

Laryngeal Relativism. Why? And what now?

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Introduction:

- Philosophy that has led to Laryngeal Relativism
- Consequences that follow from Laryngeal Relativism
- Polish data (mainly) used for illustration
 - Representation of contrast, e.g. b/p
 - Distribution of laryngeal contrast
 - Processes connected with voicing:
 - Final Obstruent Devoicing (FOD)
 - Regressive Voice Assimilation (RVA)
 - Role of sonorants as the ~~target~~, **source** and ~~barrier~~
- Relationship between phonology and phonetics

Two-way voicing contrast in Polish

#_V

- *pić* [pʲit͡ɕ] ‘to drink’
- *bić* [bʲit͡ɕ] ‘to hit’

V_V

- *rysa* [risa] ‘scratch’
- *ryza* [riza] ‘ream’

#_SV

- *plotem* [pʲwɔtɛm] ‘fence, instr.’
- *blotem* [bwɔtɛm] ‘mud, instr.’

V_SV

- *oknie* [ɔkɲɛ] ‘window, loc.’
- *ognie* [ɔɲɛ] ‘fire, pl.’

__(S)V

Neutralization and Final Obstruent Devoicing

- a. [va**g**a]/[va**k**] *waga / wag* ‘scale, nom.sg./gen.pl.’
[za**b**a]/[za**p**] *żaba / żab* ‘frog, nom.sg./gen.pl.’
- b. [muz**g**u]/[mus**k**] *mózgu / mózg* ‘brain, gen.sg./nom.sg.’
- c. [dɔ**b**rɔ]/[du**p**r] *dobro / dóbr* ‘goodness, nom.sg./gen.pl.’

___ (S) #

Neutralization and Regressive Assimilation

- a. [dɛx]/[txu] *dech/tchu* ‘breath, nom.sg./gen.sg.’
- b. [prɔɕitɕ]/ [prɔzba] *prosić / prośba* ‘to ask/a request’
- c. [kɸʌd bɛgɔɲji] *kwiat begonii* ‘begonia flower’
- d. [mɛndrɛk]/[mɛntrka] *mędrek/mędrka* ‘smart-aleck,/gs.’

— (S)C

Distribution of laryngeal contrast in Polish

a.

... C (S) V...
|
Lar

b.

... C (S) #
‡
Lar

c.

... C (S) C...
‡
Lar

C = obstruent

(S) = optional sonorant

Lar = laryngeal contrast

V = vowel

Two extreme positions on representation of voicing

- Binariness, e.g. [\pm voice]

vs.

- Strict privativity

Binary representation of voice [+voi] / [-voi]

Simplified story:

everything that is phonetically voiced has [+voi]

everything that is phonetically voiceless has [-voi]

/b/

|

[+voi]

/m/

|

[+voi]

/a/

|

[+voi]

/p/

|

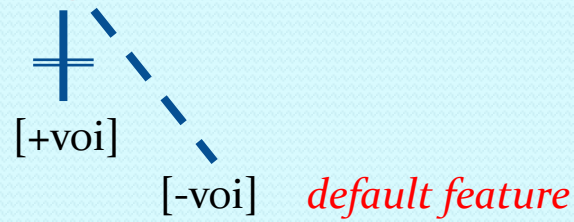
[-voi]

Neutralization and Regressive Assimilation in [±voi] systems

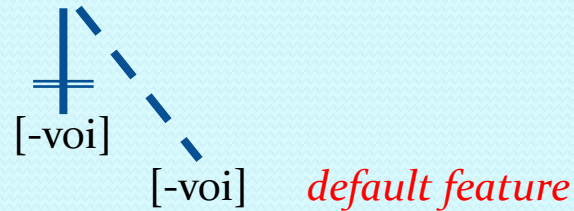
- a. *liczba* /lʲ i tʃ - ba/ > [lʲidʒba]
'number'
-
- b. *żabka* /ʒ a b - ka/ > [ʒapka]
'frog, dim.'
-

Neutralization and Final Devoicing (FOD)

a. *stóg* /stu **g**/ > [st**u**k] ‘haystack’



b. *stuk* /stu **k**/ > [st**u**k] ‘knock’



Problems with binary representation

- It is able to describe everything
- It blows up computation
 - both without providing much insight (understanding)
- Feature [+voi] behaves differently in sonorants and obstruents, e.g., asymmetry in:
 - assimilations
 - devoicing
- Being symmetrical, [\pm voice] ignores universally observed asymmetries between [+voi] and [-voi] (markedness).
 - implications
 - distribution (direction of neutralization)
 - frequency of occurrence
 - etc.

Examples of influence of representation on computation

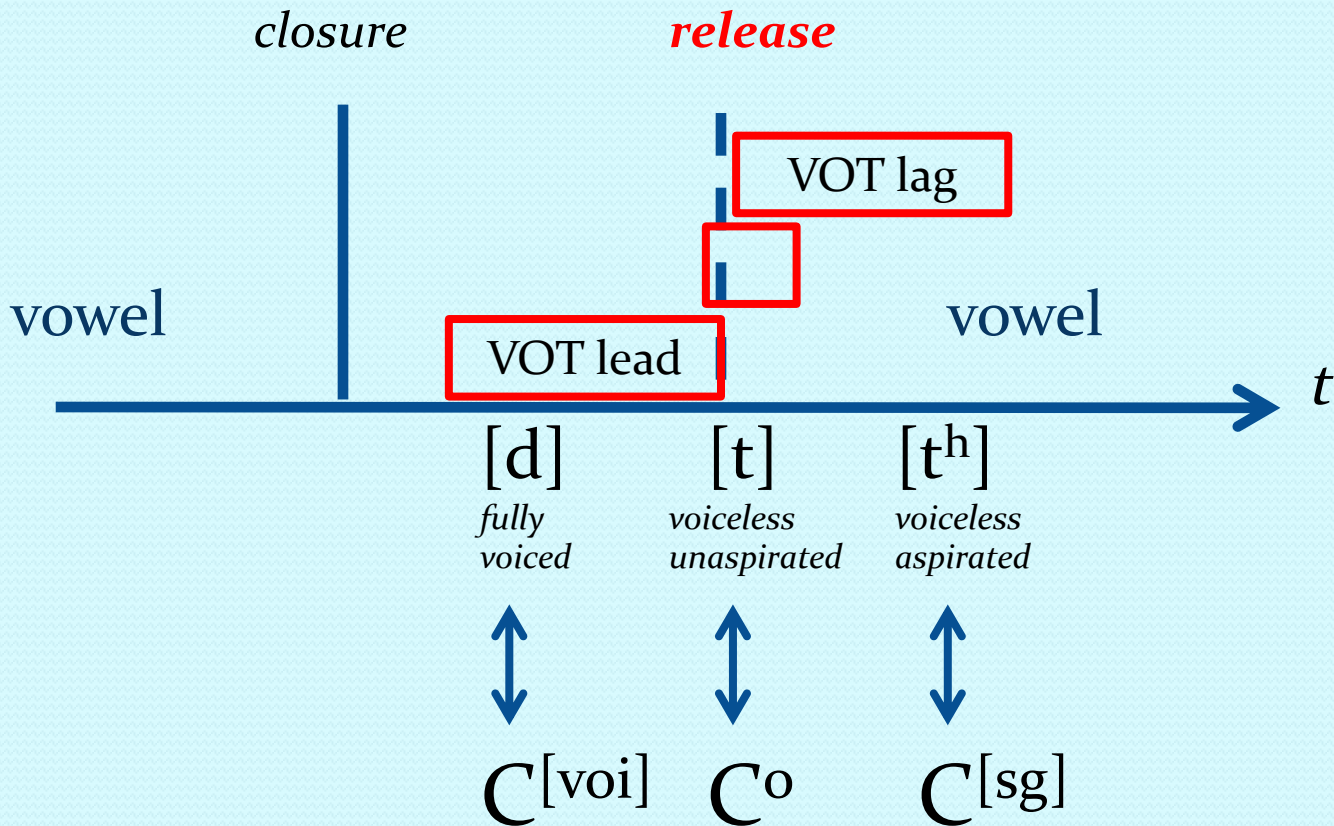
- **Rule specificity**, e.g.:
 - [+voi] can spread only from obstruents, and only onto obstruents (assimilations)
- **Rule ordering**, e.g.:
 - [+voi] is provided and spreads at the „right moment”
- **Underspecification of sonorants**
 - [+voi] is added later in derivation
 - especially that it comes in handy sometimes...

Towards Laryngeal Realism...

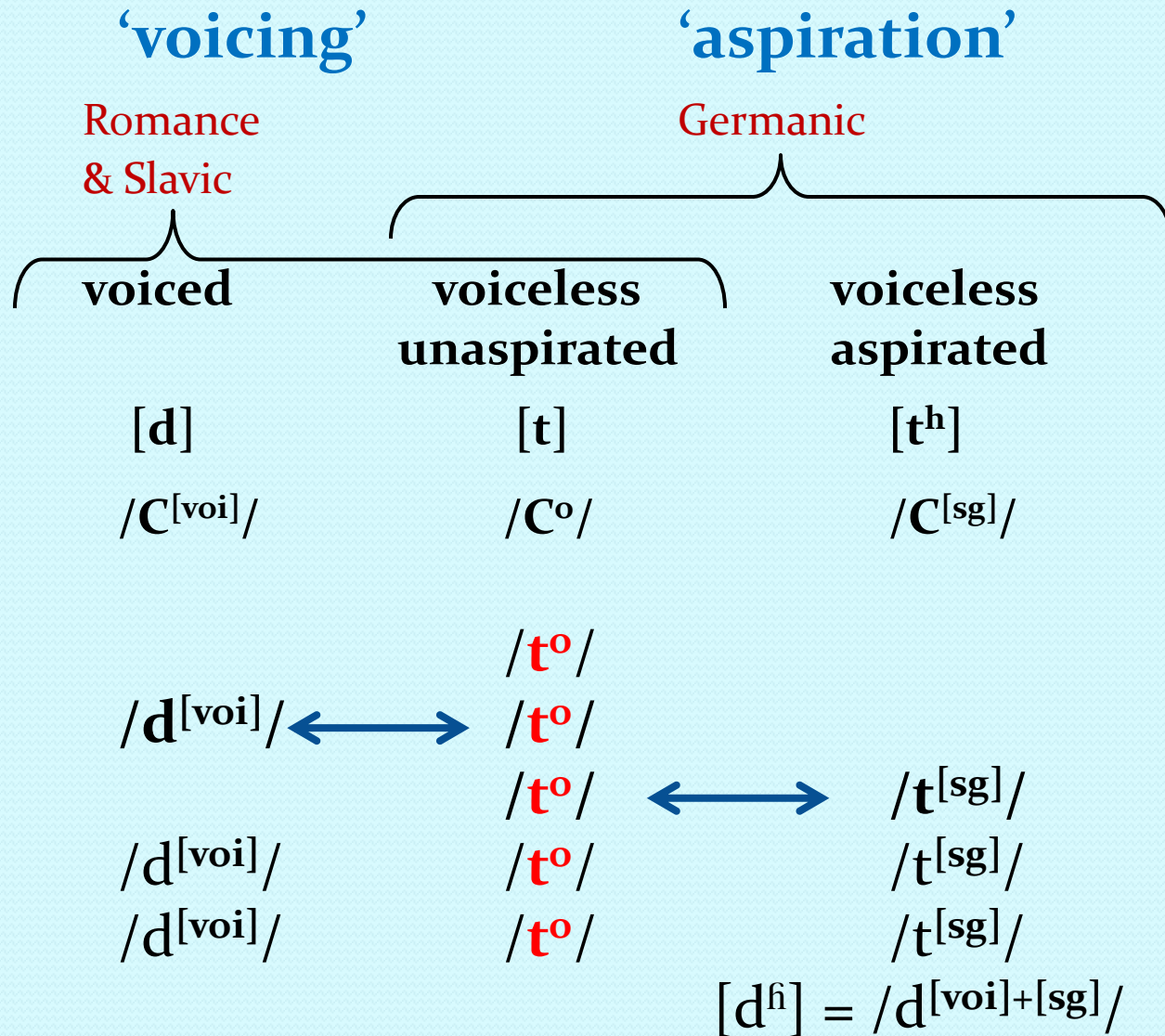
Privativity

- A representational means to express markedness tendencies and asymmetries, e.g. inactivity of some values of a particular feature
- Sometimes argued for by reference to „economy” – a two-way contrast requires just one category
- If there is no contrast, no marking is necessary
 - Sonorants have no [voice]
 - Obstruents in, e.g. Polish mark one series
- This led us to Underspecification and later to a „soft” version of Laryngeal Realism

Phonetic categories based on VOT (Voice Onset Time)



Voicing and Aspiration languages



Philosophy that led me to Laryngeal Relativism

- **Hard privativity**

Laryngeal Realism à la Element Theory

- **Non-specification** rather than Underspecification
 - Direct phonetic interpretation of non-specified objects
 - No production bias
 - Derivation within phonology, not towards phonetics
 - What you see is not always what you get
- **No phonological voicing in sonorants**
 - Neither [voi] nor [Sonorant Voice], **ever!**

3 types of voicing in Laryngeal Realism

- Spontaneous (universal phonetics) sonorants V^0, S^0
 - No marking!!!
- Active obstruents $C^{[voi]}$
 - Marked
- Passive obstruents C^0
 - No marking (voicing is system dependent)

Within one system, voicing in obstruents is either active or passive, never both!!!

Neutralization and Regressive Assimilation in Laryngeal Realism

a. *liczba* /lʲ i tʃ⁰ - ba/ > [lʲidʒba]
 'number'

b. *żabka* /ʒ a b⁰ - k⁰ a/ > [ʒapka]
 'frog, dim.'

**Life, however, is more
complicated...**

Sometimes sonorants trigger voicing

Cracow-Poznań Sandhi Voicing

Warsaw Polish (WP) vs. Cracow-Poznań (CP)

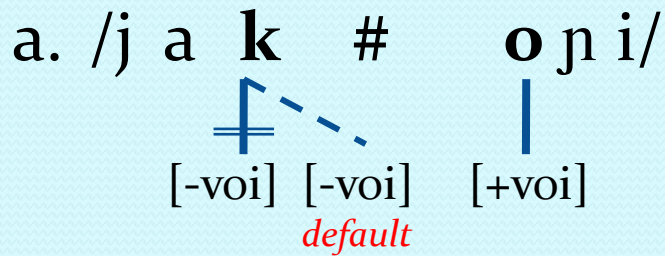
		<i>WP</i>	<i>CP</i>		
a.	<i>jak oni</i> <i>wkład odrębny</i>	k-o t-o	g-o d-o	__V[+voi]	} CP
b.	<i>jak możesz</i> <i>wkład mój</i>	k-m t-m	g-m d-m	__S[+voi]	
c.	<i>jak dobrze</i> <i>wkład własny</i>	g-d d-v	g-d d-v	WP { __C[+voi]	
d.	<i>jak trudno</i> <i>wkład stały</i>	k-t t-s	k-t t-s	__C[-voi]	

Formal analysis in binary feature models

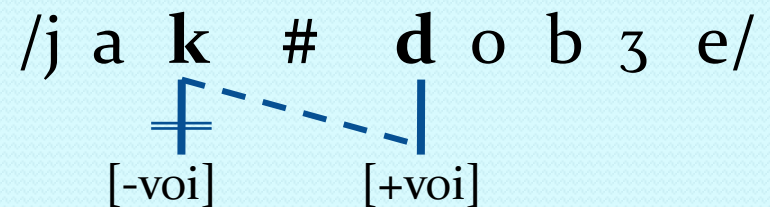
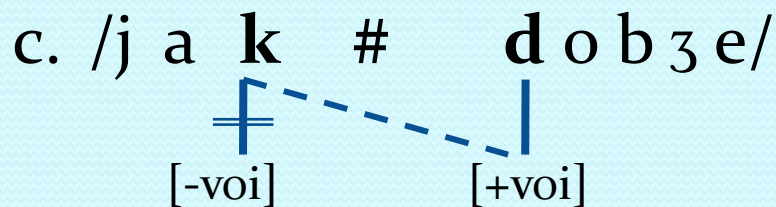
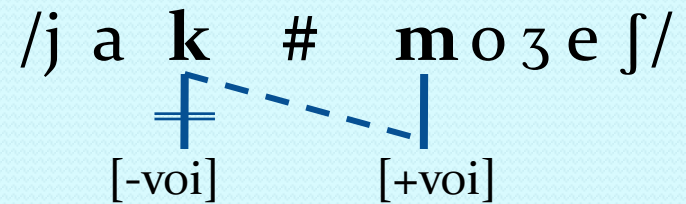
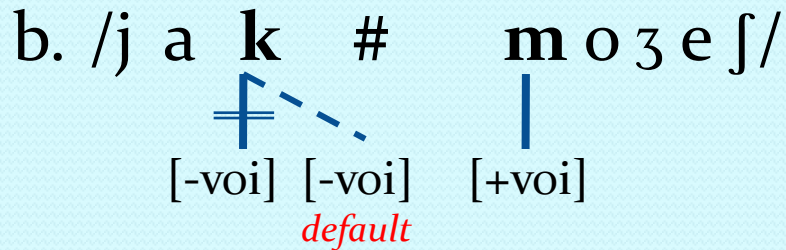
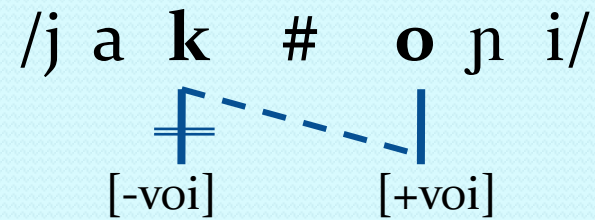
- Spreading of [+voi] as in Regressive Voice Assimilation
- The target must be first neutralized
- The difference between WP and CP lies in the scope of the spreading rule wrt the source/trigger
 - **WP**: spreading [+voi] from obstruents only
 - **CP**: spreading [+voi] from any segment that has it (including vowels)

Binary feature analysis (Rubach 1996)

WP



CP



How about Laryngeal Realism?

Polish is a voicing language (C^o vs. C^[voi])

Warsaw Polish is well behaved

Phonology

Phonetic interpretation

a. /j a **k**^o # **o**^oɲ i/

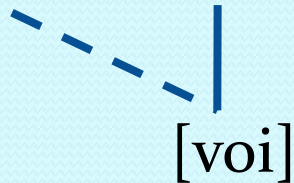
> [ja**k** oɲi]

b. /j a **k**^o # **m**^o o ʒ e ʃ/

> [ja**k** moʒeʃ]

c. /j a **k**^o # **d** o b ʒ e/

> [ja**g** dobʒe]

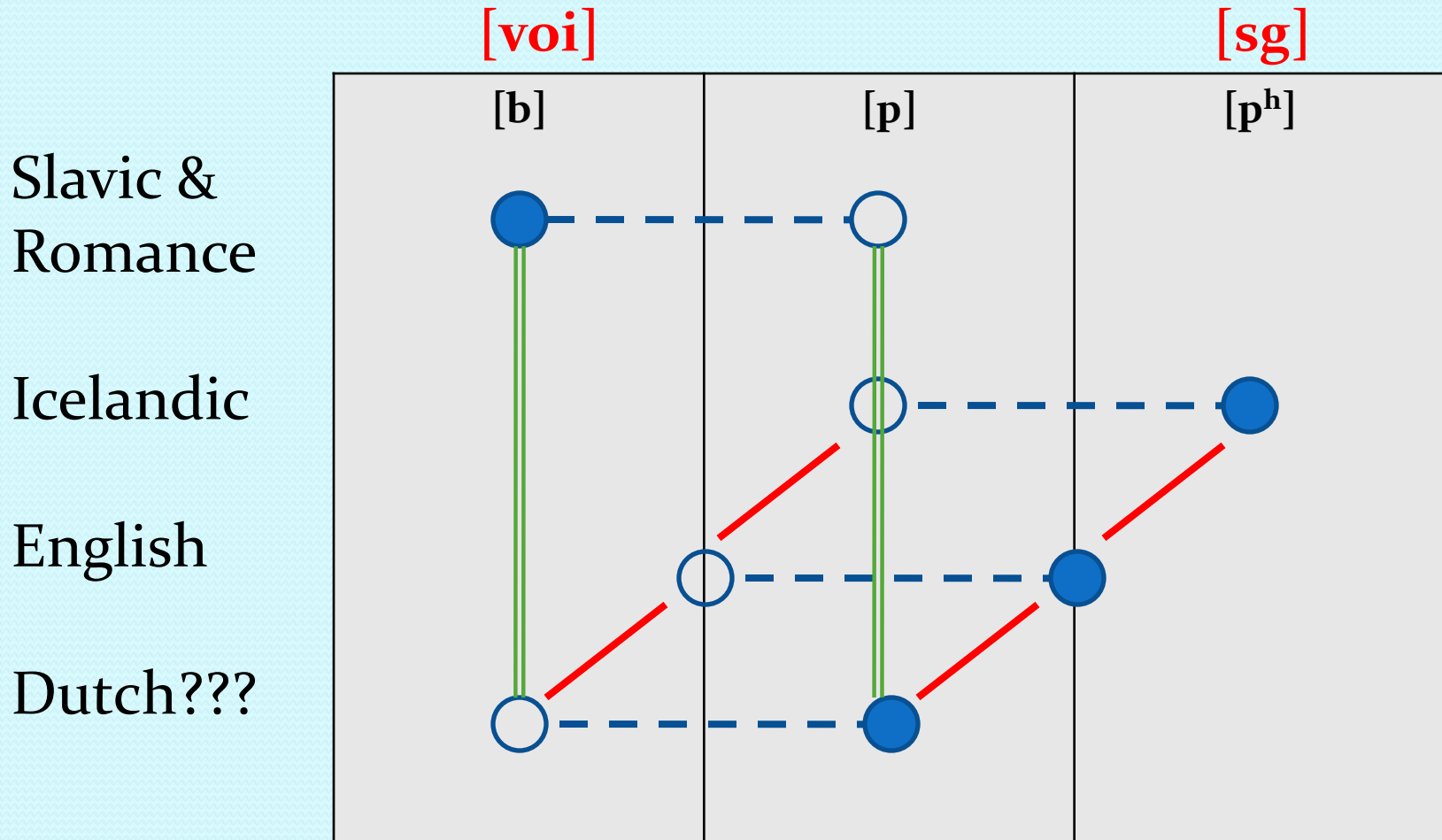

[voi]

Cracow-Poznań cannot be handled with [voi]

Towards Laryngeal Relativism...

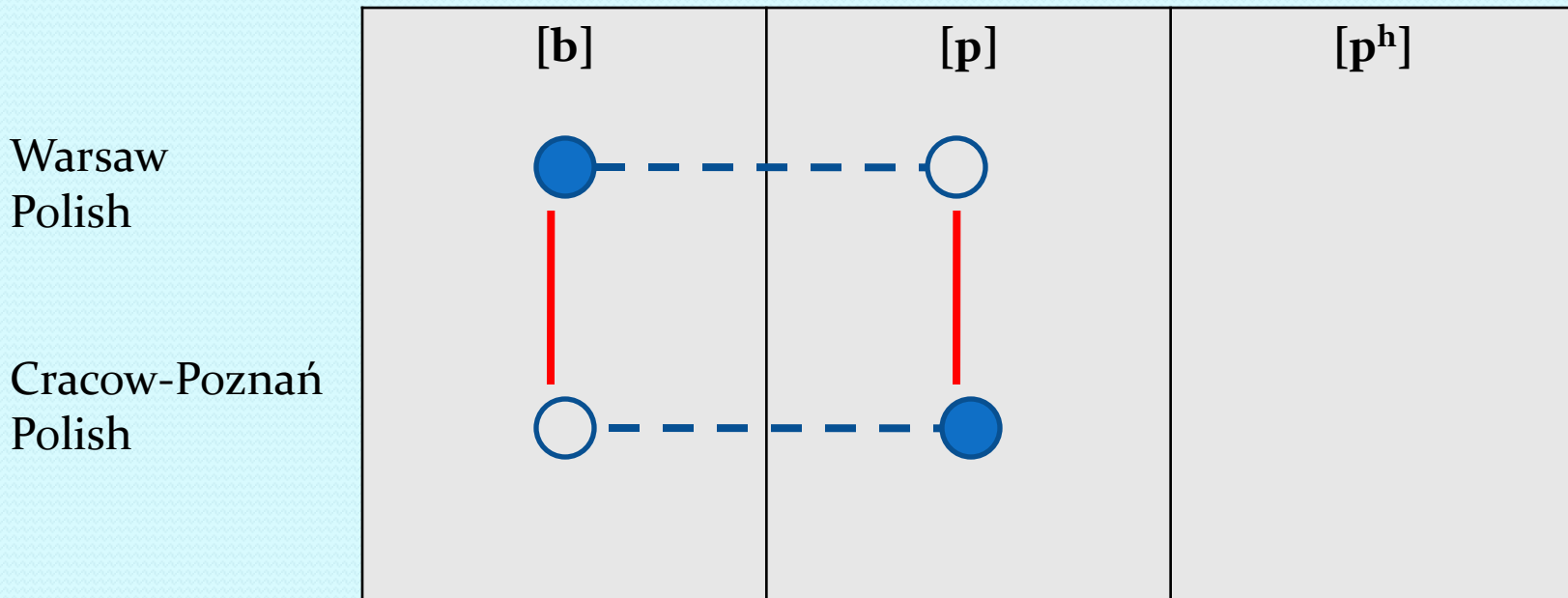
Variation in laryngeal systems and a hypothesis...

phonetic categories



Laryngeal Relativism

phonetic categories



Voicing of obstruents is passive in CP, and active in WP

Some immediate offshoots

- Phonetic interpretation is not acting on instruction but on associations established in acquisition
 - No enhancement necessary (production bias)
- Arbitrary relation between phonetic categories and phonological ones (cf. the rest of grammar)
 - Phonology and Phonetics are two different modules
- Laryngeal categories may be substance free and emergent
- Both voicing and aspiration languages might use the same category [blue] rather than two: [voi] and [sg]

Two immediate questions

- How is such a system acquired?
 - Emergent [blue], possibly with some info concerning particular dimensions
- What do the basic processes look like in CP?
 - FOD, RVA, and especially the Cracow-Poznań Sandhi voicing?

Final Devoicing in CP is interpretational not computational

$/\text{ʒ}^{\circ}\text{ab}^{\circ}\text{a}/ > [\text{ʒa}\mathbf{ba}] \quad \sim \quad / \text{ʒ}^{\circ}\text{ab}^{\circ}/ > [\text{ʒa}\mathbf{p}]$

Final Devoicing is rather an absence of passive voicing

Textbook question: Are we dealing with FOD or intervocalic voicing in
[ʒaba~ʒap]?

Textbook answer: FOD, because if there was a rule of intervocalic voicing,
then /mapa/ → *[maba]

Wrong: we do not expect intervocalic delaryngealization

$/\text{map}^{[\text{blue}]}\text{a}/ \rightarrow / \text{map}^{\circ}\text{a}/ > [*\text{maba}]$ in CP

CP has Neutralization, but it takes place in the contexts {_#, _C}

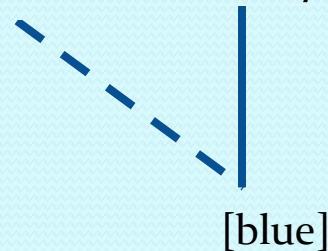
$/\text{map}^{[\text{blue}]}/ \rightarrow / \text{map}^{\circ}/ > [\mathbf{map}]$

Neutralization and Regressive Assimilation in Laryngeal Relativism (CP)

a. *liczba* /lʲ i tʃ⁰ - b⁰a/ > [lʲi**dʒba**]



b. *żabka* /ʒ a b⁰ - ka/ > [ʒa**pka**]



What about Cracow-Poznań Sandhi voicing?

Just two more details...

The target of sandhi voicing must be /C^o/

- either lexically neutral
- or neutralized

The source of voicing of obstruents:

WP

CP

C^[blue]

C^o + following voiced context


A reminder of what happens in Warsaw...

C° must be voiceless in a [voi/blue]-system

Phonology /j a **k**[◦] # **o**[◦]ɲ i/ *Phonetic interpretation*
> [ja**k** oɲi]

/j a **k**[◦] # **m**[◦] o ʒ e ʃ/ > [ja**k** moʒeʃ]

/j a **k**[◦] # **d** o b ʒ e/ > [ja**g** doʒe]


[blue]

In Cracow-Poznań, on the other hand...

Phonology

Phonetic interpretation

/j a **k**^o # o^oɲ i/
⊕
[blue]

> [ja**g** opi]

/j a **k**^o # m^o o ʒ e ʃ/
⊕
[blue]

> [ja**g** moʒeʃ]

/j a **k**^o # d^o o b ʒ e/
⊕
[blue]

> [ja**g** doʒe]

Because in Cracow-Poznań...

/C^o/ must be voiced in front of V, S, C^[+voi]

inside words and between words

C^oV^o [dom] = C^o#V^o [brad-ojtsa]

C^oS^o [brat̪ç] = C^o#S^o [kub-ribe]

C^oC^o [gdi] = C^o#C^o [jag-dobze]

The main pillars of this analysis

- „Reversed” marking of obstruents in CP and WP:
 - CP system = C^o ----- $C^{[blue]}$
 - WP system = $C^{[blue]}$ --- C^o
 - Warsaw C^o cannot be passively voiced
- CP voicing requires:
 - A system with marked voicelessness: C^o ---- $C^{[blue]}$
 - Passive voicing
 - Neutralization $C^{[blue]} \rightarrow C^o / \{ _ \#, _ C \}$

Advantages of this analysis

- Sonorants remain unmarked
 - Their voicing is only of phonetic nature and importance
- No special phonological rule is required for CP sandhi voicing
 - No rule ordering either
 - Sandhi voicing = word-internal voicing in CP

Consequences of this analysis and Laryngeal Relativism

- There is no phonological voicing in CP
 - Only spontaneous and passive
- Final Obstruent Devoicing can be:
 - Phonological (in Warsaw system)
 - Interpretational (in Cracow-Poznań system)
- Assimilations can be:
 - Phonological
 - Spreading of [blue]
 - Neutralization (deletion of [blue])
 - Interpretational (WP /t^ox^ou/, CP /jak^o d^oobʒe/)
- Full voicing of obstruents, FOD and RVA are not adequate criteria for claiming that a given language has [+voi]
- A „voicing” system relates merely to the phonetic categories
- **The relation between phonological category [blue] and phonetic categories (b-p-p^h) is by and large arbitrary!**

Between phonology and phonetics...

Sound system (e.g. Laryngeal system)

Phonology



Phonetics

*Representation
&
Computation*



*Phonetic categories
&
Phonetic interpretation*

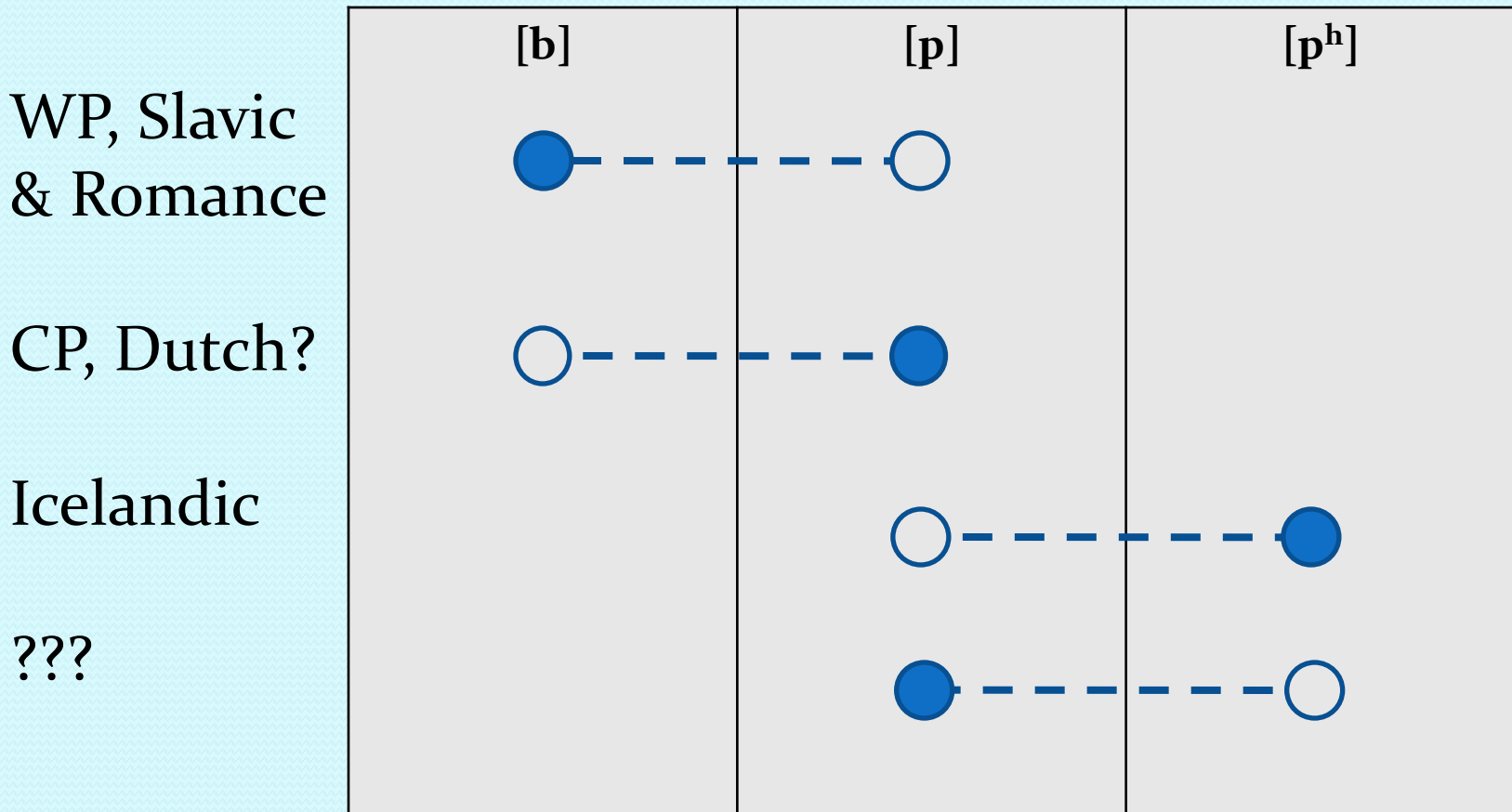


- privative categories
- (un)licensing
- (de)composition:
spreading, delinking

- universal phonetic principles
- universal principles of
phonetic interpretation
- system specific conventions
- sociolinguistic modifications

Typology of two-way systems

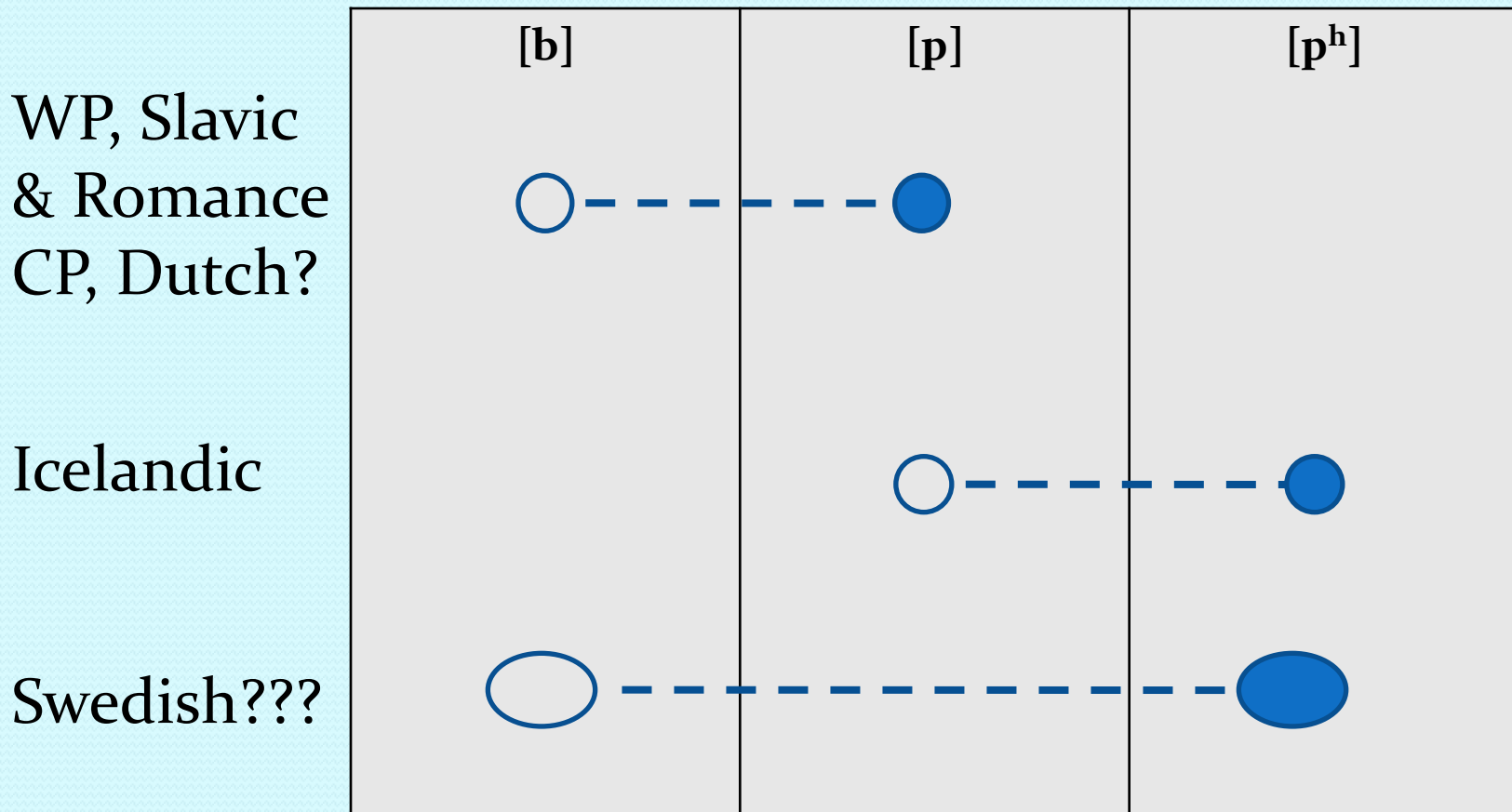
phonetic categories



New Realism / New Relativism

Typology of two-way systems (van der Hulst 2015)

phonetic categories



Old and new types of bias concerning laryngeal phonology

OLD:

- 1) "what you see is what you get",
 - What is phonological behaviour?
- 2) production-biased perspective
 - Confusing phonological derivation with going from /.../ -> to -> [...]

Both make it impossible to see the difference between phonology and phonetics

Alternative type of bias (blue glasses)

Acquisition perspective with no amnesia

- We start with phonetic categories
 - Phonetic theory
- Principles of acquisition/phonologization, e.g.:
 - Arbitrariness, privativity > emergent, substance-free features
 - Rules
- Small and rather beautiful Phonology
 - Phonological theory restricted by the above

Some references

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