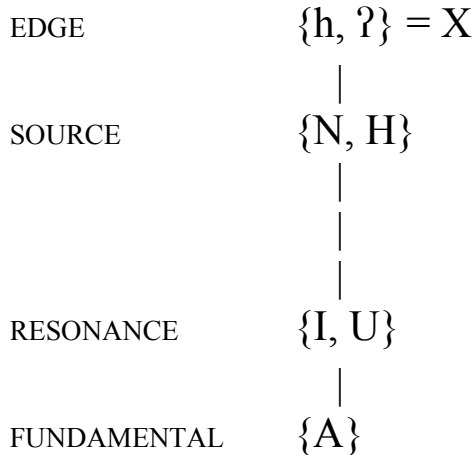|				
EDGE	{h, ʔ} = X	FUNDAMENTAL	{A} = X
	|		|
SOURCE	{N[1], H}	RESONANCE	{I, U}
	|		|
RESONANCE	{I, U}	SOURCE	{N, H}
	|		|
FUNDAMENTAL	{A}	EDGE	{h, ʔ}

---

[1] This representation already has {N} for Nasukawa and Backley's {L}.
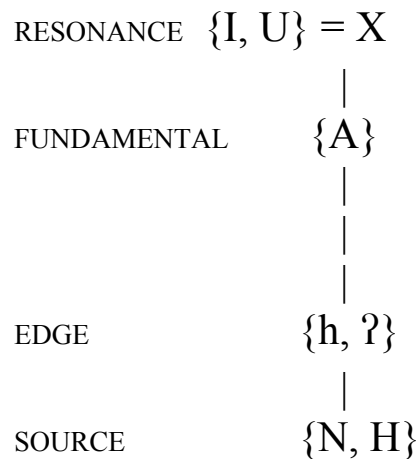
theoretical framework – 6

Modifying the Leiden Model (1)

It is not the whole structure which is reversed, it is simply the dominance relations between the edge group (containing EDGE and SOURCE) and the resonance group (comprising RESONANCE and FUNDAMENTAL):

consonants   vowels

EDGE   {h, ʔ} = X   RESONANCE {I, U} = X
                  | |
SOURCE   {N, H}   FUNDAMENTAL   {A}
                  | |
                  | |
                  | |
RESONANCE   {I, U}   EDGE   {h, ʔ}
                  | |
FUNDAMENTAL   {A}   SOURCE   {N, H}

theoretical framework – 7

Modifying the Leiden Model (2)

The dependent group, SOURCE and FUNDAMENTAL, can maximally contain *one single element*:

	consonants			vowels	
EDGE	{h, ʔ} = X		RESONANCE	{I, U} = X	
SOURCE	{N}		FUNDAMENTAL	{A}	
RESONANCE	{I, U}		EDGE	{h, ʔ}	
FUNDAMENTAL	{A}		SOURCE	{N}	

the motivation for choosing {N} to replace {L} in all its functions:

a) In Nasukawa and Backley's original proposal {L} an {H} formed a couple based on tonal contrasts.
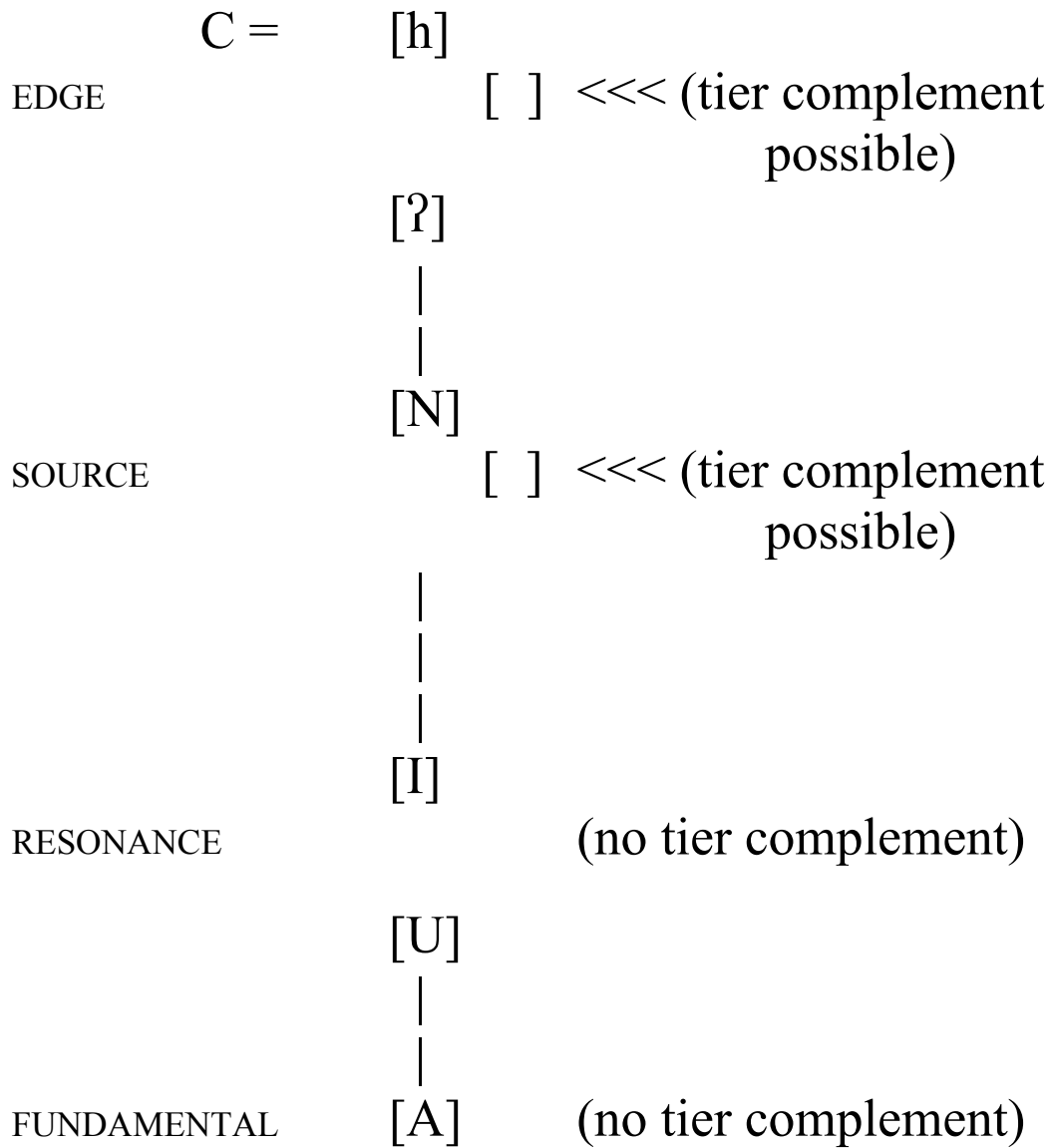
b) We have dispensed with {H} because it is not used for laryngeal (=source) specifications

c) There remains no particular reason why the remaining laryngeal element should be {L}

d) {N}, involving velar action, seems more compatible with the notion of SOURCE

theoretical framework – 8

The revised Leiden Model (for consonants)

C =   [h]

EDGE   [ ] <<< (tier complement
                          possible)

               [ʔ]
                |
                |
               [N]

SOURCE   [ ] <<< (tier complement
                          possible)

                |
                |
                |
               [I]

RESONANCE   (no tier complement)

               [U]
                |
                |
FUNDAMENTAL   [A]   (no tier complement)

theoretical framework – 9

The representation of consonants in a [voice] system:

(1) [p]   [f]   [m]

    [U]   [U]   [U]
    [ʔ]   [ ]   [ʔ]
    [h]   [h]   [ ]
    [ ]   [ ]   [N]
       [ ]   [ ]   [ ]

(2) [b]   [v]   [β] or [ʊ]   [w]

    [U]   [U]   [U]   [U]
    [ʔ]   [ ]   [ ]   [ ]
    [h]   [h]   [ ]   [ ]
    [N]   [N]   [N]   [ ]
      [N]   [N]   [N]

The representation of consonants in a [spr gl] system:

(3) [pʰ]   [fʰ]   [p] = [b̥]   [f] = [v̥]   [m]

    [U]   [U]   [U]   [U]   [U]
    [ʔ]   [ ]   [ʔ]   [ ]   [ʔ]
    [h]   [h]   [h]   [h]   [ ]
     [h]   [h]   [ ]   [ ]   [ ]

recall: if there is no evidence for the presence of an
       element, it must not be assumed in the system
       – in this case, there is no {N} if there is no
       evidence of its being active

The problems – 1

Problem 1:
Lack of word-final devoicing in [voice] languages

laryngeal constrasts need to be licenced
=> the theory predicts universal word-final devoicing in
[voice] languages
☹ numerous (?) [voice] languages without it, e.g., French

BUT:

Zink (2006:77) and Joly (2003:115): devoicing of final
obstruents during the 7th century, after final vowel loss

(a)   Latin   7th century French   French gloss

/b/	'plumbu	['plomp]	'lead'
/d/	'grande	['grant]	'big'
/g/	'longu	['loŋk]	'long'
/dz/	'voce	['vojts]	'sound, voice'
/v/	'nave	['nɛf]	'nave'
	'kapu	['tʃjef]	'head, chief'
/ð/	por'tatu	[pɔr'teθ]	'gateway'
	'fide	['fejθ]	'faith'
/z/	'clausu	['klɔs]	'closed'

(b)   Latin   modern French

Latin		modern French		
novus	>	neuf	[nœf]	'new; MASC'
nova	>	neuve	[nœːv]	'new; FEM'
brevis	>	bref	[brɛf]	'short; MASC'
brevem	>	brève	[brɛːv]	'short; FEM'

The problems – 2

Problem 2:
Word-final devoicing (?) in [spread glottis]
languages

"devoicing" = aspiration? e.g., German $b̥ > p^h$?

word-final "aspiration" = release burst! (cf. e.g., Harris 2009)

=> unaspirated becomes released: a type of "partial fortition": [h] activated, but the licence is not enough for [h̲]

    an empty v can licence (to some extent)

"lack of final devoicing" (e.g., English) = the expected pattern: plain obstruents, no aspiration, no release

References:

Backley, P. 1994. Coronal: the undesirable element. In: Working Papers in Linguistics 5: 301-323. UCL, London.

Backley, P. & K. Nasukawa. 2005. Laryngeal-source categories in English: a typological view. Paper presented at ICLCE 1, June 2005, Edinburgh.

Backley, P. & T. Takahashi. 1996. Activate α: harmony without spreading. UCL Working Papers in Linguistics 8: 487-518.
http://www.phon.ucl.ac.uk/home/PUB/WPL/96papers/backley.pdf

Backley, P. & T. Takahashi. 1998. Element activation. In E. Cyran (ed.) *Structure and interpretation. Studies in phonology.* Lublin: Folium: 13-40.

Charette, M., and Kaye, J.D. 1993. The Death of ATR. MS, London, SOAS.

Harris, J. 1994. *English sound structure.* Cambridge, Mass.: Blackwell.

Harris, J. 2009. Why final devoicing is weakening. In P. Backley & K. Nasukawa (eds.), *Strength Relations in Phonology.* Mouton de Gruyter, Berlin and New York.

Jensen, S. 1994. Is ʔ an element? Towards a non-segmental phonology. SOAS Working Papers in Linguistics and Phonetics 4, 71-78.

Joly, G. 2003. *Précis de phonétique historique du français.* Armand Colin, Paris.

Kaye, J., S. Jensen, M. Pöchtrager & S. Živanović (2009) G.P. 2.0 and Putonghua too. Paper presented at the Government Phonology Roundtable, Piliscsaba, Hungary, 25 Apr 2009.

Kaye, J., J. Lowenstamm & J.-R. Vergnaud. 1985. The internal structure of phonological representations: a theory of charm and government. Phonology Yearbook 2: 305-28.

Nasukawa, K. 1997. Melodic structure in a nasal-voice paradox. UCL Working Papers in Linguistics 9: 403-423.

Nasukawa, K. 1998. An integrated approach to nasality and voicing. In E. Cyran (ed.) *Structure and interpretation. Studies in phonology.* Lublin: Folium: 205-225.

Nasukawa, K. 2005. *A unified approach to nasality and voicing.* Mouton de Gruyter, Berlin and New York.

Nasukawa, K. & P. Backley. 2005. Dependency relations in Element Theory. In: N. Kula & J. van de Weijer (eds.), *Papers in Government Phonology. Special issue of* Leiden Papers in Linguistics 2.4 (2005), 77-93.

Zink, G. 1986/2006. *Phonétique historique du français.* Presses Universitaires de France, Paris.