

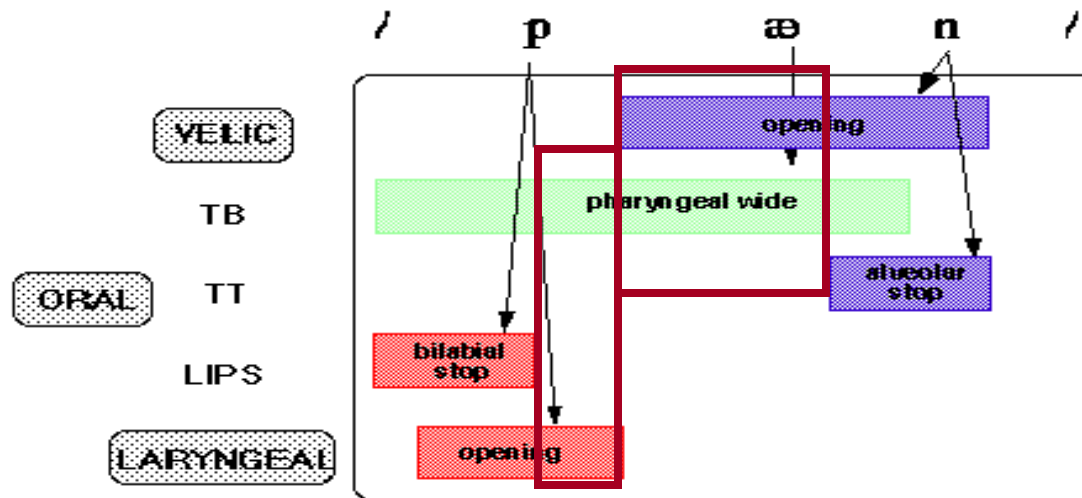
# **Allophones & some issues in Phonology**

# Phonemes vs. allophones

- A change in a phoneme changes the meaning of a word
  - **Minimal pair test**
    - What do pairs like these tell us about the difference between [t] and [c] in Slovak?
      - *mat* [mat]    mate    *mat'*    [mac]    to have
      - *tuk* [tuk]    fat    *t'uk*    [cuk]    knock
    - Try to construct similar test for the difference between [i:] and [ɪ], [n] and [ŋ]
- A change in an allophone does not change the meaning of a word

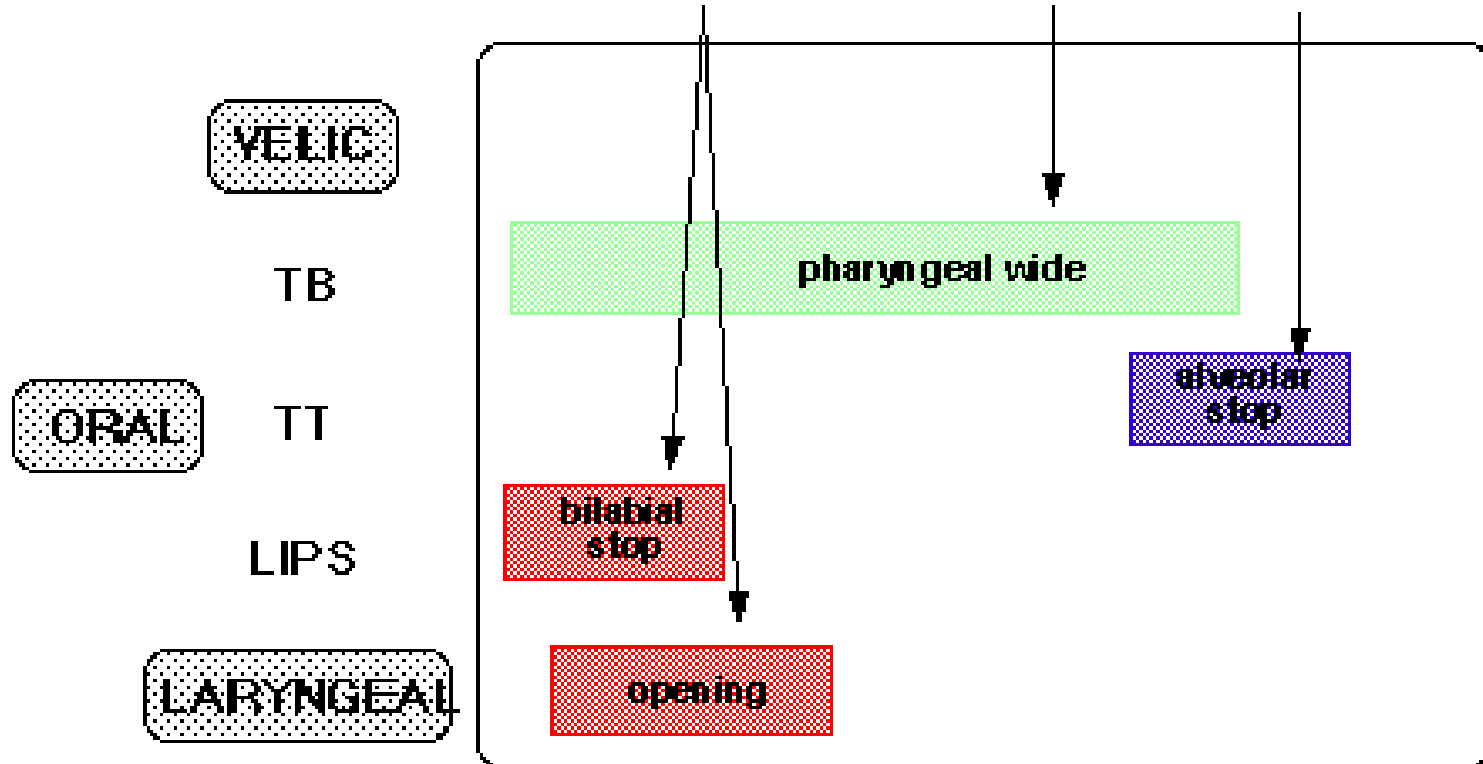
# Allophonic rules in *pan*

- /p/ is aspirated ([p<sup>h</sup>]) if it begins a stressed syllable or a word
- /æ/ is nasalized ([æ̃]) if a nasal follows it in the same syllable



- Timing (coordination) of articulatory gestures is the crucial aspect of native-like pronunciation

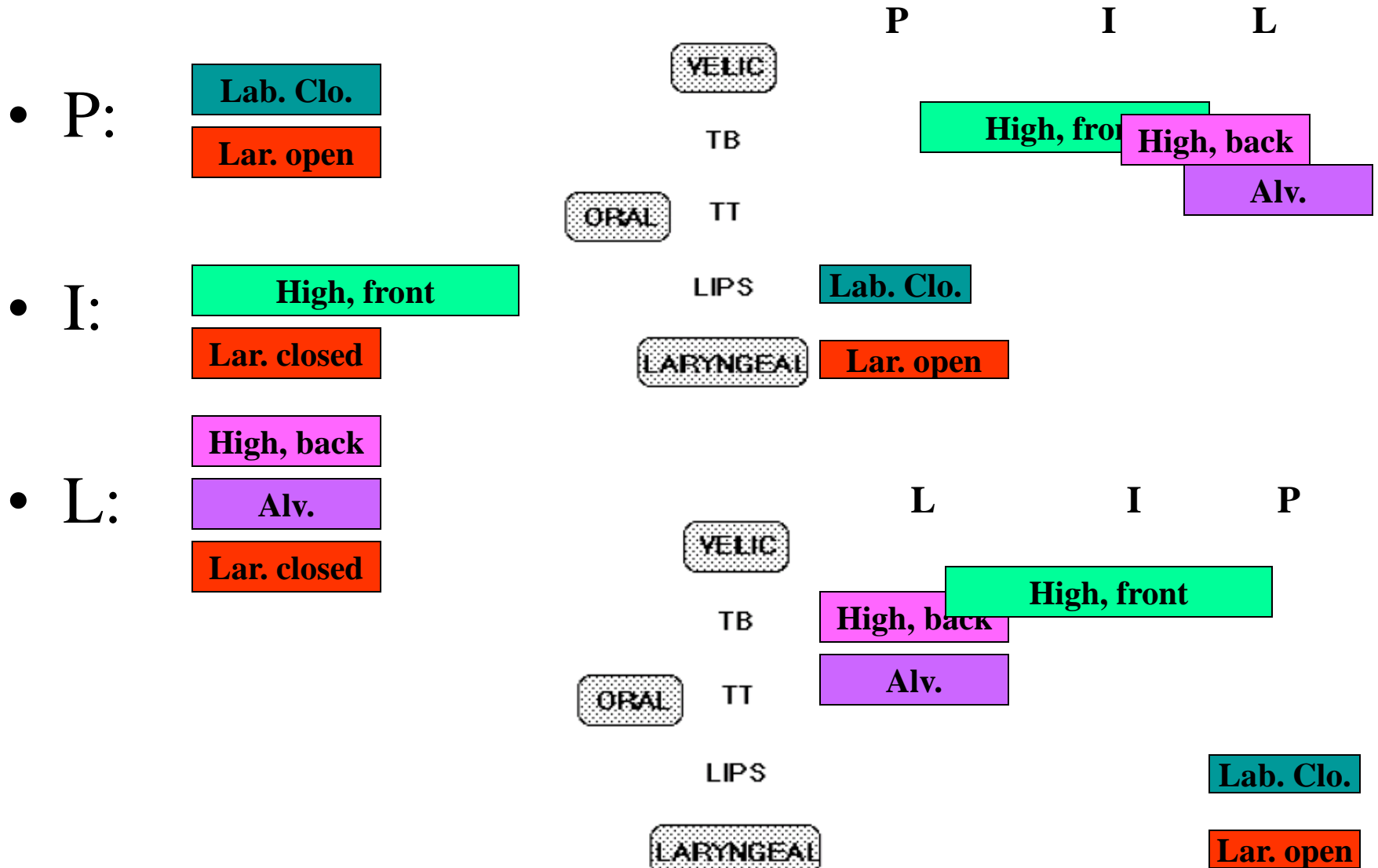
# How is this different?



# Allophonic rules in *pan*

- p, t, k are aspirated if they begin a stressed syllable
- Vowels are nasalized if a nasal follows them in the same syllable

# Dark/clear l with gestures



# Other allophonic rules: consonants

- Devoicing
  - Not only /l/ but all **approximants** and **liquids** (= l, r, j, w) are devoiced in the same environment as aspiration
  - E.g. *please* vs. *peace* [pli:s] vs. [p<sup>h</sup>i:s]
  - How would it look with gestures?
- Stops are not released before another stop and optionally before a pause
  - E.g. *active* [æk<sup>ʔ</sup>tɪv], cf. ‘kto’
- Flapping in American English??

# Other allophonic rules: vowels

- Vowels are shortened before voiceless consonants in the same syllable
  - *tap* vs. *tab* [t<sup>h</sup>æ̃p] vs. [t<sup>h</sup>æb]
- Most unstressed vowels are reduced to schwa
  - E.g. *Atom* vs. *atomic*



# Basic English Allophonic Rules - summary

- Consonants
  - Aspiration
  - Devoicing
  - Unreleasing
  - Dark/clear /l/
- Vowels
  - Nasalization
  - Shortening
  - Reduction to schwa

# Transcription

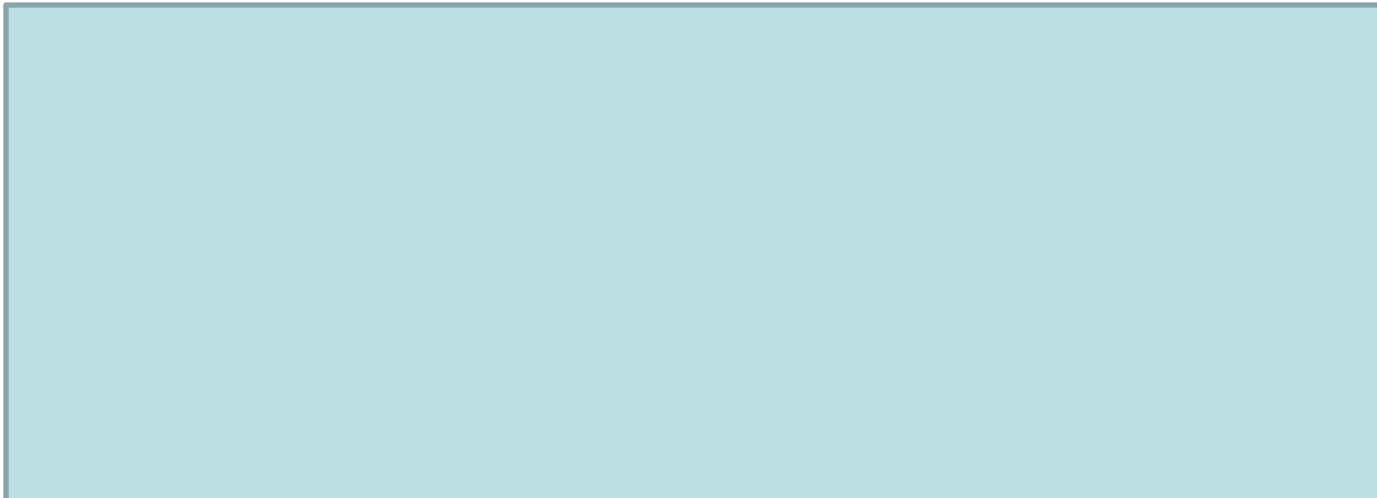
- **Broad** phonemic transcription uses phonemes (those in the chart), **narrow** phonetic transcription uses allophones (aspirated, shortened, dentalized, flapped, nasalized, unreleased,...)
  - Pancake: [p<sup>h</sup>æŋkeɪk̚] vs. /pæŋkeɪk/
- Your transcription tells me how you would say words => it gives me one way to check your pronunciation

# Complementary distribution of allophones

- Allophones are predicable
  - This means that native speakers know (unconsciously) which allophone should be pronounced in which environment
  - E.g. dark /l/ can only be at the end of the word and NEVER at the beginning of the word, vice versa for light /l/
- Hence, allophones of one phoneme are in complementary distribution because one allophone never occurs in the environments in which the other occurs.

# Allophones of /l/ in English (Hayes)

Words with [ɫ]	Words with [l̥]	Words with [ɫ̥]	Words with [l]
file [ˈfaɪɫ]	slight [sɫ̥aɪt]	wealth [ˈweɪɫθ]	listen [ˈlɪsən]
fool [ˈfuɫ]	flight [ˈfl̥aɪt]	health [ˈheɪɫθ]	lose [ˈluːz]
all [ˈɔɫ]	plow [ˈp̥l̥əʊ]	filthy [ˈfɪɫθi]	allow [əˈlaʊ]
ball [ˈbɔɫ]	cling [ˈkɫ̥ɪŋ]	tilth [ˈtɪɫθ]	aglow [əˈɡlɔʊ]
fell [ˈfeɫ]	discipline [ˈdɪsəp̥l̥ɪn]	stealth [ˈsteɪɫθ]	blend [ˈblend]
feel [ˈfiɫ]			



# Abstraction

- Phonemes → allophones → movements of gestures → neural impulses → ...
- This system of abstraction is similar to writing (e.g. discussion in Roach, pp.36-37)
- Speech can be observed with a microscope that has several lenses
- Understanding of this system helps us better understand how our mind works

# Natural classes

- Sound processes tend to affect groups of sounds, not just individual sounds
- In the BE vs. AE example, all alveolars in AE behave as a group: they are never followed by [j]
- Palatalization in Slovak
  - Trigger: [i, e]
  - Target: alveolar consonants
- Aspiration in English
  - Voiceless plosives

## American

am[y]se

b[y]ty (beauty)

c[y]be

d[u]pe

f[y]me

l[u]rid

n[u]ws (news)

p[y]ny (puny)

pre[z]me (presume)

st[u]pid

s[u]t (suit)

## British

am[y]se

b[y]ty

c[y]be

d[y]pe

f[y]me

l[y]rid

n[y]ws

p[y]ny

pre[z]me

st[y]pid

s[y]t

# Other phonological issues discussed in Roach

- Are affricates one or two sounds?
- Restrictions for [h], [ŋ], [ʒ]
- Is schwa a phoneme or an allophone?
- How can we describe dialectal differences?