English Phonology

One-day workshop
Correspondence programme
November 2014

BBK

Phonology?

Phonology?

- What is phonology?

Phonology?

- What is phonology?

  ((the study) of the linguistic knowledge of sound patterns)

Phonology?

- What is**n't** phonology?

Phonology?

- What is**n't** phonology?
- Why study phonology?

Why do phonology?

- What is**n't** phonology?
- Why study phonology?
- Because it provides us with fascinating **questions** to answer

Why do phonology?

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Why do phonology?

- What is**n't** phonology?
- Why study phonology?
- Because it provides us with fascinating **questions** to answer and **problems** to solve
- Here: a few examples of questions/ problems from the field of *universal* tendencies in sound pattern, suggesting that phonological regularities/processes are governed by principles hard-wired into the *human brain*

Universal:

- Frequently/always present in languages
- In both synchrony and diachrony
- In both adult language and child language

QUESTIONS!!

What is**n't** phonology?

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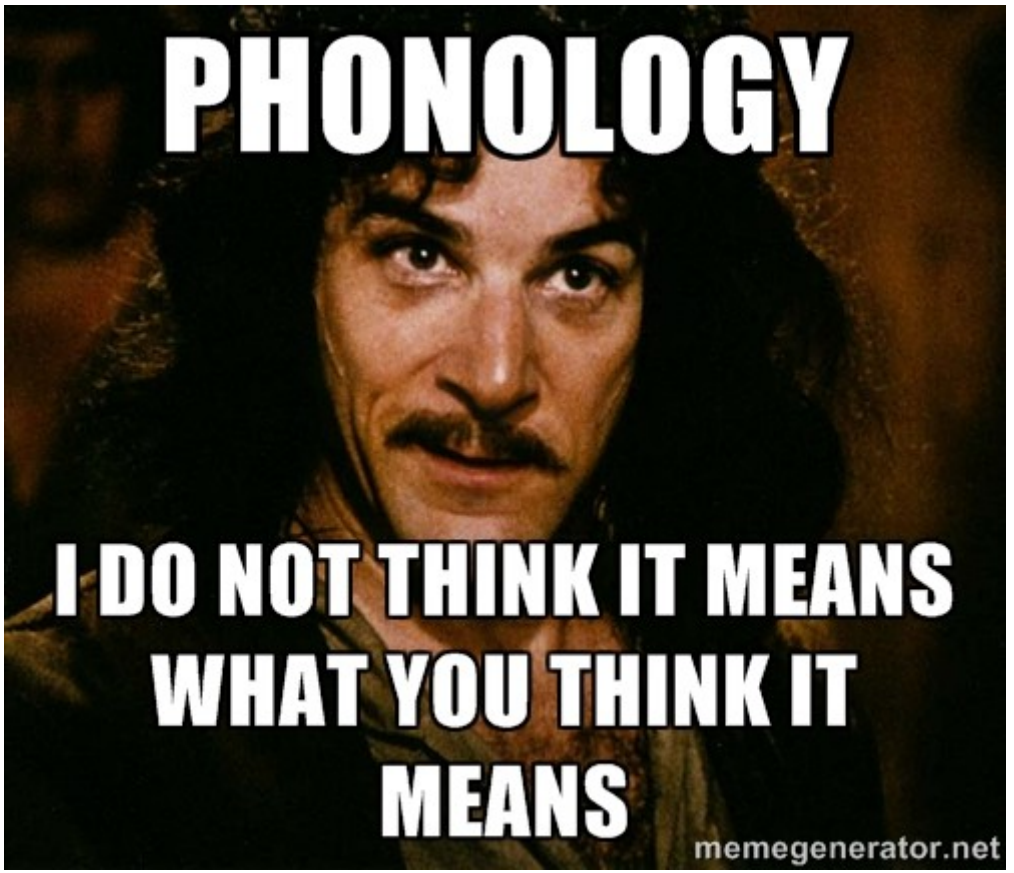

What isn't phonology?

Phonology is the study of telephone etiquette.

A high school student

As reported in
Amsel Greene, *Pullet Surprises*. Glenview, Ill.: Scott, Foresman & Co., 1969.
As cited in Fromkin & Rodman & Hyams (2011: 266)

What is**n't** phonology?

☠ letters/spelling

What is r

- ☠ letters/spelling

What is**n't** phonology?

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What is**n't** phonology?

- ☠ letters/spelling
- ☠ pronunciation practice

What is**n't** phonology?

- ☠ letters/spelling
- ☠ pronunciation practice
- ☠ phonetics

Phonetics

physical properties of speech sounds:

phonetics: physical properties of speech sounds:

- articulatory (speech production)

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phonetics: physical properties of speech sounds:

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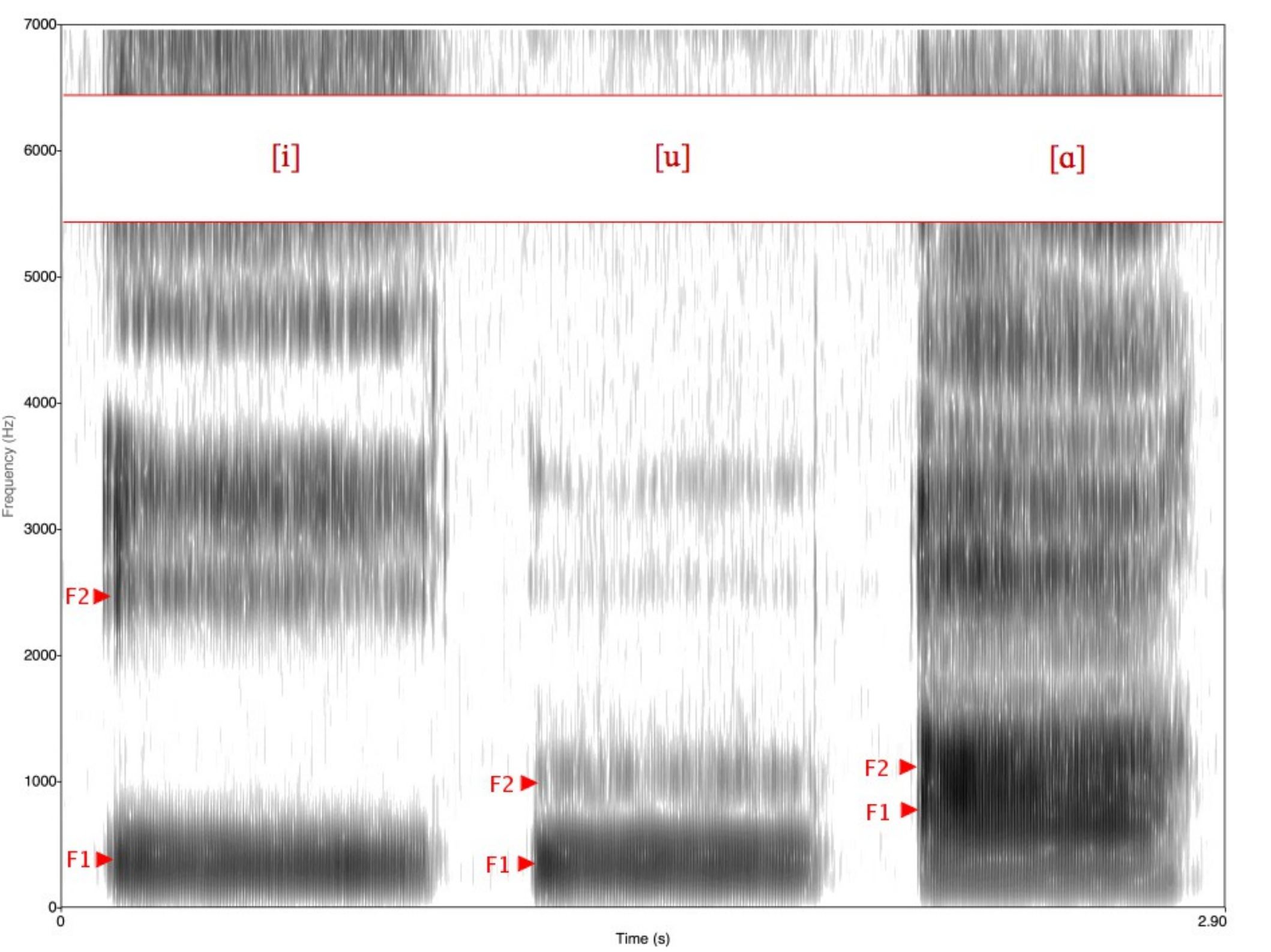
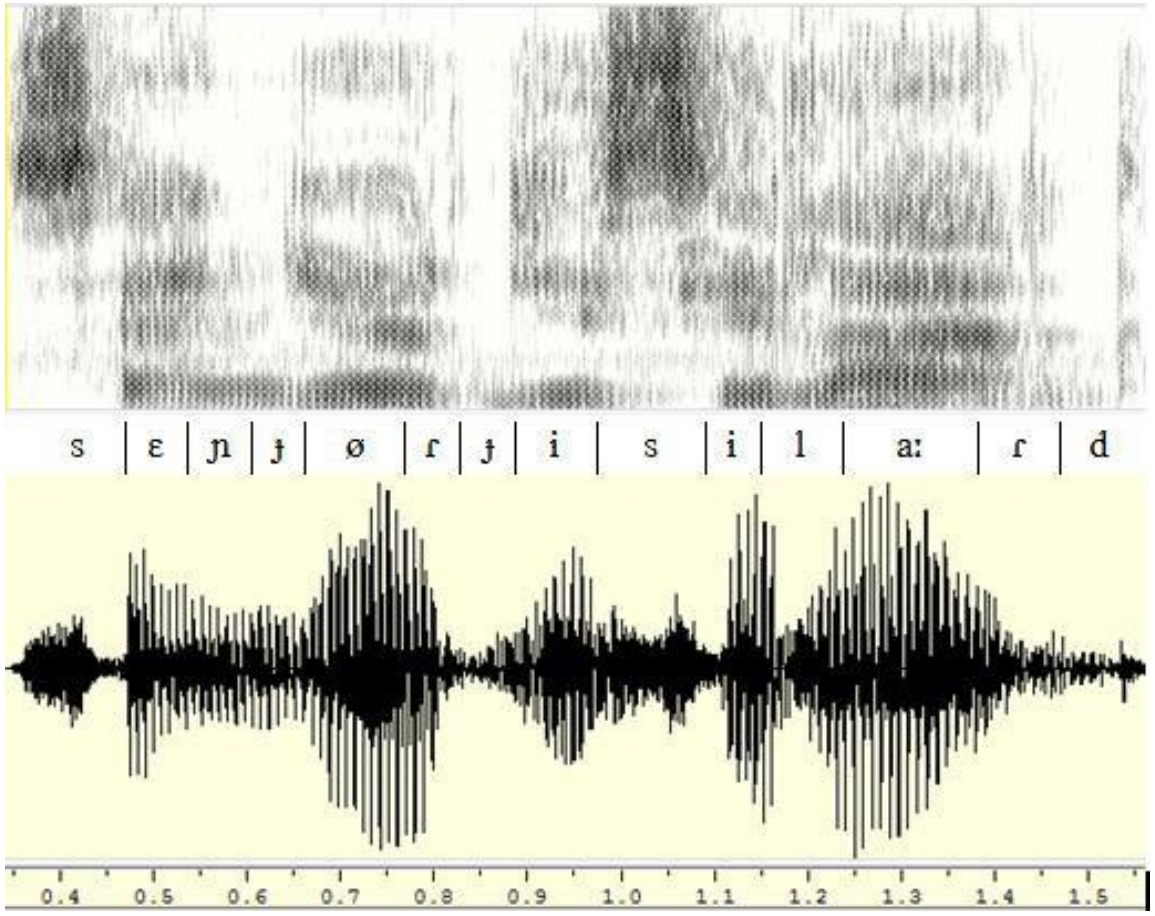

7000
6000
5000
4000
3000
2000
1000
0
Frequency (Hz)
[i]
[u]
[ɑ]
F2
F1
F2
F1
F2
F1
0
2.90
Time (s)


s | ɛ | ɲ | ʃ | ø | ɾ | ʃ | i | s | i | l | aː | ɾ | d
0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5

phonetics: physical properties of speech sounds:

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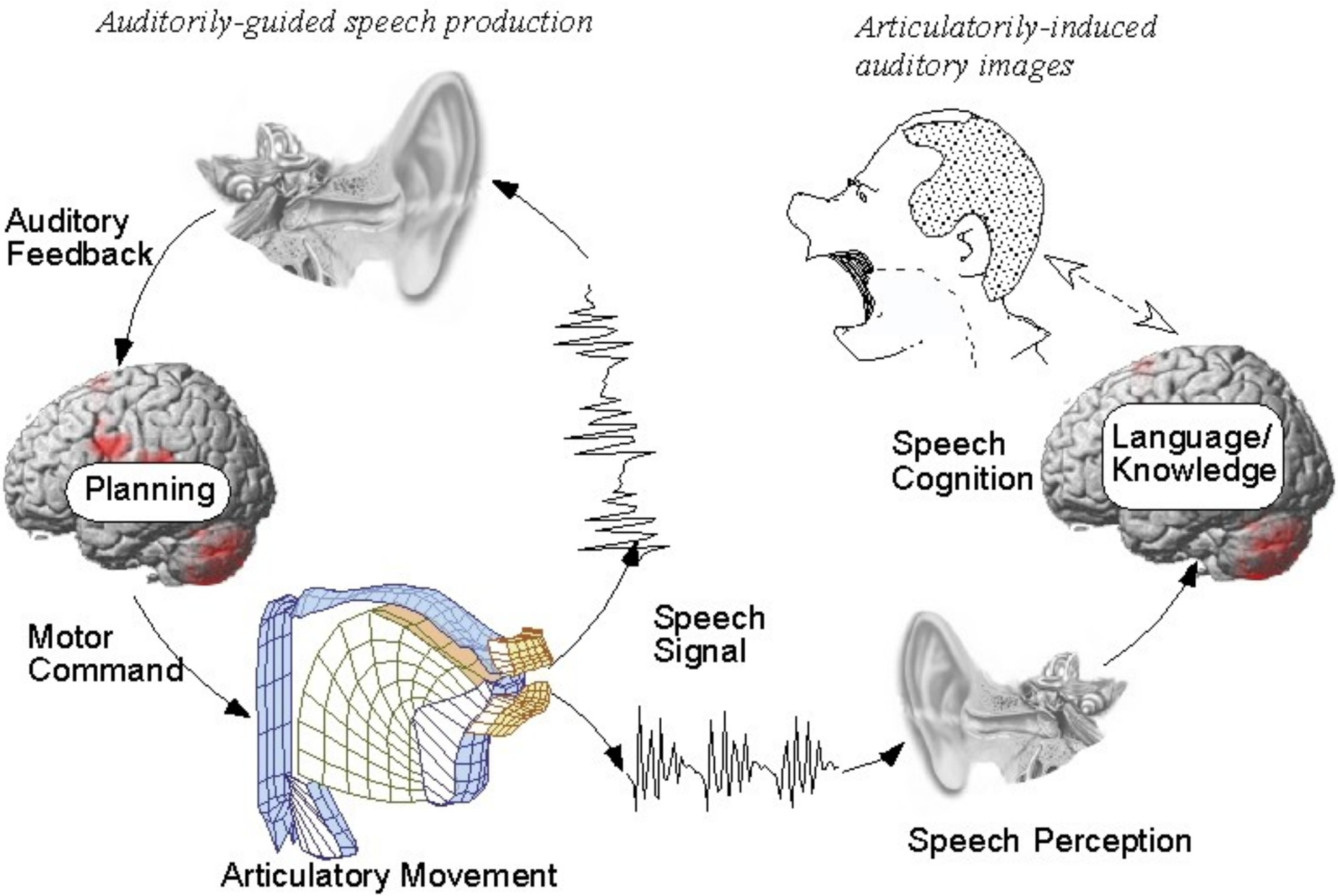
Auditorily-guided speech production
Articulatorily-induced auditory images
Auditory Feedback
Planning
Motor Command
Articulatory Movement
Speech Signal
Speech Cognition
Language/ Knowledge
Speech Perception

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e.g., the articulatory classification of RP vowels:

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  - monophthongs vs. diphthongs (vs. triphthongs)
  - long vs. short

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  - long vs. short
- place of articulation:
  - tongue position (tongue height + frontness/backness)
  - lip position

the Cardinal Vowel Chart

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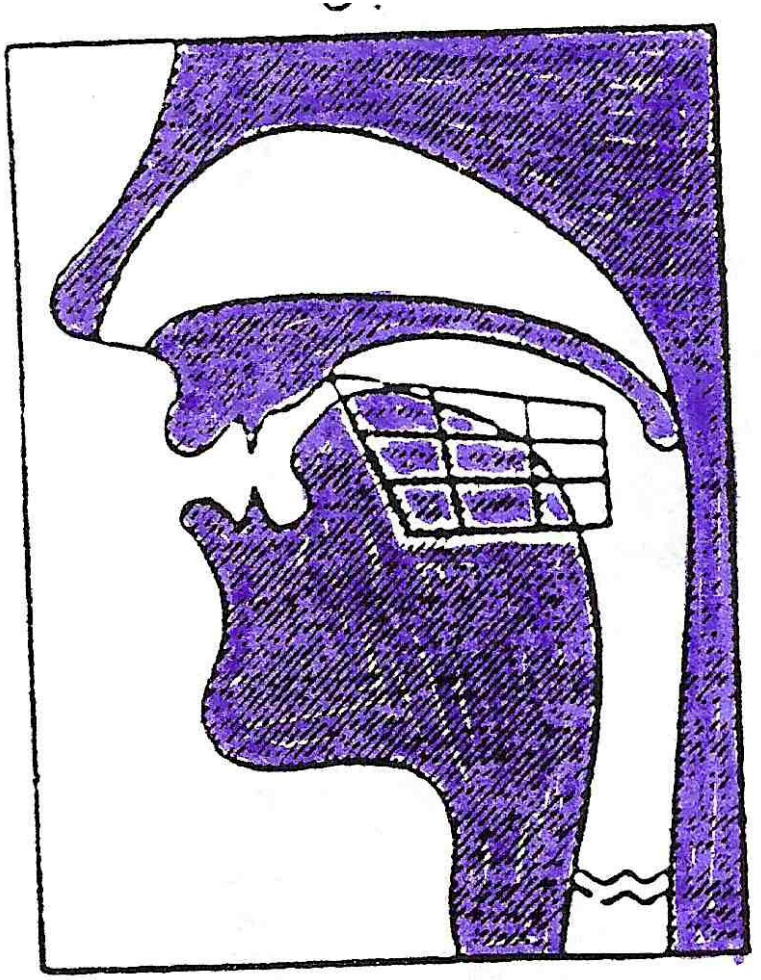

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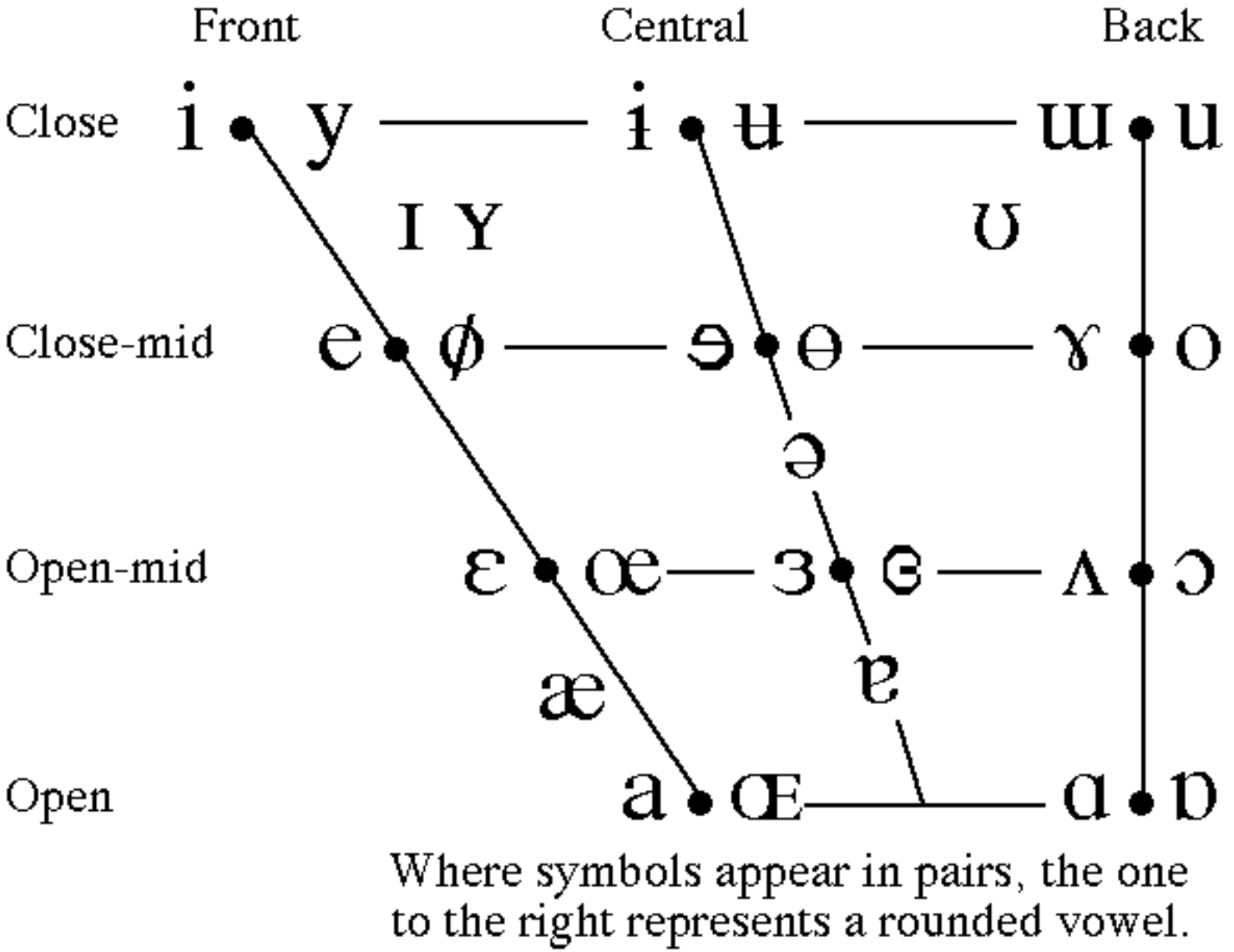
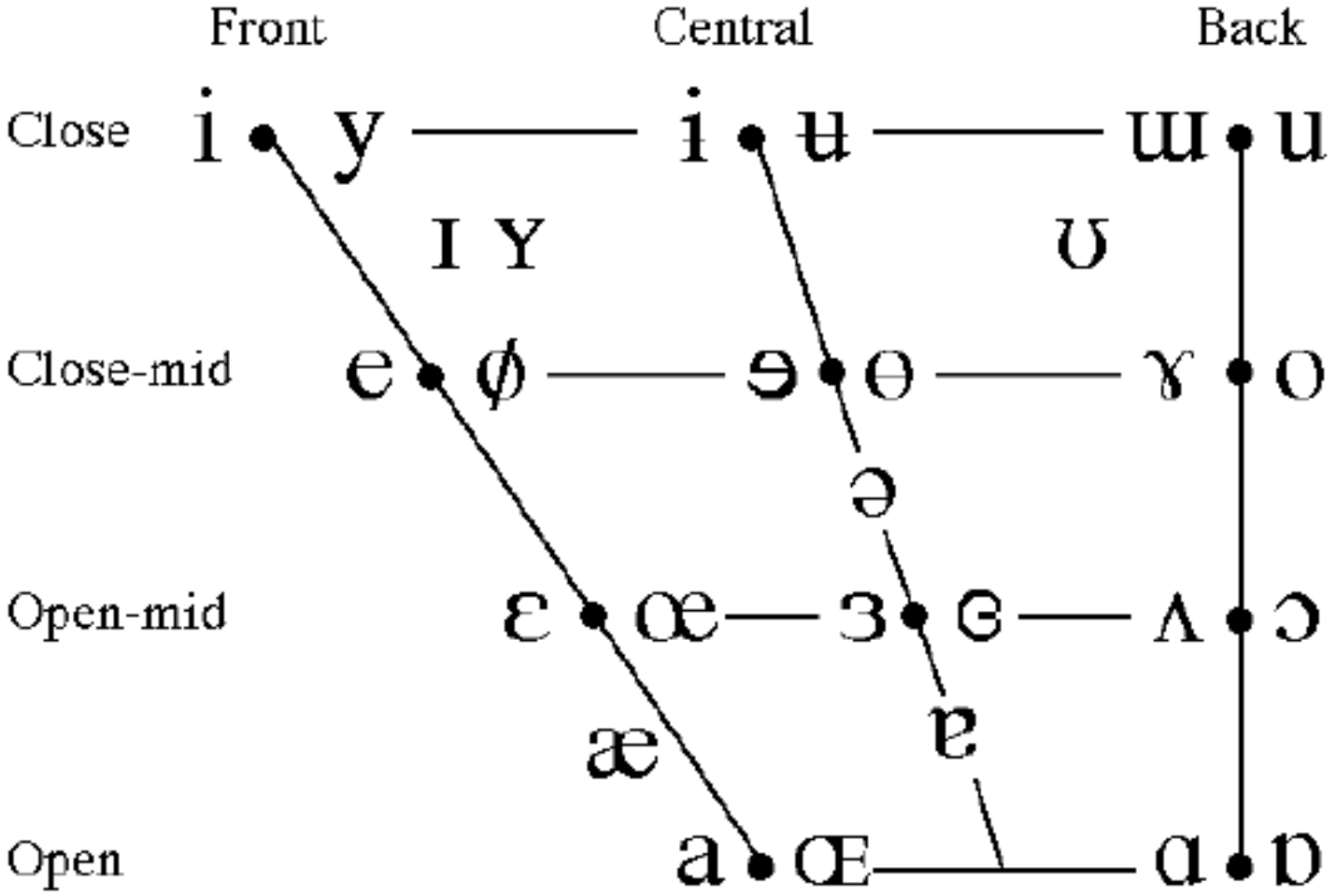
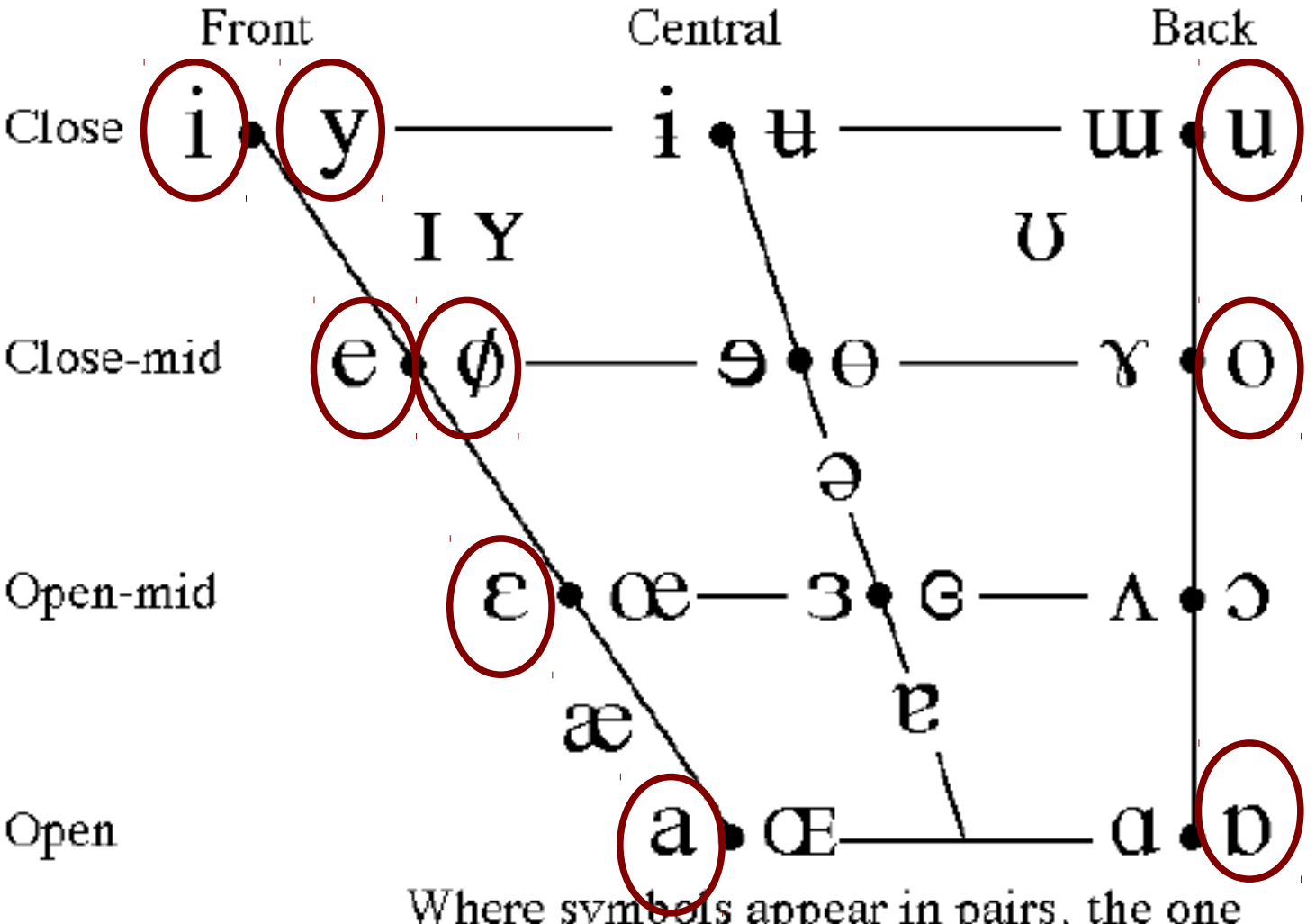


Can you find the vowels of Hungarian?

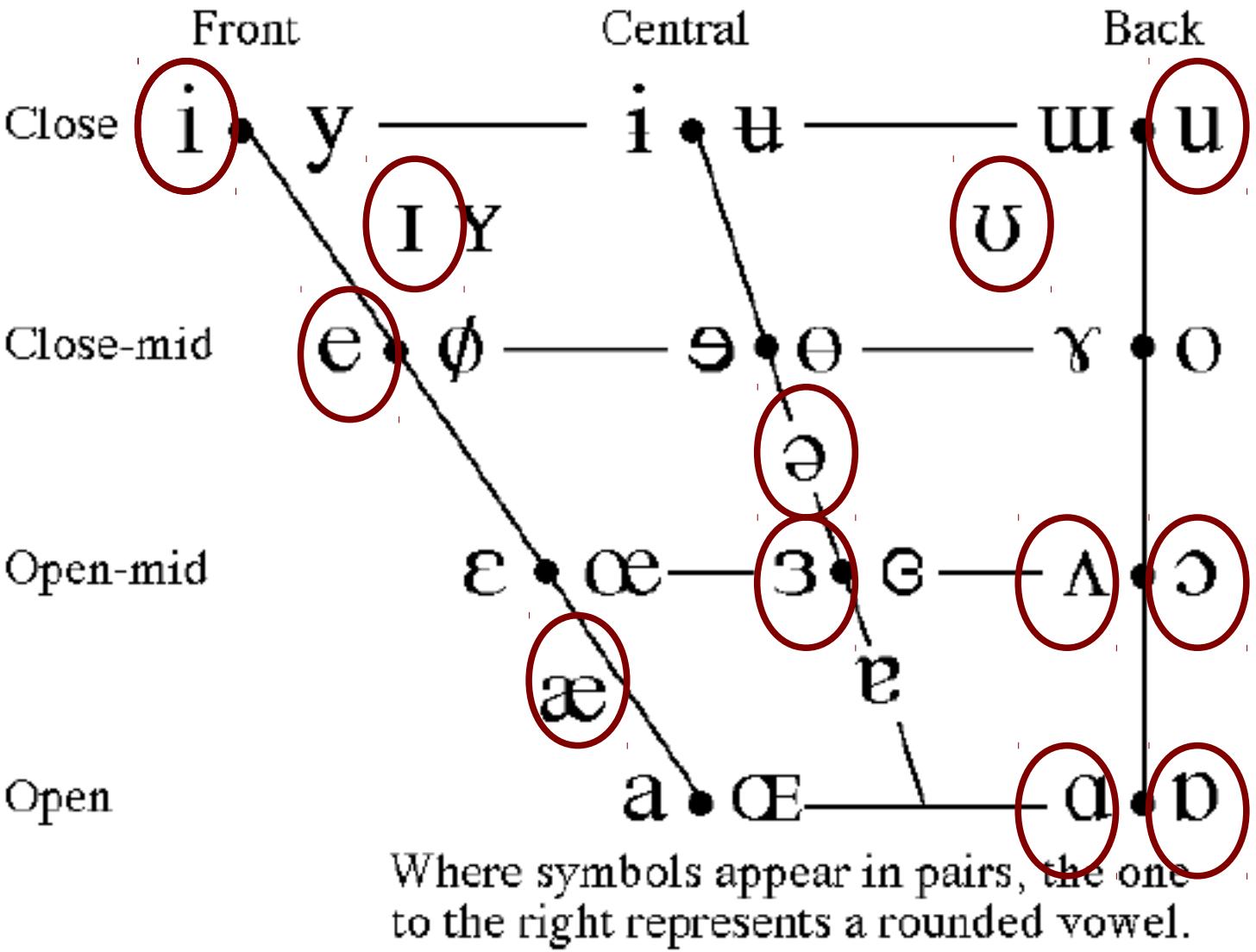


Where symbols appear in pairs, the one to the right represents a rounded vowel.

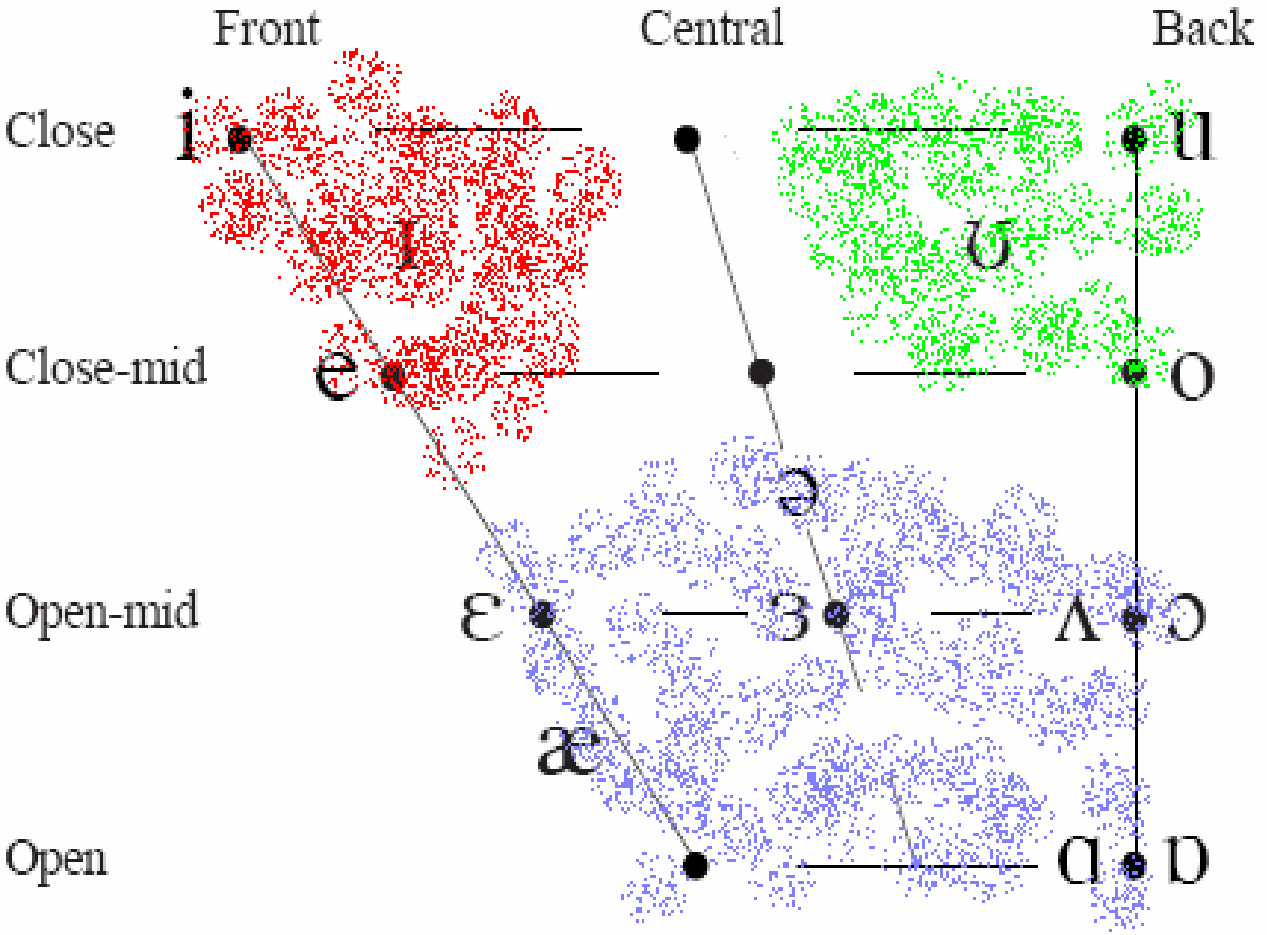
Can you find the vowels of Hungarian?



The monophthongs of RP



Phonologically: vowel *triangle*



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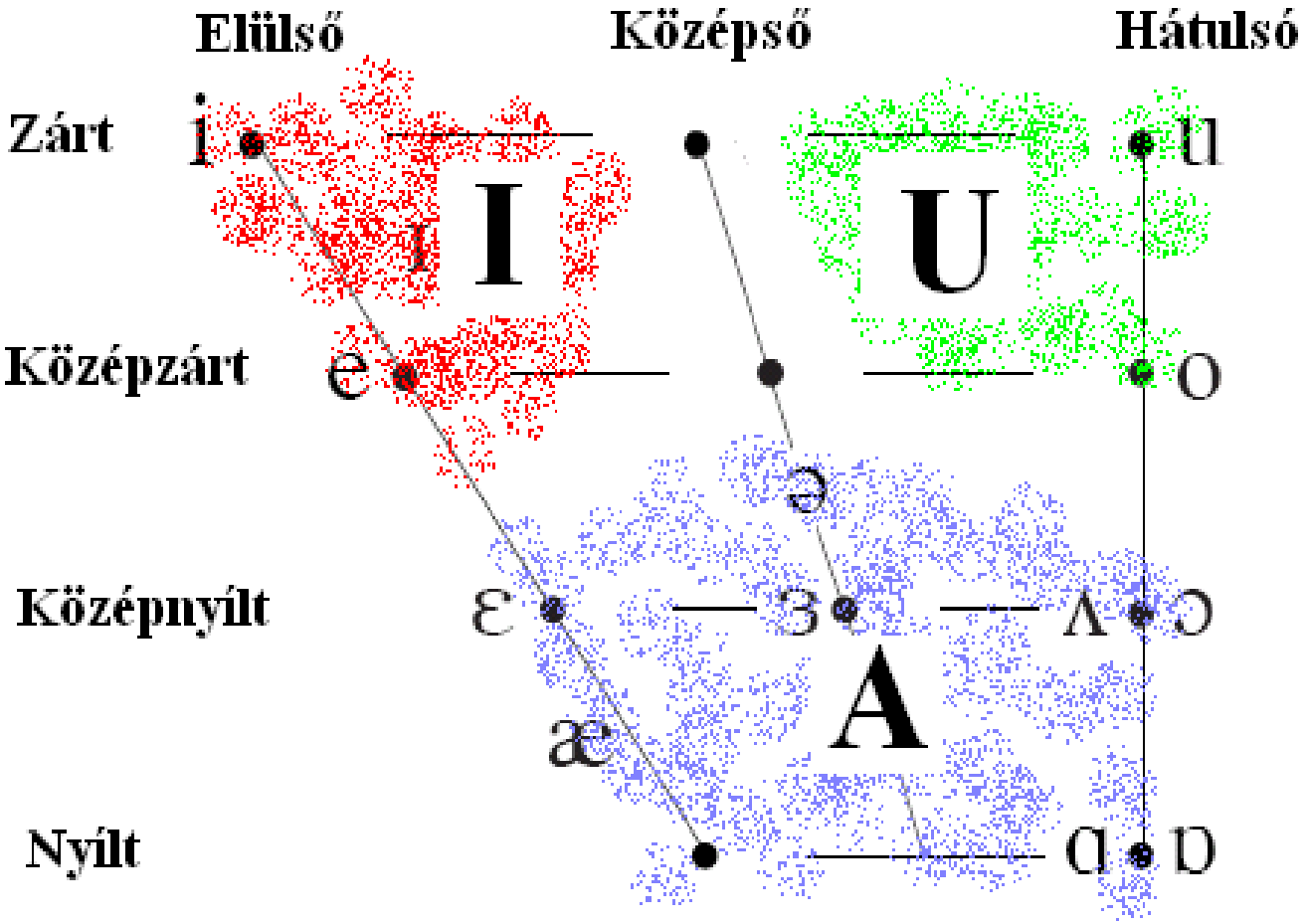

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- Similar ternary distinctions in English phonology?
- Reduced vowels, diphthongs (RP)
- Plus:

Hiatus: a sequence of two heterosyllabic vowels: V_1V_2

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across morphemes: hiatus resolution by filling

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1. in most varieties of E: 2-way glide formation
- /-I/i:/: happy [j] again
- /-U/u:/: New [w] England

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- /-ə/a:/o:/3:/: vanilla [r] ice

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1. in most varieties of E: 2-way glide formation
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What is the connection between the quality of the vowels and the glide?

Link maze

Try again! Two apples Four oranges

Three apples Blue eyes Area office

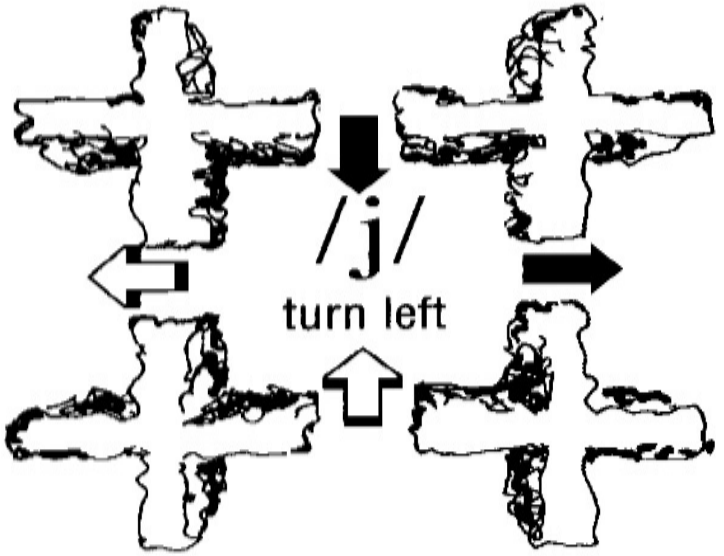
Players move from square to square according to the following rule:

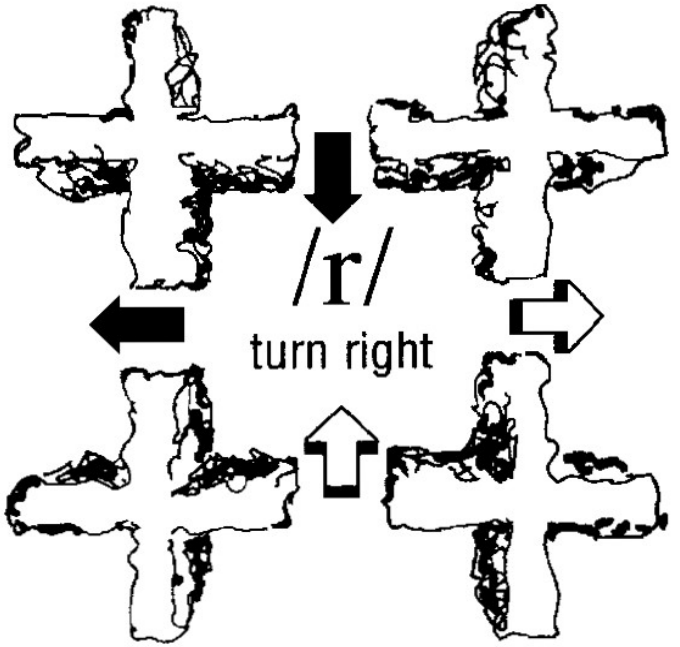
If the linking sound is /j/, turn left.

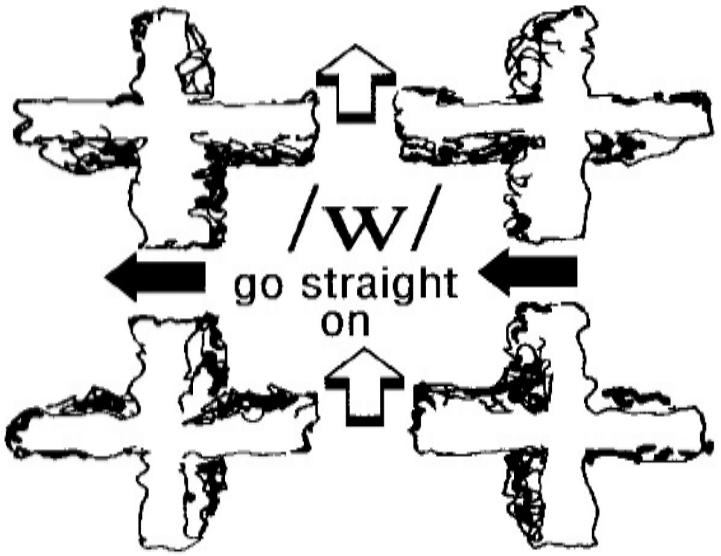
If the linking sound is /w/, go straight on.

If the linking sound is /r/, turn right.

It is very important to note that these directions are relative to the side that you enter the square from! So, for example, if you are heading 'east' and turn right, then you will be heading 'south'.


/j/
turn left


/r/
turn right

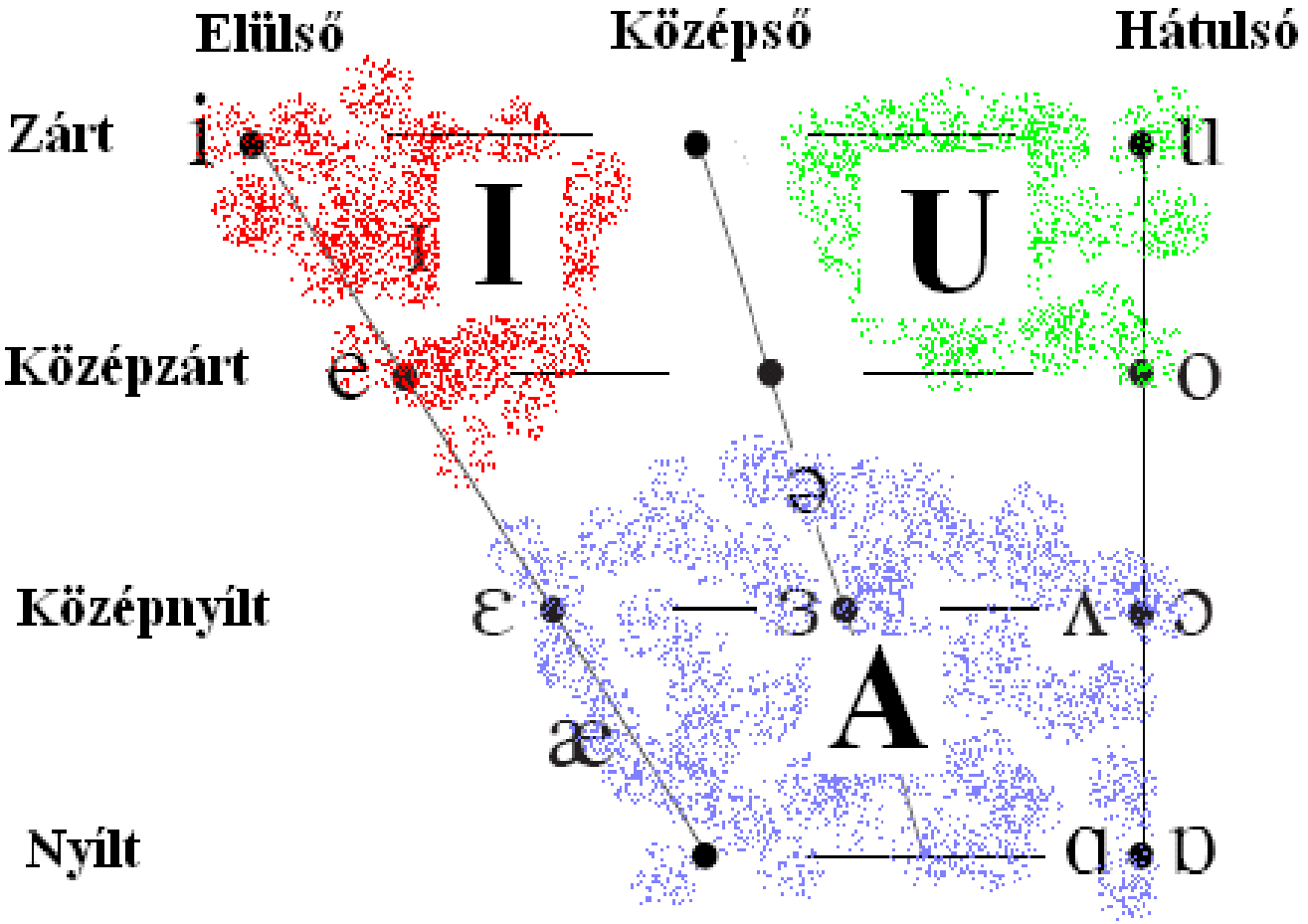

/w/
go straight
on

Key

The correct route is as follows:

Hello everybody! - Draw a line - We saw a film - I agree - Where are you? -
Blue eyes - Go to England - Law and order - A few apples - Four and a half -
Give me a ring - Answer a question - True or false? - Tea or coffee? - We aren't ready -
Go ahead! - Score a goal (exit Q)

Phonologically: vowel *triangle*



What is**n't** phonology?

- letters/spelling
- pronunciation practice
- **phonetics**

ex.1

tune, toon

due, dew, do

adieu, ado

new, knew, gnu

[tuːn], [duː], [əˈduː], [nuː]

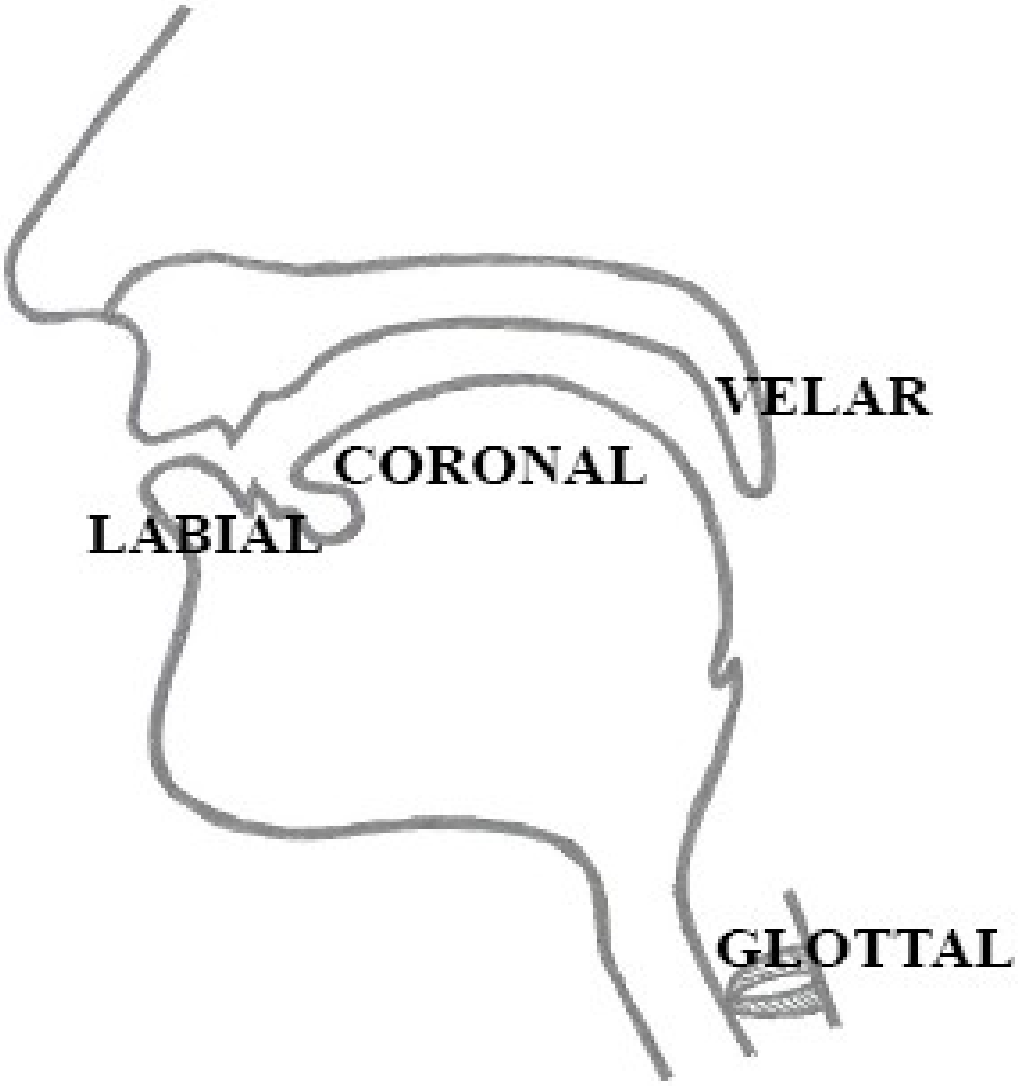
Yod-dropping

- The dropping of the yod (/j/) of /ju:/ after certain consonants
- Dialectal variation after **coronals**

/t/ /d/ /n/

(/s/ /z/ /l/ /θ/)

((/ʃ/ /ʒ/ /ʧ/ /ʤ/ /ð/ /r/))


VELAR
CORONAL
LABIAL
GLOTTAL

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((/ʃ/ /ʒ/ /ʧ/ /ʤ/ /ð/ /r/)) + /j/

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Does this have anything to do with the fact that /j/ is also coronal itself?

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No homorganic initial consonant clusters

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But: *venue* vs *avenue*??

Coronals

/t/ /d/ /n/ /s/ /z/ /l/ /θ/ /ð/ /ʃ/ /ʒ/ /ʧ/ /ʤ/ /r/ /j/

- Yod-dropping
- And...

ex.2

Coronals

/t/ /d/ /n/ /s/ /z/ /l/ /θ/ /ð/ /ʃ/ /ʒ/ /ʧ/ /ʤ/ /r/ /j/

[ʃaʊt]

[kraʊd]

[haʊm]

[vɔɪs]

[nɔɪz]

[kɔɪp]

[maɪnd]

[buːst]

[raɪŋk]

[lɪmp]

[θʌmb]

[hʌnt]

[lend]

[lɪŋk]

[bæŋg]

Coronals

/t/ /d/ /n/ /s/ /z/ /l/ /θ/ /ð/ /ʃ/ /ʒ/ /ʧ/ /ʤ/ /r/ /j/

[ʃaʊt]

[kraʊd]

*[haʊm]

[vɔɪs]

[nɔɪz]

*[kɔɪp]

[maɪnd]

[buːst]

*[raɪŋk]

[lɪmp]

*[θʌmb]

[hʌnt]

[lend]

[lɪŋk]

*[bæŋg]

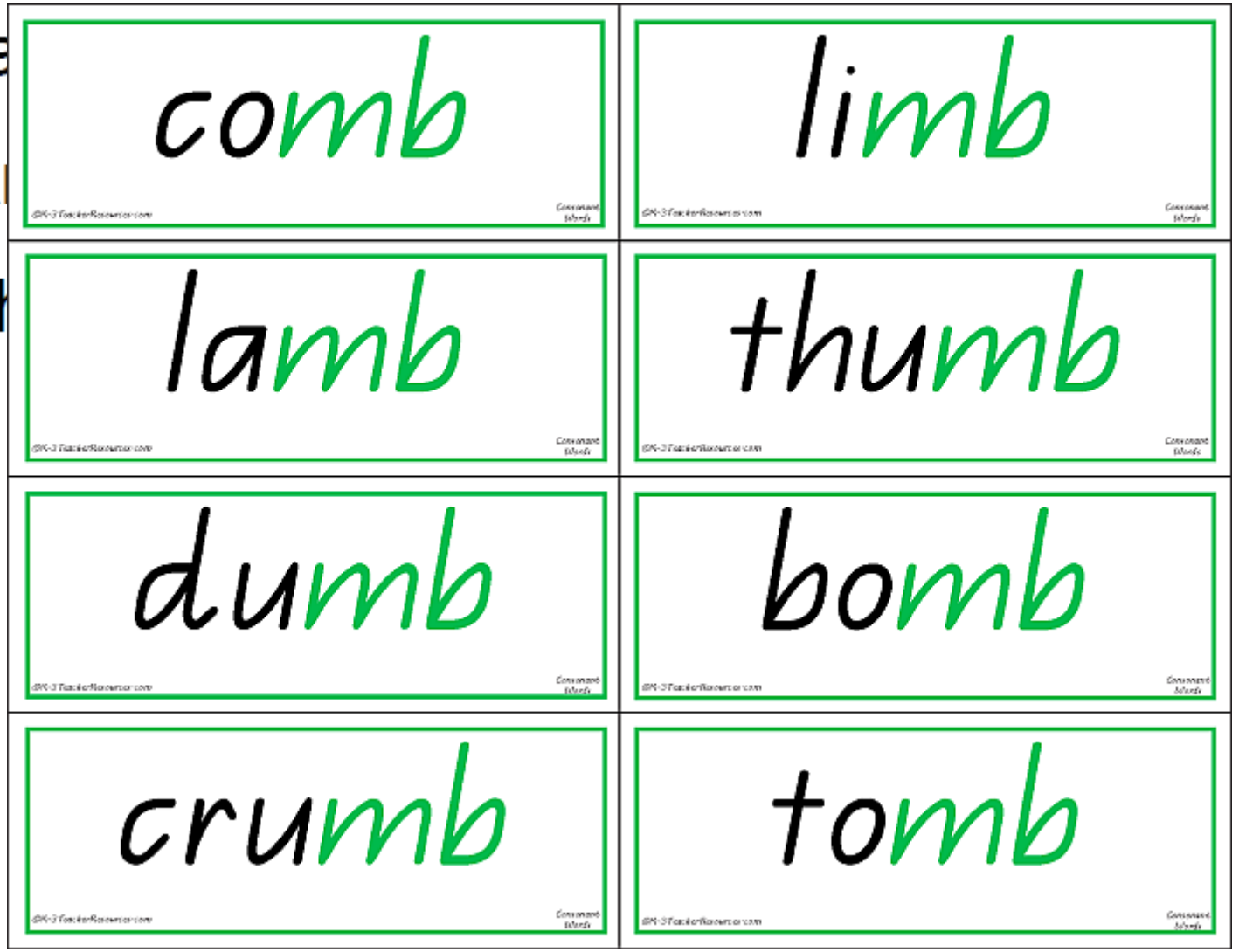
Coronals

/t/ /d/ /n/ /s/ /z/ /l/ /θ/ /ð/ /ʃ/ /ʒ/ /ʧ/ /ʤ/ /r/ /j/

[ʃa

[k

*[



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Coronals

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- a long vowel is only possible before a consonant cluster if the cluster is made up of coronals (*mind, boost, faint*, etc.)
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phonotactics

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pterodactyl, knead, mnemonic, choir, wrath, gnome, rhythm, cube, wrapper, psyche, xenophobia, proportion, knife, Ptolemy, thyme, puritan, psalm, breakthrough, gnocchi, knitting, knob, gnarly, shivering, wholewheat, xerox, bureau, gnu, xylophone, schedule, knuckle, pseudonym, queen, psychic, thunder, wreck, Xanadu

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Coronals

/t/ /d/ /n/ /s/ /z/ /l/ /θ/ /ð/ /ʃ/ /ʒ/ /ʧ/ /ʤ/ /r/ /j/

- In other languages, e.g., (Standard) Spanish:

More than a dozen consonants in the inventory

Five consonants used in *word-final position*:

/l/, /r/, /d/, /n/, and /s/

coronals

Consonants

	Bilabial	Labiodental	Dental	Alveolar	Palatal	Velar
Plosive	p b		t d			k g
Affricate					t͡ʃ ɟ͡ʝ	
Nasal	m			n	ɲ	
Tap or flap				ɾ		
Trill				r		
Fricative		f	θ	s		x
Lateral approximant				l	ʎ	

p	'pelo	*pelo*	'hair'
b	'boka	*boca*	'mouth'
m	mã'ma	*mamá*	'mother'
f	'feo	*feo*	'ugly'

t	'topo	*topo*	'mole'
d	'dar	*dar*	'to give'
n	'nuka	*nuca*	'nape'
ɾ	'pero	*perro*	'dog'
r	'pero	*pero*	'but'
θ	'θona	*zona*	'zone'
s	'sola	*sola*	'alone'
l	'luθ	*luz*	'light'

k	'kasa	*casa*	'house'
g	'gato	*gato*	'cat'
t͡ʃ	'kot͡ʃe	*coche*	'car'
ɟ͡ʝ	'ɟ͡ʝate	*yate*	'yacht'
ɲ	'kaɲa	*caña*	'cane'
x	xa'ron	*jarrón*	'vase'
ʎ	a'ʎi	*allí*	'there'

Coronals

/t/ /d/ /n/ /s/ /z/ /l/ /θ/ /ð/ /ʃ/ /ʒ/ /ʧ/ /ʤ/ /r/ /j/

- In other languages
- In child language:

[tɪs] 'kiss'	[maɪtl] 'Michael'
[taʊ] 'cow'	[daɪtər] 'diaper'
[tin] 'clean'	[pati] 'Papi'

(Fromkin & Rodman & Hyams 2011: 341)

Coronals

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- + **universally**, coronals are special: coronal vs non-coronal asymmetry **– why?**

Asymmetries, e.g.:

- Coronal – non-coronal, etc. - **markedness, implications**

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Lenition scales

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- e.g., t > s > h > zero

Lenition scales

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- **t > s** Liverpool English *letter*
- **s > h** dialects of Spanish *estamos* 'we are'
- **h > zero** standard E *find 'im*, non-standard E *'Enry 'Iggins*, Romance e.g. Fr. *hache* 'h', Hungarian *cseh* 'Czech'

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- (Steps may be skipped: **t > h** Liverpool English *but*)

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- e.g., t > s > h > zero
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- **h > zero** s
  'Enry 'Iggir
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- (Steps ma
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Why should this be so?

Sounds gradually decomposing?

Lenition scales

- e.g., t > s > h > zero

  voiceless voiceless voiceless

  coronal coronal

  stop

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Evidence for segment-internal structure:

components = *features*!

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  coronal coronal

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Evidence for segment-internal structure:

components = *features*!

What are these features? How many are there? Are they universal? How are they to be represented? ...

one possible model: binary features, e.g.: [±voiced], [±nasal], [±aspirated] (or: [±spread glottis]), [±continuant], [±sonorant], [±high], [±low], etc.
([+high, -low], [-high, +low], [-high, -low], *[+high, +low])

redundant (predictable, non-distinctive) features
vs.
nonredundant, distinctive features: nasalisation of vowels, English vs. French

[voiced]: distinctive for English obstruents but redundant for sonorants

predictable = redundant = nondistinctive = nonphonemic

redundancy rules e.g.

[+son] → [+voice] "All sonorants are voiced."

Feature Specifications (partial)

	p	b	m
consonantal	+	+	+
labial	+	+	+
voiced	−	+	+
nasal	−	−	+

Nasal Assimilation

$$V \rightarrow [+\text{nasal}] \; / \; \underline{\quad\quad} \; \begin{matrix} C \\ [+\text{nasal}] \end{matrix}$$


kinder CHOCOLATE
+ MILK
– COCOA
kinder
CHOCOLATE
+ MILK
– COCOA
kinder
kinder
kinder
kinder
Kinder
8 BARS 100 g e
kinder CHOCOLATE
+ MILK
– COCOA

An alternative model

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Binary features: +/-

Or: unary (monovalent/privative)

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Or: unary (monovalent/privative)

both divide sounds into two classes: [+nasal] vs. [-nasal] / [nasal] vs. zero

but: binary features imply that the classes should behave symmetrically

this is not true

An alternative model

the classes do not behave symmetrically

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the classes do not behave symmetrically:

- markedness
- phonological activity

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+ theoretical gain: a privative model of phonological oppositions is more constrained

An example of unary models: Element Theory

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Unary primes: elements

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Unary primes: elements

like chemical elements or colours

An example of unary models: Element Theory

Unary primes: elements

like chemical elements or colours:
independent interpretation + compounds

Elements for vowels

Element	Independent interpretation
A	**a**
I	**i**
U	**u**

(1) *Some elements*

$$I = \begin{bmatrix} -\text{ROUND} \\ \underline{-\text{BACK}} \\ +\text{HIGH} \\ -\text{ATR} \\ -\text{low} \end{bmatrix} \qquad U = \begin{bmatrix} \underline{\pm\text{ROUND}} \\ +\text{BACK} \\ +\text{HIGH} \\ -\text{ATR} \\ -\text{low} \end{bmatrix} \qquad A = \begin{bmatrix} -\text{ROUND} \\ +\text{BACK} \\ \underline{-\text{HIGH}} \\ -\text{ATR} \\ +\text{low} \end{bmatrix}$$

Elements for vowels

Simplex		Compound	
a	[A]	e	[A, I]
i	[I]	o	[A, U]
u	[U]	ü	[U, I]

Recall: Lenition scales

- e.g., t > s > h > zero

  voiceless voiceless voiceless

  coronal coronal

  stop

Lenition as segmental decomposition

Features: one more example

Features: one more example

- But first: metathesis: ex.3

Features: one more example

Latin *parabola*	Spanish *palabra* 'word'
Latin *miraculum*	Spanish *milagro* 'miracle'
Latin *periculum*	Spanish *peligro* 'danger, peril'
asterisk	*Asterix*
bird	Old English *bryd*
horse	Old English *hros*
three	*third, thirty* and *thirteen*

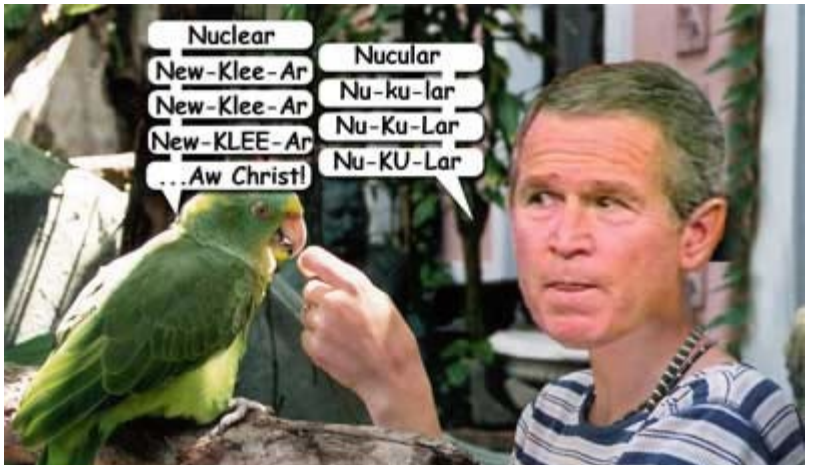
Features: one more example

Polish *mleko*	English *milk*
teher 'burden'	*terhet* (acc.), *terhed* (poss.), *terhek* (pl.) 'burden'
Classical Arabic *zawǧ*	Egyptian Arabic *gōz* 'husband'
Persian *zanǧabīl*	Egyptian Arabic *ganzabīl* 'ginger'
Chaucer, Caxton, and the Coverdale Bible *ax* 'ask'	Shakespeare and the King James Bible *ask*
Child language [deks]	*desk*
Child language [taɪk]	*kite*

"Father, we *aks* you to bless every church door that renders service unto your name."
(Rev. Grady McKinney)

Features: one more example

- Metathesis



Features: one more example

- Metathesis of features

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- Metathesis of features
- Hungarian child language: [hómat] 'tomorrow', [temmak] 'yesterday' (Szigetvári p.c.)

Metathesis of features

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h o: **n** a **p**

nasal **stop**

coronal **labial**

Metathesis of features

h o: **n** a **p**

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coronal<->**labial**

Metathesis of features

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↓ ↓

m **t**

Metathesis of features

h o: **n** a **p** t e **g** **n** a **p**

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Metathesis of features

h	o:	**n**	a	**p**	t	e	**g**	**n**	a	**p**
		nasal		**stop**				**nasal**		**stop**
		labial		**coronal**				**labial**		**velar**
		↓		↓				↓		↓
		m		**t**				**mm**		**k**

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Evidence for segment-internal structure: components = *features*!

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e.g.: Chumash consonant harmony:

(1) Sibilant harmony in Ineseño Chumash

	/ha-s-xintila-waš/	[haš̲xintilawaš]	'his former gentile'
cf.	/ha-s-xintila/	[hasxintila]	'his gentile'
	/s-iš-sili-uluaqpey=us/	[si̲s̲^{h}uleqpeyus]	'they two want to follow it'
cf.	/p-iš-al-nan?/	[pišanan?]	'don't you two go'

(McCarthy 2007:2)

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e.g.: consonant harmony in child language: almost universal! (*cup* → pʌp/kʌk, *dog* → gɔg, *coat* → ko:k, *butter* → bʌbə)

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e.g.: Hungarian vowel harmony

Hungarian vowel harmony (ex.4)

-val	**-vel**

Hungarian vowel harmony

-val	**-vel**
Gábor	
Márta	
Balázs	
Béla	
Daniella	
Krisztián	

Hungarian vowel harmony

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Gábor	Eszter
Márta	Csenge
Balázs	Dénes
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Dávid	
Dzsasztin	

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How do we deal with long-distance relations and segment transparency?

Further phonological "stunts"

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  consc

How do s and ency?

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e.g., AmE/GA raːɪɾɚ Canadian E. raɪɾɚ

vs. vs.

raɪɾɚ rəɪɾɚ

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e.g., AmE/GA raːɪɾɚ Canadian E. raɪɾɚ cf. *ride*

vs. vs.

raɪɾɚ ɹəɪɾɚ cf. *write*

The interaction of tapping/flapping and Pre-Fortis Clipping

(3)

Vowel phoneme	Fully long	Shortened
/i:/	[i:] *be, been, easy, bead, siege, feel*	[i] *beat, week, piece, beat, teach*
/aʊ/	[a:ʊ] *now, town, round, house (v), loud*	[aʊ] *out, mouse, counting, house (n)*

(4)

T-Voicing and T/D-tapping/flapping

t → d → ɾ

d → ɾ

e.g. *matter, butterfly, nobody, little*

but *militate* *

right awáy, not a jóke, get úp

***writing* vs. *riding*?**

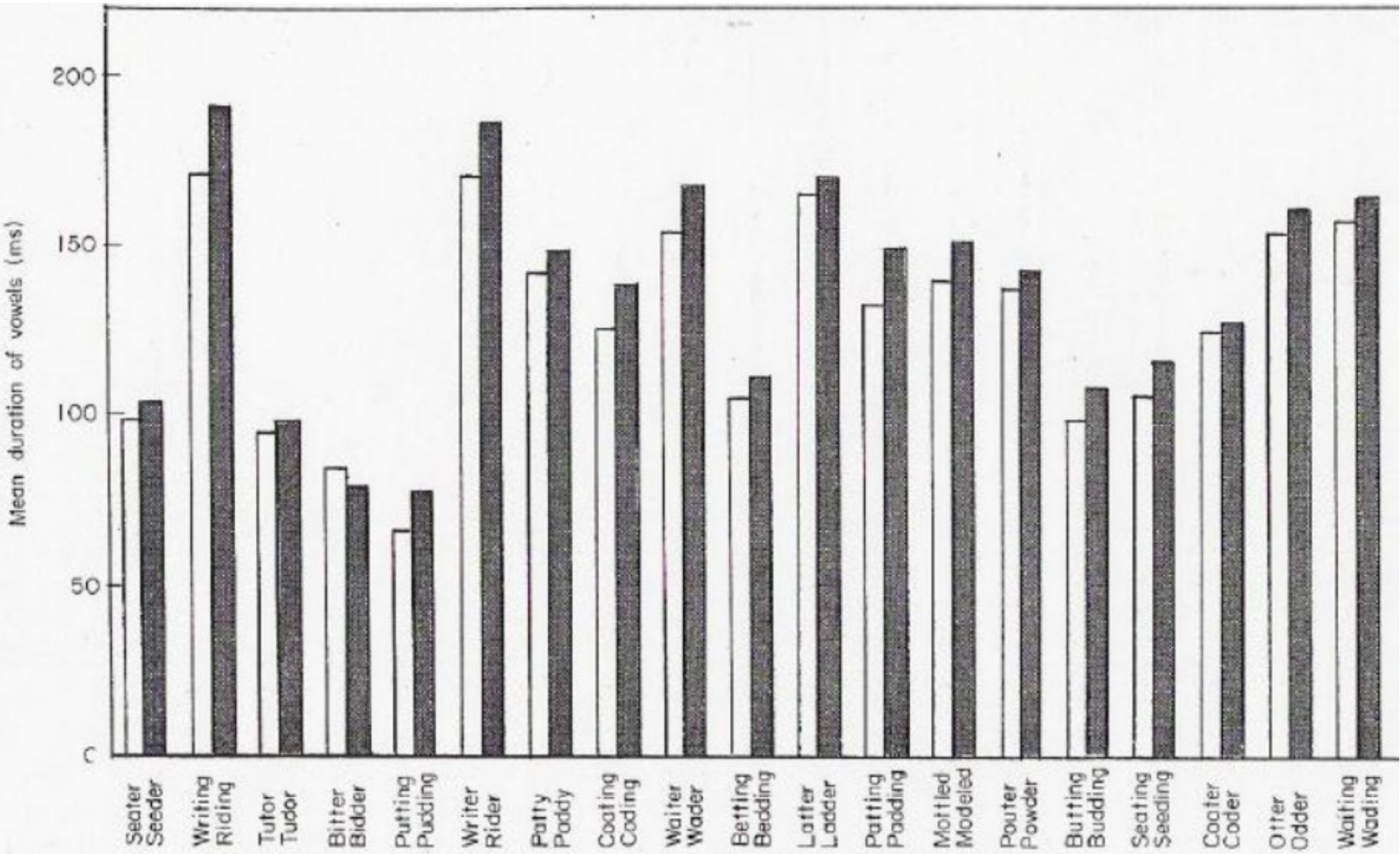

Figure 1 Mean durations of vowels preceding flaps from underlying /t/ and /d/.

from Fox, Robert A. and Dale Terbeek (1977) Dental flaps, vowel duration and rule ordering in American English. Journal of Phonetics 5: 27-34.)

rule interaction =

rule ordering

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e.g., *zsebkendő* 'hanky' /-pk-/, *hasbeszélő* 'ventriloquist' /-ʒb-/, but:

azt gondolom... 'I think...' /-sg-/

azt jelenti... 'it means...' /-sj-/

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e.g., Hungarian voicing assimilation

How do we explain cases of opacity?

rule interaction =

rule ordering

bean vs. *beer*


GUINNESS
Coors LIGHT
STELLA ARTOIS
Budweiser
PBR
Pabst Blue Ribbon
LIGHT
Heineken
PREMIUM
LIGHT
SAMUEL ADAMS

bean vs. *beer*

What are the two differences in pronunciation?

bean vs. *beer*

What are the two differences in pronunciation?

What are the two rules producing the differences?

bean vs. *beer*

What are the two differences in pronunciation?

What are the two rules producing the differences?

How do the two rules interact?

rule interaction =

rule ordering

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- Certain sound segments can be "invisible", "transparent": "long-distance" relations of consonant/vowel harmony
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- Speakers of certain languages can pronounce consonant-final words

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vs. languages like Italian/Japanese, child language (*back* → ba:, *boat* → bo:, *down* → da:nə)

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consonant-final wor

vs. languages like Itali
language (*back* → ba:, →
da:nə), *Kovbojok*

English with an Italian accent

Comes the morning
When I can feel
That there's nothing
Left to be concealed
Moving on
a scene surreal
Know my heart will never
Never be far from here

Sure as I'm breathing
Sure as I'm sad
I'll keep this wisdom
In my flesh
I leave here believing
More than I had
And there's a reason I'll be
Reason I'll be back

Francesco (20, Manfredonia) reading partial lyrics of Eddie Vedder's *No Ceiling*
Source: Bálint Huszthy

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- Certain sound segments can "remember" where they (historically/morphologically) come from (opacity)
- Speakers of certain languages can pronounce consonant-final words (**phonotactics**!)

How do we explain the special status of word-final consonants? How do we explain the different repair strategies?

Further phonological "stunts"

- Certain sound segments can be "invisible", "transparent": "long-distance" relations of consonant/vowel harmony
- Certain sound segments can "remember" where they (historically/morphologically) come from (opacity)
- Speakers of certain languages can pronounce consonant-final words
- Speakers of certain languages can pronounce sequences of consonants word-initially

ex.5

Initial sC sequences

[ʔistadi]	[iskul]	[isteʃən]	*asztal*	[patula]
estudiar	*escuela*	*station*	*stol*	*spatula*
étudier	*école*	*estación*		
study	*iskola*			
	schola			
	school			

Egyptian Arabic	**Sinhalese**	**Hindi**	**Spanish**	**French**	**Pidgin/creole English**	**Hungarian**	**Hungarian child language**
[ʔiski:] < *ski* [ʔistadi] < *study* [ʔispiriŋ] < *spring* [ʔistiri:t] < *street*	[iskul] < *school* [istik] < *stick* [istiri] < Sanskr. *stri* 'woman'	[ispeliŋ] < *spelling* [iskul] < *school* [isteʃən] < *station*	*España* 'Spain' *estudiar* 'study' *escuela* 'school' *estrés* 'stress' *esquiar* 'ski' *estación* 'station' *estado* 'state'	*école* 'school' *étudier* 'study' *état* 'state'	Nigerian Pidgin E.: *tori* < *story* Jamaican Creole E.: [kratʃ] < *scratch* [traŋ] < *strong*	*iskola* (arch. *oskola*) 'school' cf. Lat. *schola* *István* cf. Lat. *Stephanus* *asztal* 'table' cf. Slavic *stol* *ostrom* 'siege' cf. German *Sturm*	[koda] < *Skoda* [patula] < *spatula* 'ibid.' [tand] < *strand* 'beach' [top] < *stop* 'stop (sign)'

Initial sC sequences

How the Spanish pronounce English words
http://www.youtube.com/watch?v=dn8CkmqLTdg

e-insertion
plus Andalusian *s*-to-*h*
plus word-final consonants
(e.g., *Steven Spielberg*)

Further phonological "stunts"

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- Certain sound segments can "remember" where they (historically/morphologically) come from (opacity)
- Speakers of certain languages can pronounce consonant-final words
- Speakers of certain languages can pronounce sequences of consonants word-initially

How do we explain the special status of word-initial consonant sequences in general? How do we explain the even more special status of *certain* word-initial consonant sequences? How do we explain the different repair strategies?

Further phonological "stunts"

- Certain sound segments can be "invisible", "transparent": "long-distance" relations of consonant/vowel harmony
- Certain sound segments can "remember" where they (historically/morphologically) come from (opacity)
- Speakers of certain languages can pronounce consonant-final words
- Speakers of certain languages can pronounce sequences of consonants word-initially, **etc.**

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- Because it provides us with fascinating **questions** to answer and **problems** to solve

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- Here: a few questions/problems from the field of *universal* tendencies in sound pattern (typologically different/genetically unrelated languages, synchrony/diachrony, child language, etc.), suggesting that phonological regularities/processes are governed by principles hard-wired into the *human brain*

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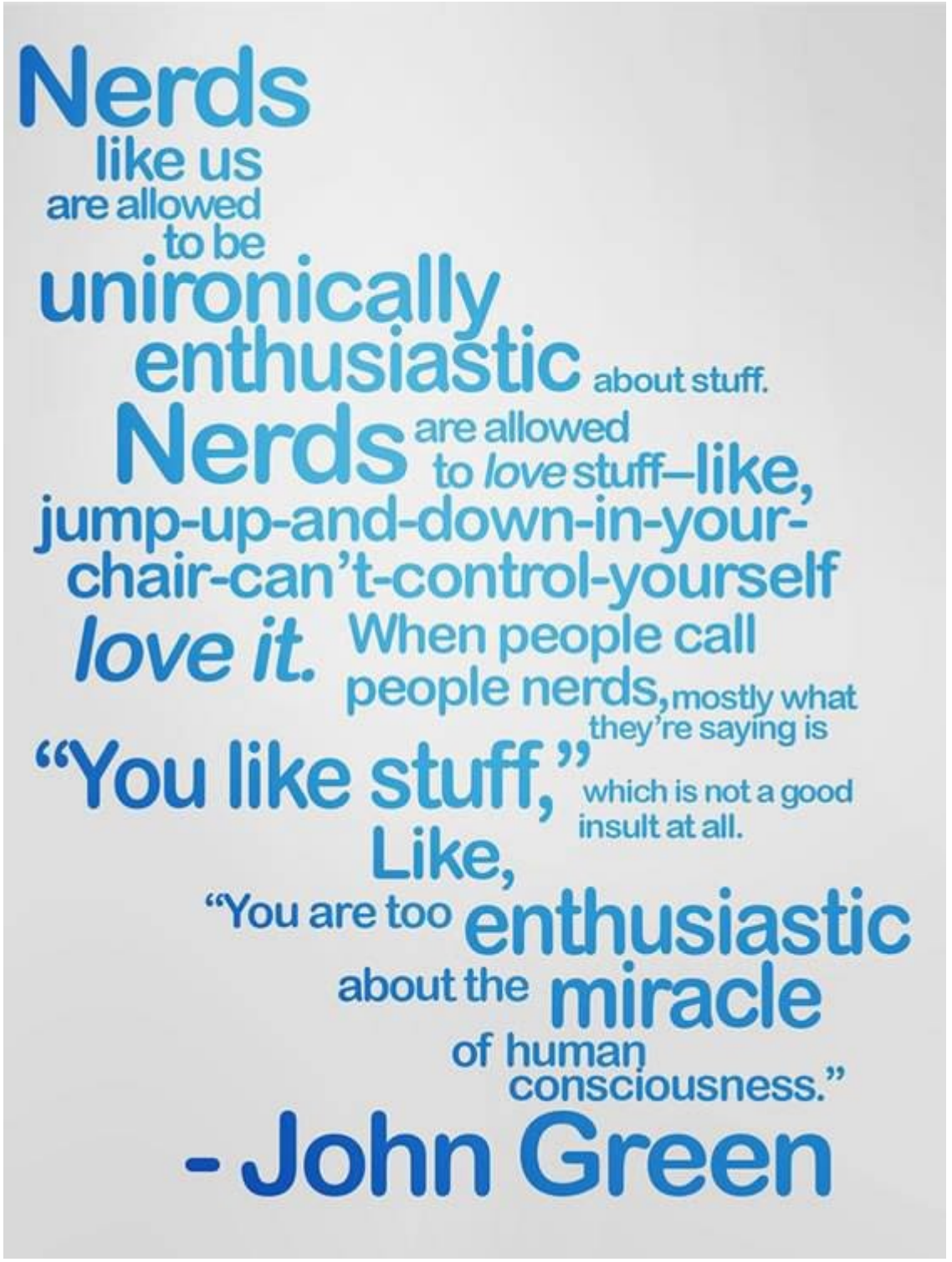
- Here: a few questions/problems from the field of *universal* tendencies in sound pattern (typologically different/genetically unrelated languages, synchrony/diachrony, child language, etc.)
- **Why should things be this way??**
- And there are quite a few more **questions** out there for **YOU** to answer! :-)


Nerds
like us
are allowed
to be
unironically
enthusiastic about stuff.
Nerds are allowed
to love stuff–like,
jump-up-and-down-in-your-
chair-can't-control-yourself
love it. When people call
people nerds, mostly what
they're saying is
"You like stuff," which is not a good
insult at all.
Like,
"You are too enthusiastic
about the miracle
of human
consciousness."
- John Green


QUESTION
EVERYTHING
WHY?