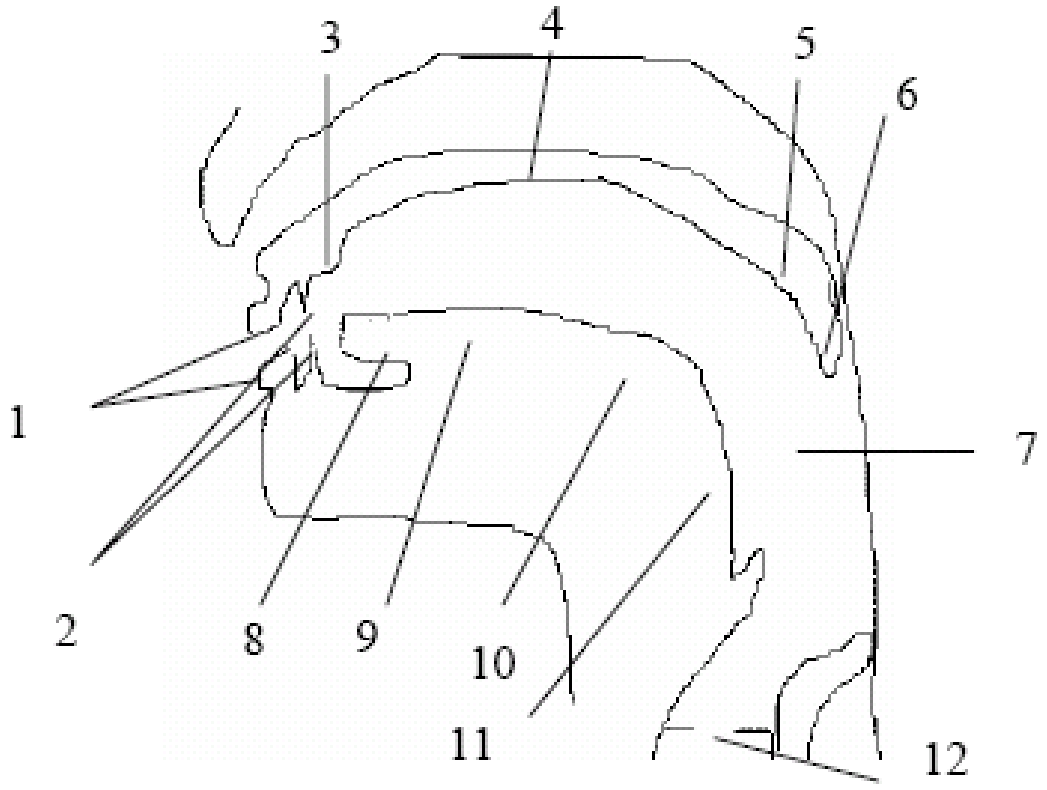
Consonants

Articulatory description of consonants

- Place of articulation
- Manner of articulation
- Velum position (nasal vs. oral)
- Vocal fold vibration (voiced vs. voiceless)

Place of articulation

- Review of the adjectives describing where the main constriction occurs



1 (bi)labial
2. Dental
3. Alveolar
4. Palatal
5. Velar
6. Uvular
7. Pharyngeal
8. Apical
9. Laminal
10. Dorsal
11. Radical
12. Glottal

Places of articulation in English

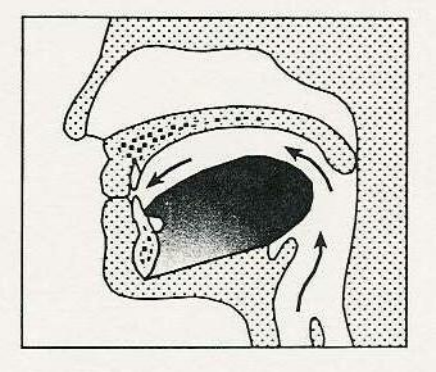
- (Bi)labial
  - [p, b, m, w]
- Labio-dental
  - [f, v, (ɱ)]
- Dental/interdental
  - [θ, ð]
- Alveolar
  - [t, d, s, z, n, l]
- Palato-alveolar
  - [ʃ, ʒ, tʃ, dʒ, ɹ]
- Palatal
  - [j]
- Velar
  - [k, g, ŋ, (w)]
- Glottal
  - [h]

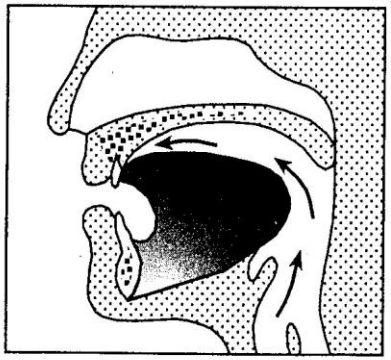
Manners of articulation

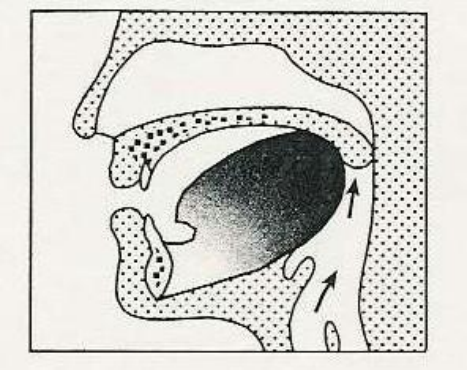
- Plosives (stops)
  - [p, b, t, d, k, g]
- Fricatives
  - [f, v, θ, ð, s, z, ʃ, ʒ, h]
- Affricates
  - [tʃ, dʒ]
- Nasals
  - [m, n, ŋ]
- Approximants
  - [w, j, ɹ (ʌ)]
- Laterals
  - [l]

Plosives

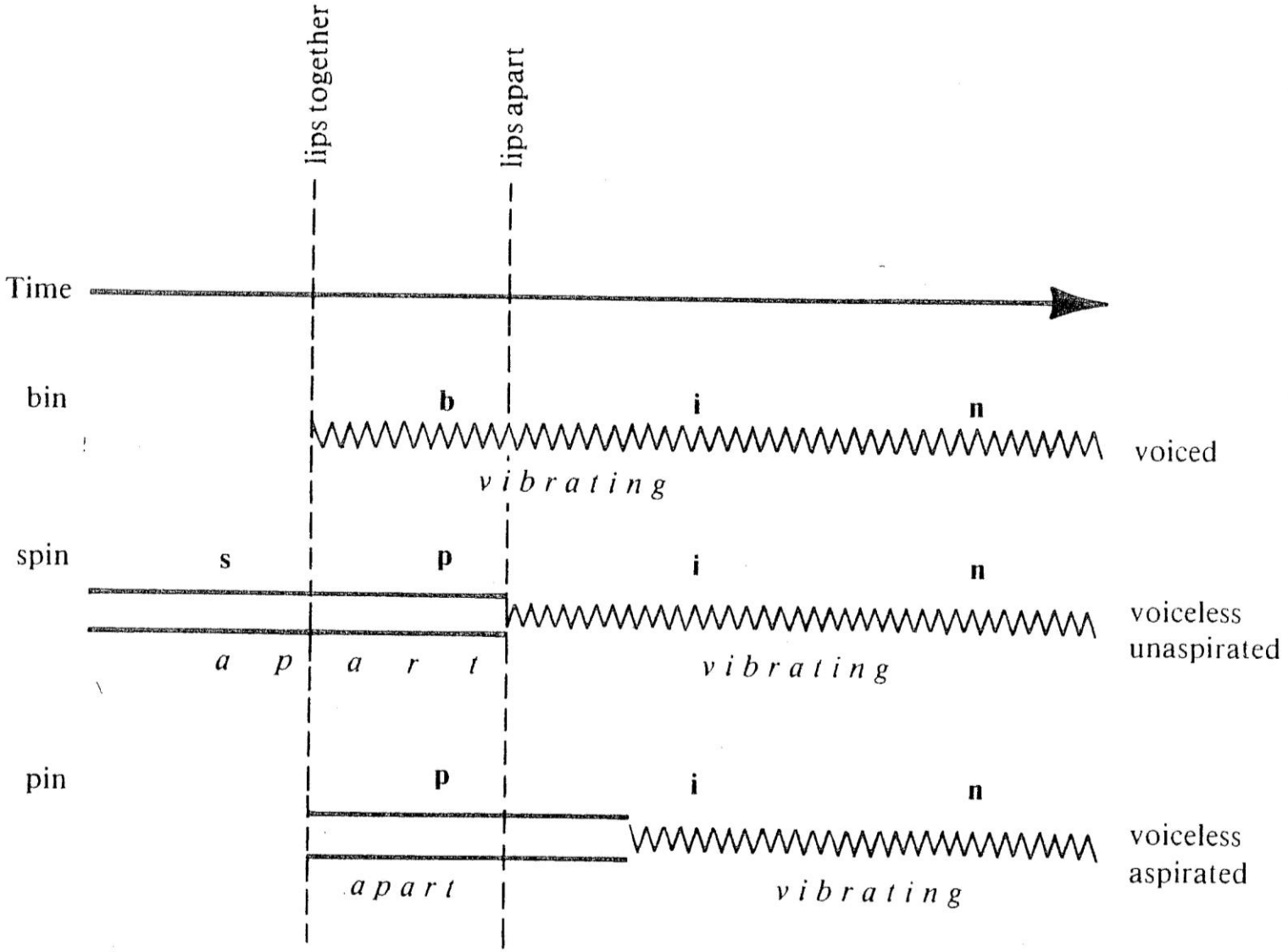
- Form a complete obstruction to the airflow
- Produced in two phases:
  - Hold and release
- The acoustic source is the burst
- In English: 3 places of articulation







Plosives and VOT

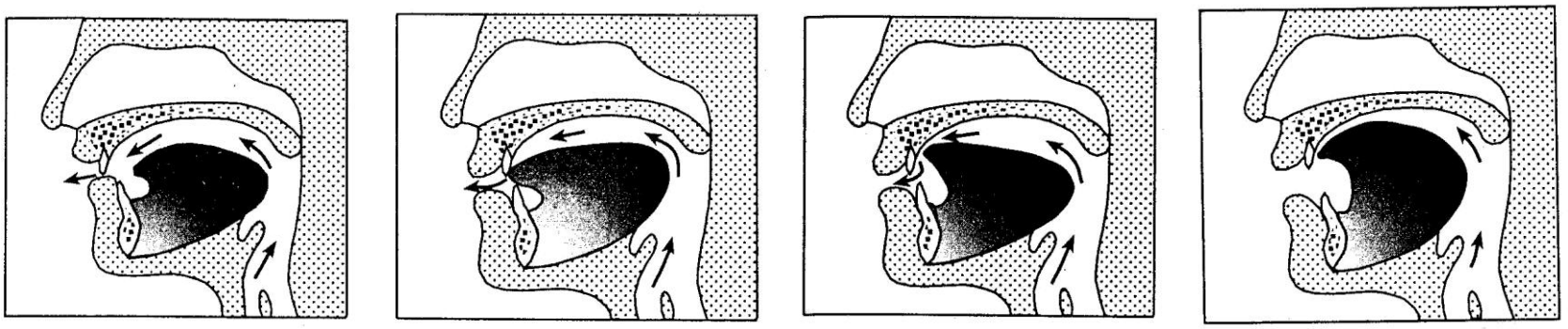


Plosives (cont'd)

- Phonemic contrast: voiced vs. voiceless
- Phonetic contrast: aspirated vs. unaspirated
- Word-initially
  - VOT is the main cue
- Word-finally
  - Preceding vowel duration is an important cue

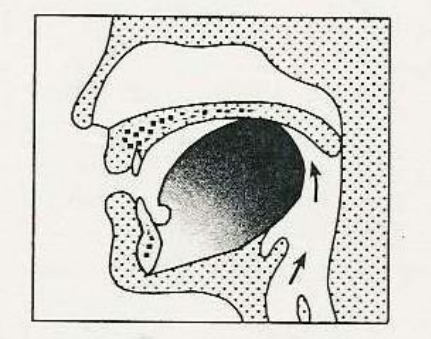
Fricatives

- Form a very close but not complete obstruction to the airflow
- Produced in a single phase
- The acoustic source is the noise
- In English: 5 places of articulation
- Alveolars and palato-alveolars create turbulent flow and thus have a strong high-frequency noise, they are also called sibilants



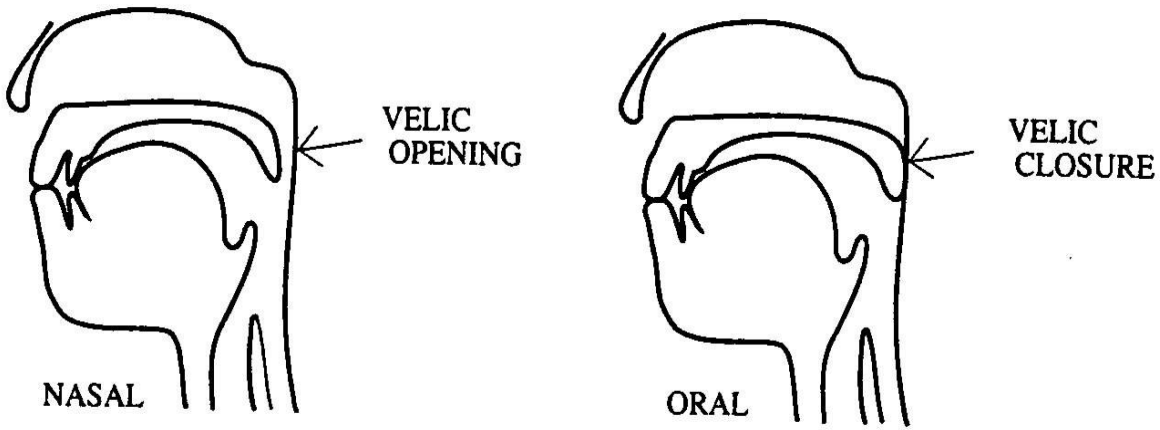
Affricates

- Start as plosives and end as fricatives
- Produced in two phases
  - Hold and SLOW release
- The acoustic source is the burst together with the noise
- In English: a single place of articulation



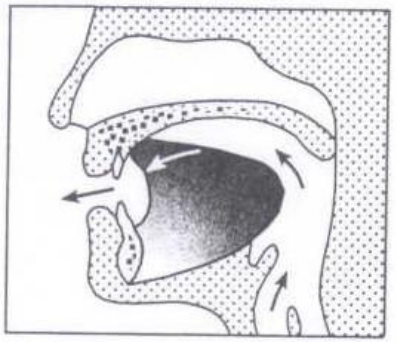
Nasals

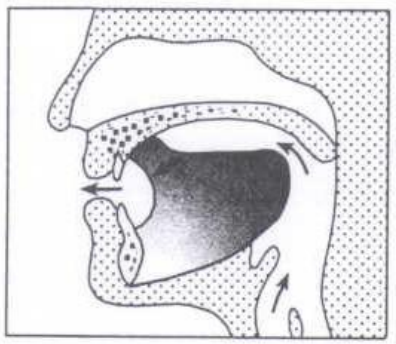
- Plosives with lowered velum
  - Complete obstruction in the oral cavity
  - Three places of articulation: bilabial, alveolar, velar
  - Air escapes through the nose



Lateral

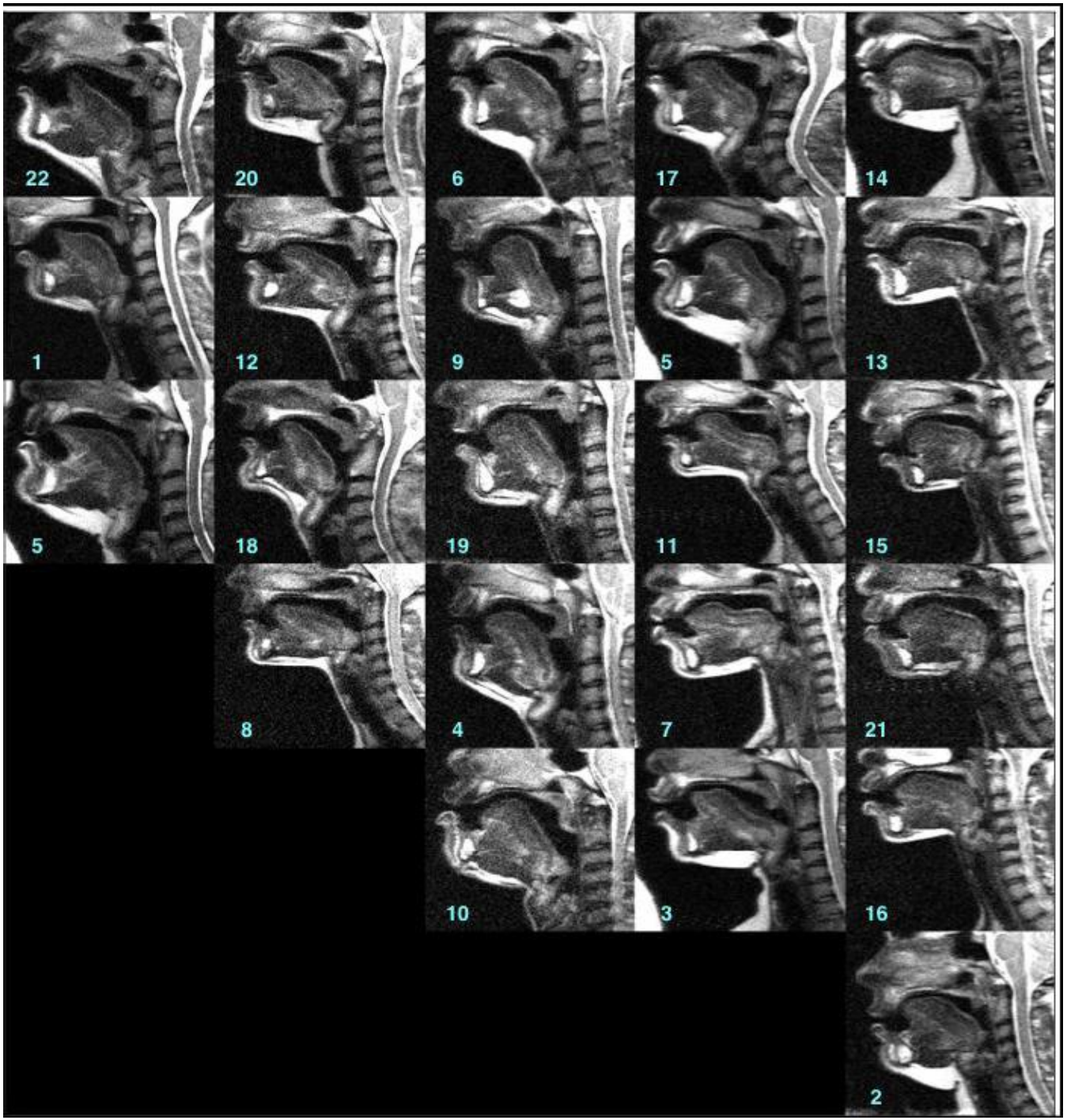
- Alveolar sound: tongue blade touches the alveolar ridge
- The sides of the tongue are lowered
- In fact, English has two kinds of /l/
  - Based on the action of the tongue dorsum: clear [l] and dark [ɫ]
  - Distribution?





English /r/

- Considered an approximant
  - Obstruction is not as close as for fricatives but closer than for vowels
- It is different from Slovak/Hungarian apico-alveolar trill, hence a different symbol [ɹ]
- Can be made with several different tongue positions that sound acoustically similar



Tiede et al. 2004

Glides (semivowels) [j] & [w]

- The type of obstruction is very similar to high vowels [i] and [u]
- The crucial difference is the rapid movement to and from the obstruction
- Compare [j] and [l]
- Rare voiceless labio-velar glide [ʍ]

Summary of native language interference in consonants

- Slovak & Hungarian
  - Dentals [θ,ð] produced as continuants, avoid lip-activity or retraction of the tongue toward [s,z]
  - Aspiration for voiceless stops starting stressed syllables
  - Voiceless [h]
  - Velar nasal [ŋ] possible w/o following [k,g]
  - Alveolars do not touch the teeth
  - English [ɹ], several articulatory strategies, use your ear training to find your own
- Hungarian
  - Dark [l] (end of syllables)