# English Phonology

Articulatory Phonetics I

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- We are interested in how they are made (speech) and how they are perceived (hearing)
- In order to understand the nature of sound systems, it is important to first understand the apparatus employed to produce the sounds

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- All physiological aspects of speech serve other purposes also
- Our focus is on the language-specific aspects of physiology

# The Subglottal Region

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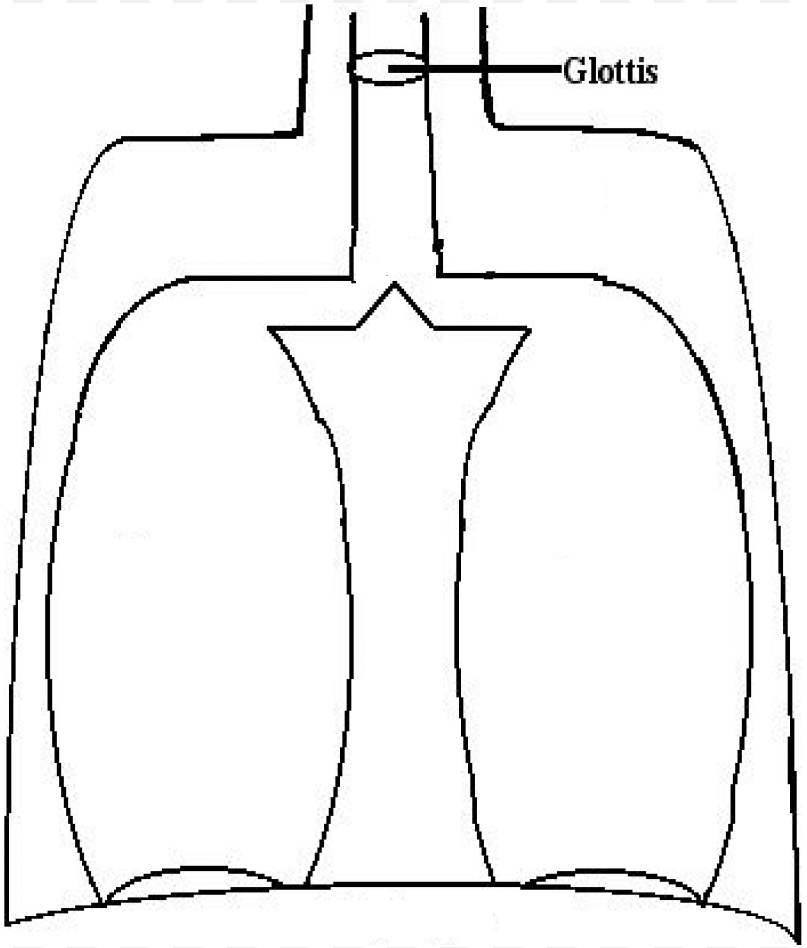

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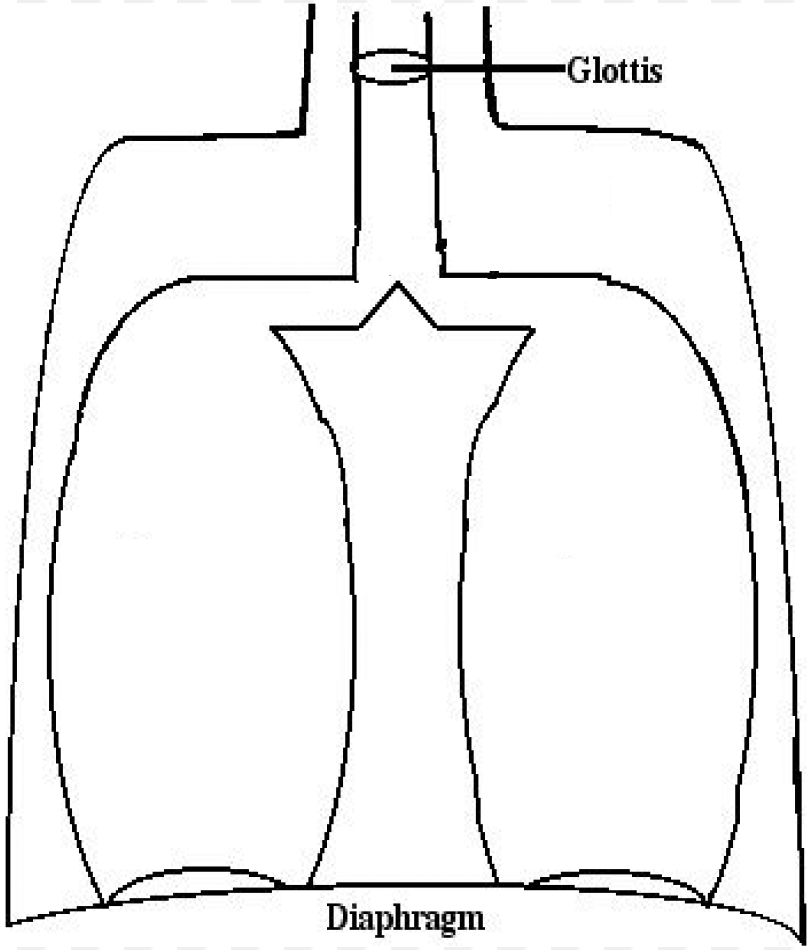

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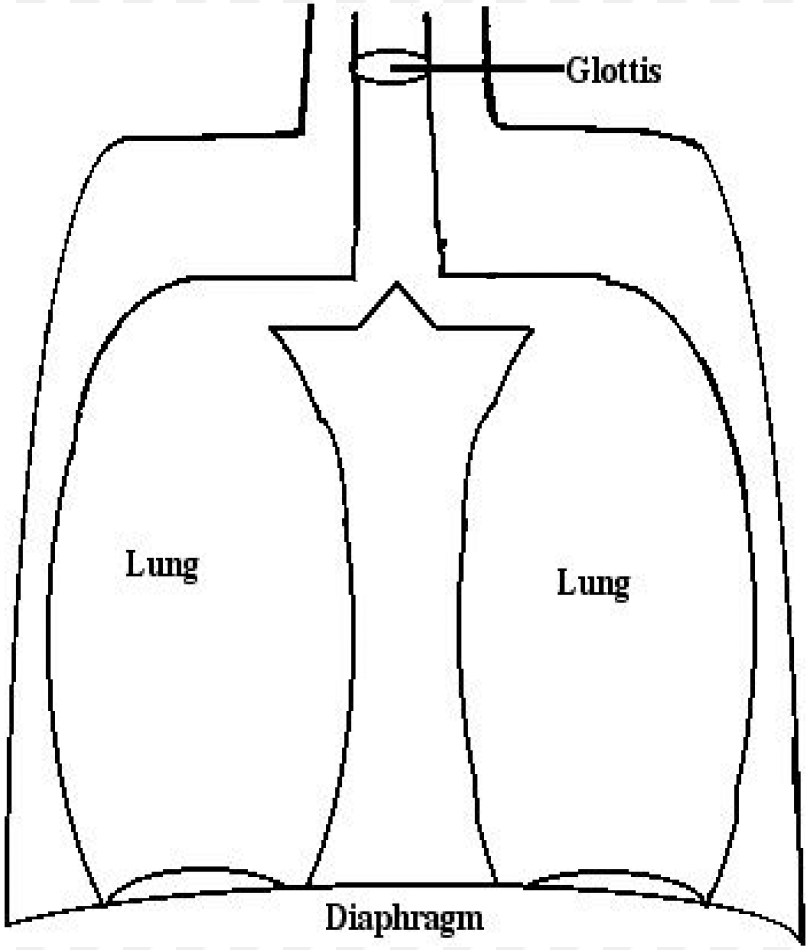

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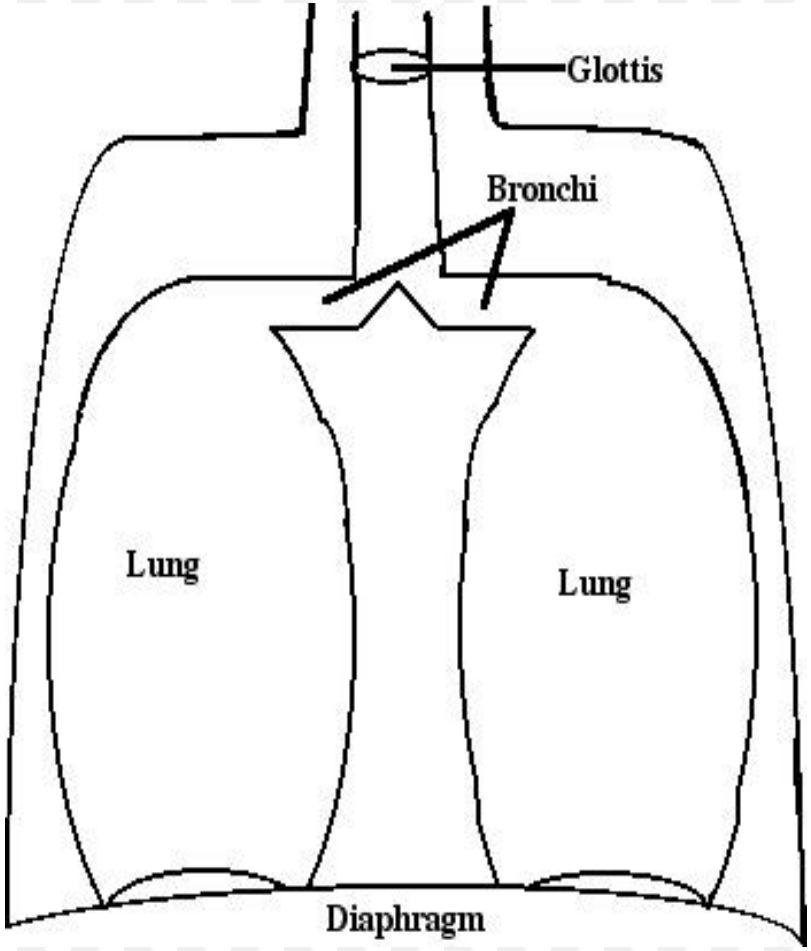

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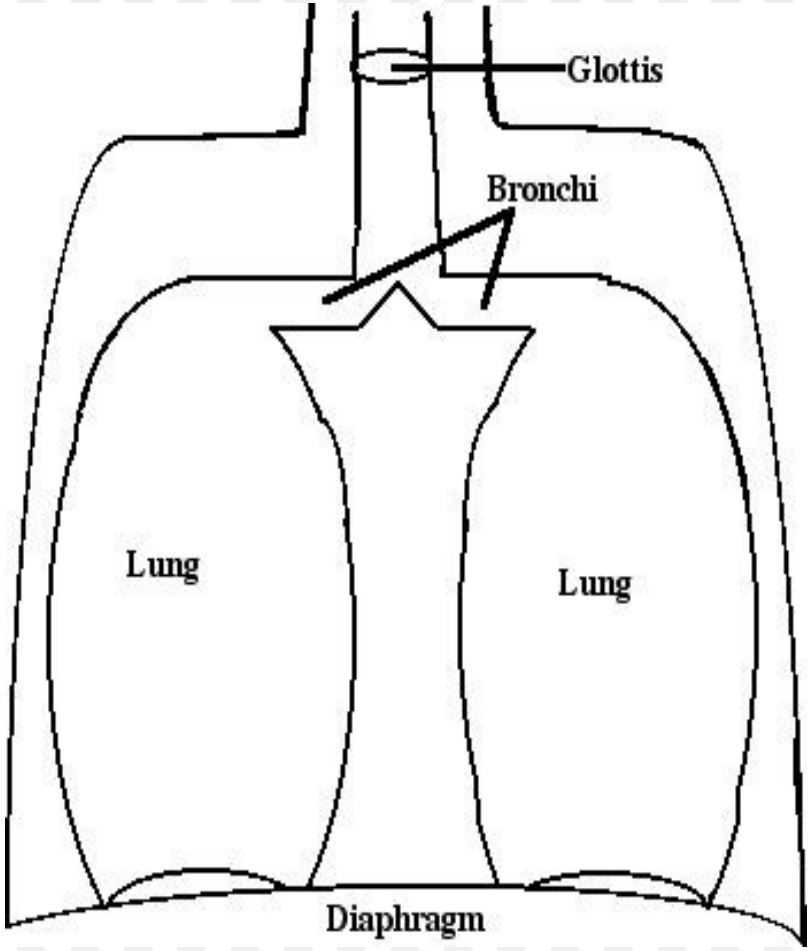
- This air is used in making speech sounds (and for breathing!)



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- The larynx is made of cartilage

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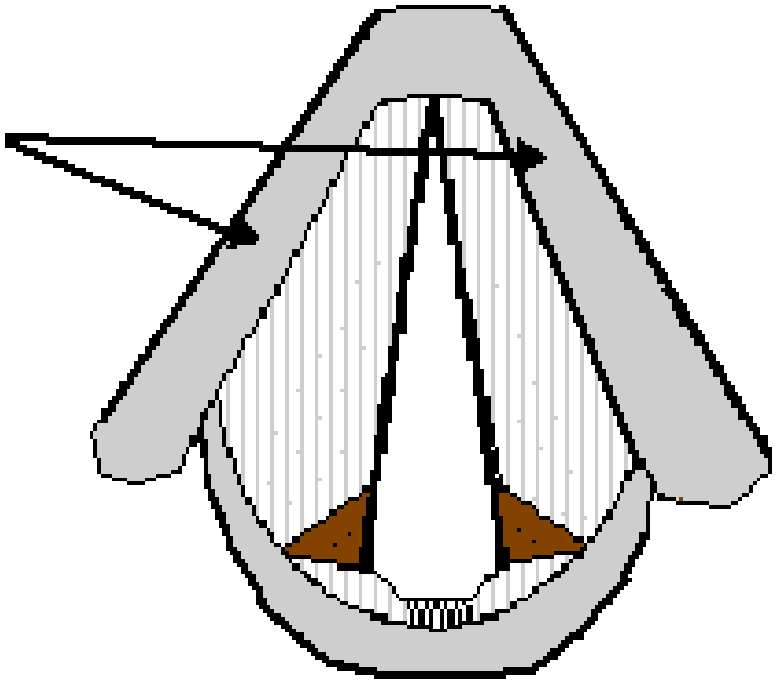
Cartilage



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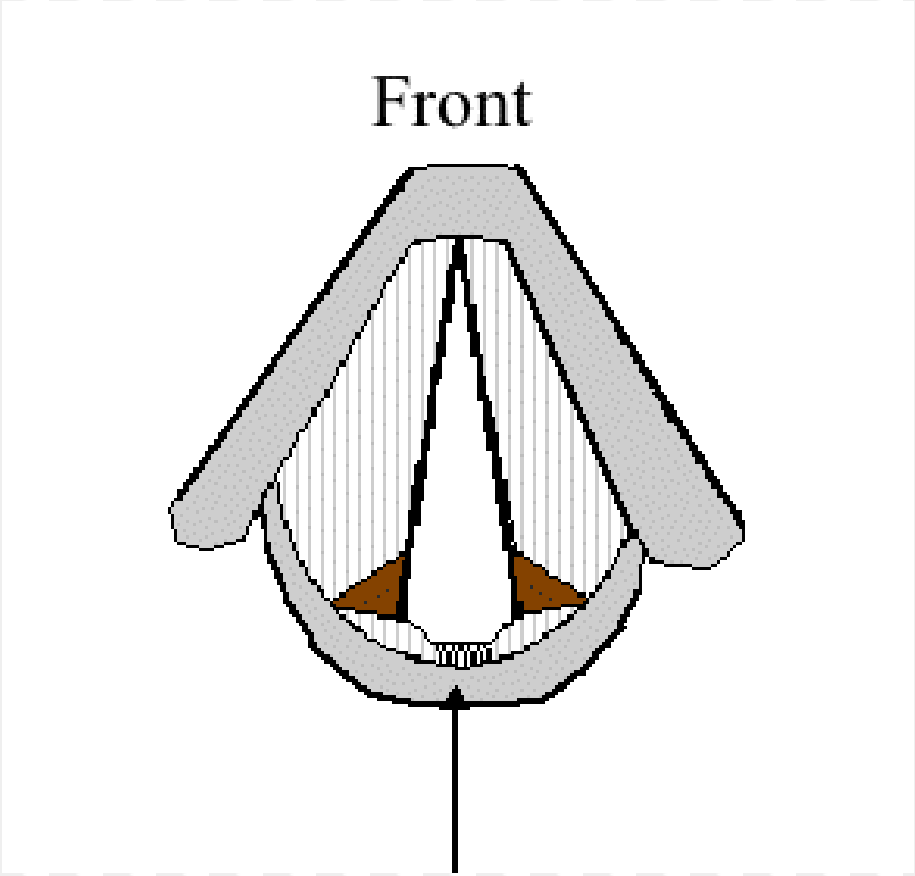


Cricoid Cartilage

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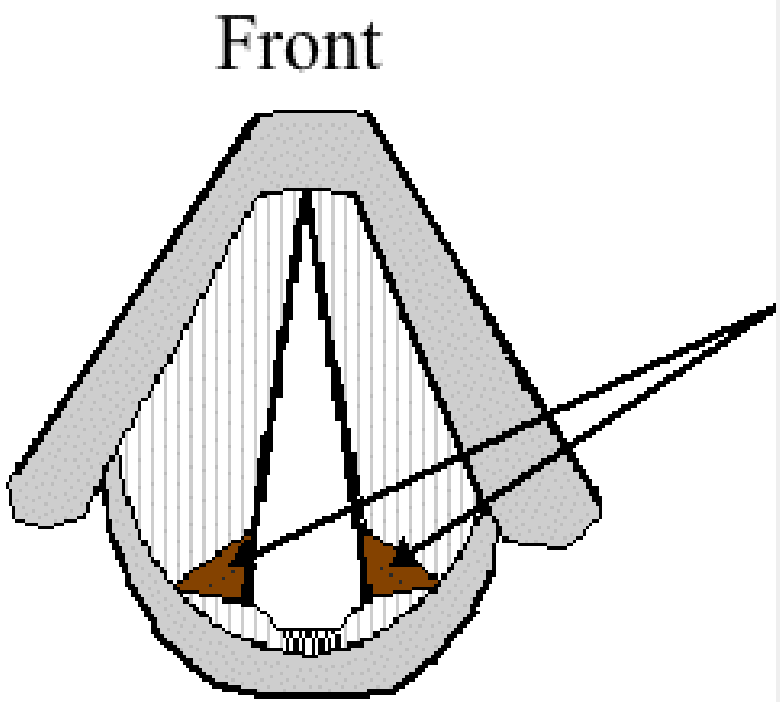


Arytenoid Cartilages

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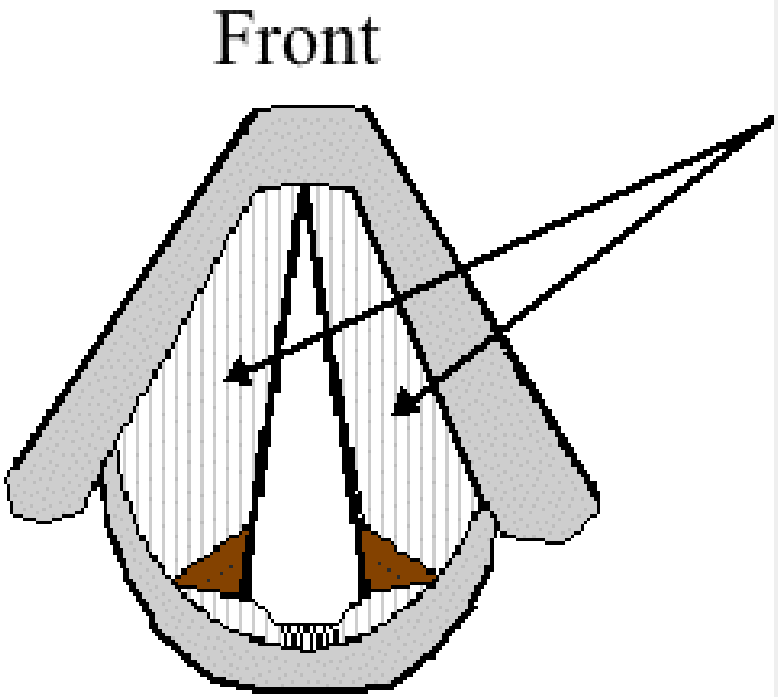


Vocal Folds or
Vocal Chords

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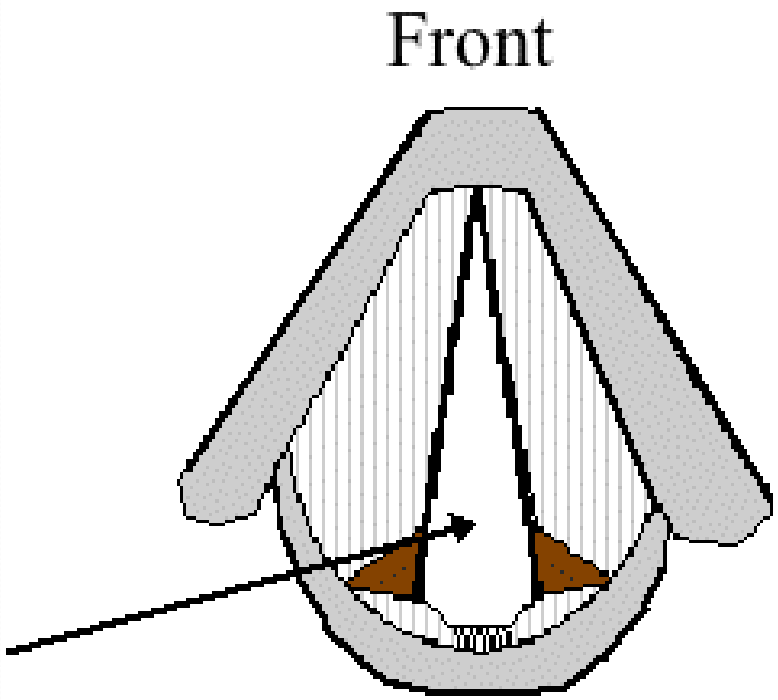


Glottis

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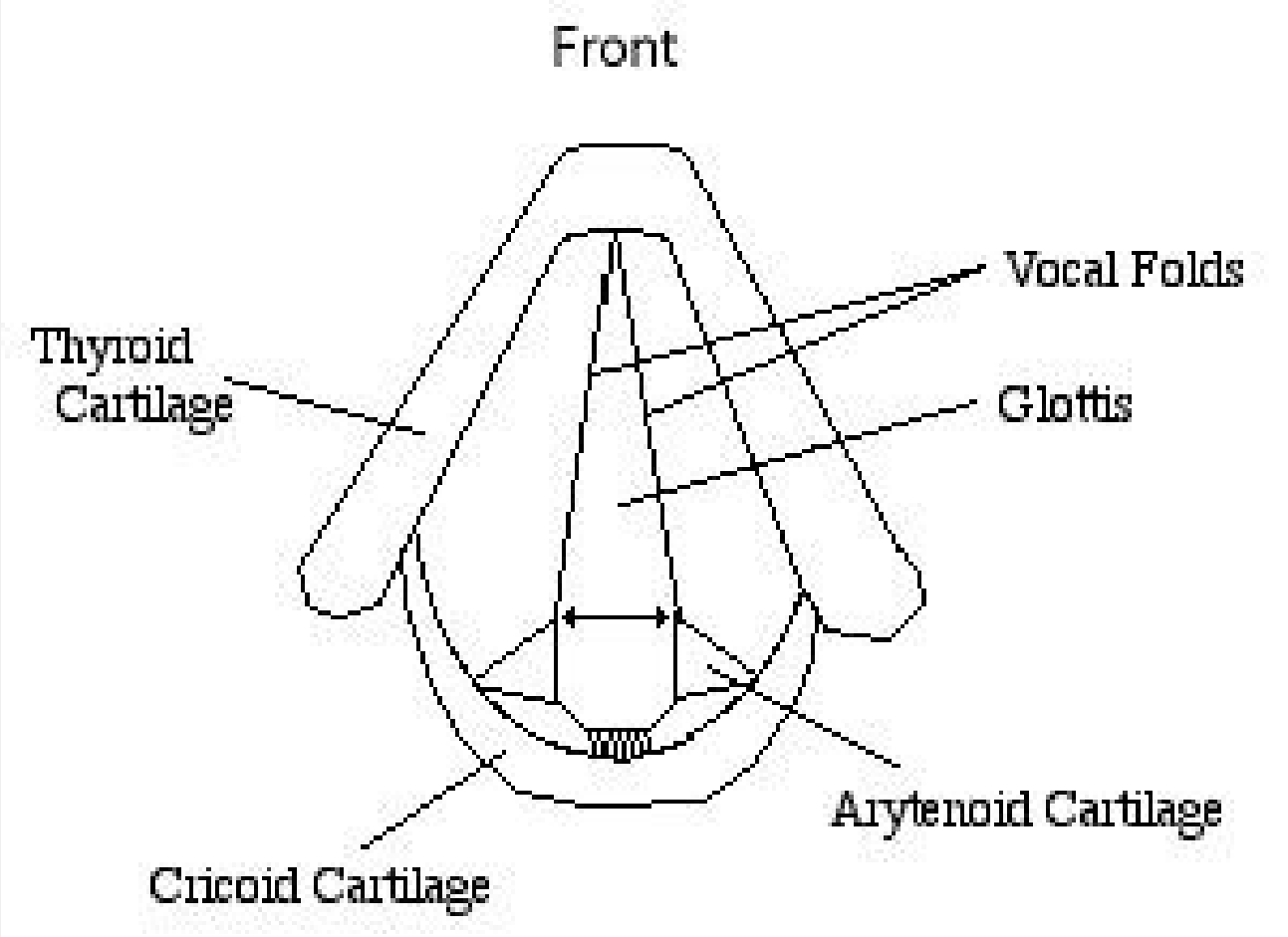
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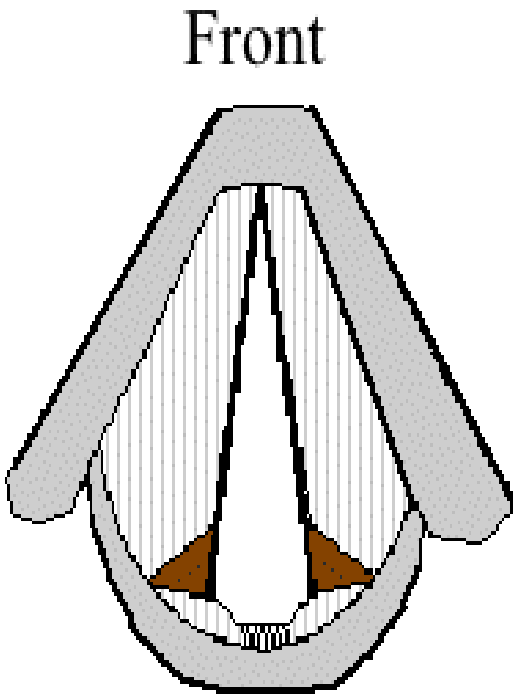

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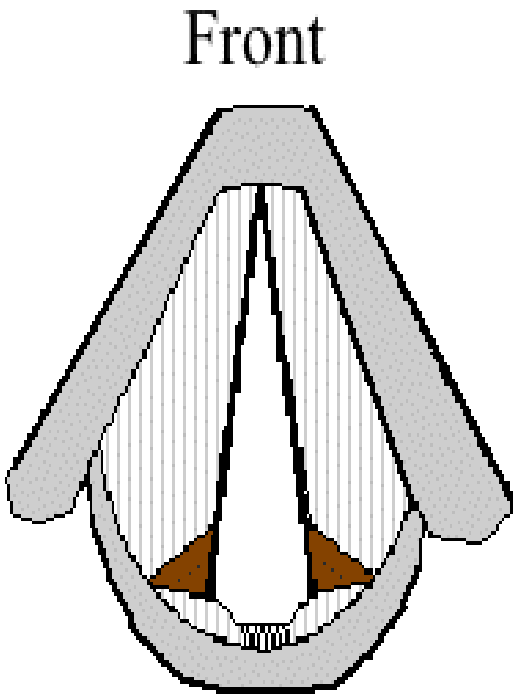

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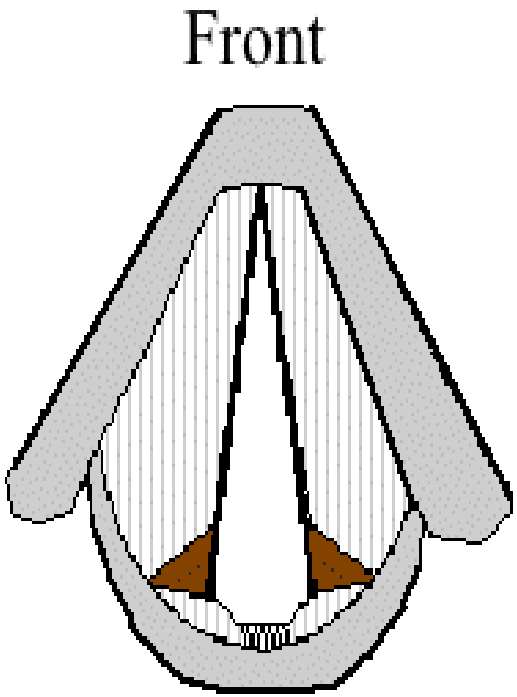

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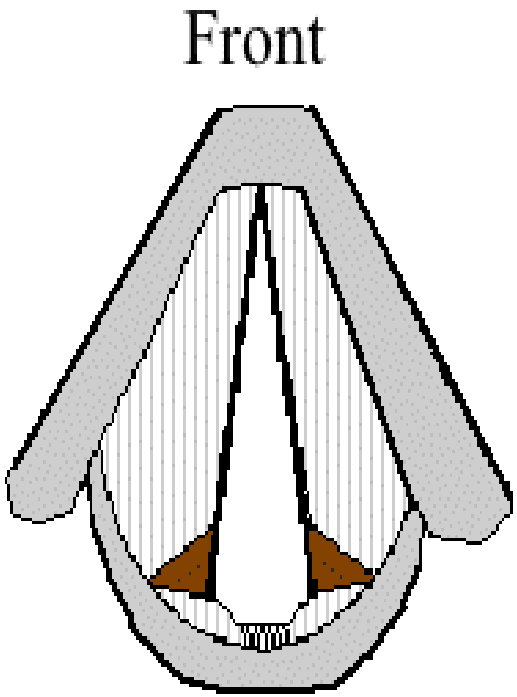
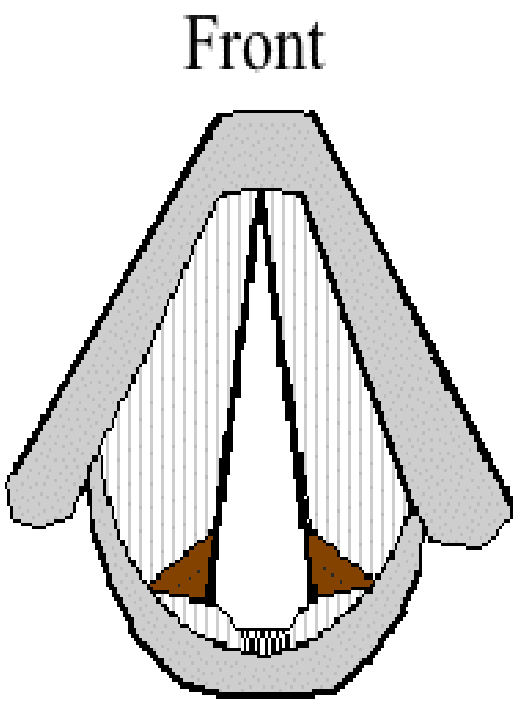
- a characteristic of both consonants and vowels



# Voicing

- you can feel the vibration if you place your fingers on your larynx and say *zzzzz*, which is a voiced sound
- now compare this with *sssss*
- less vibration with [s], since it is voiceless
- voiced segments include [b], [m], [ j] and [a].
- Voicing is a significant factor in the sound systems of most languages



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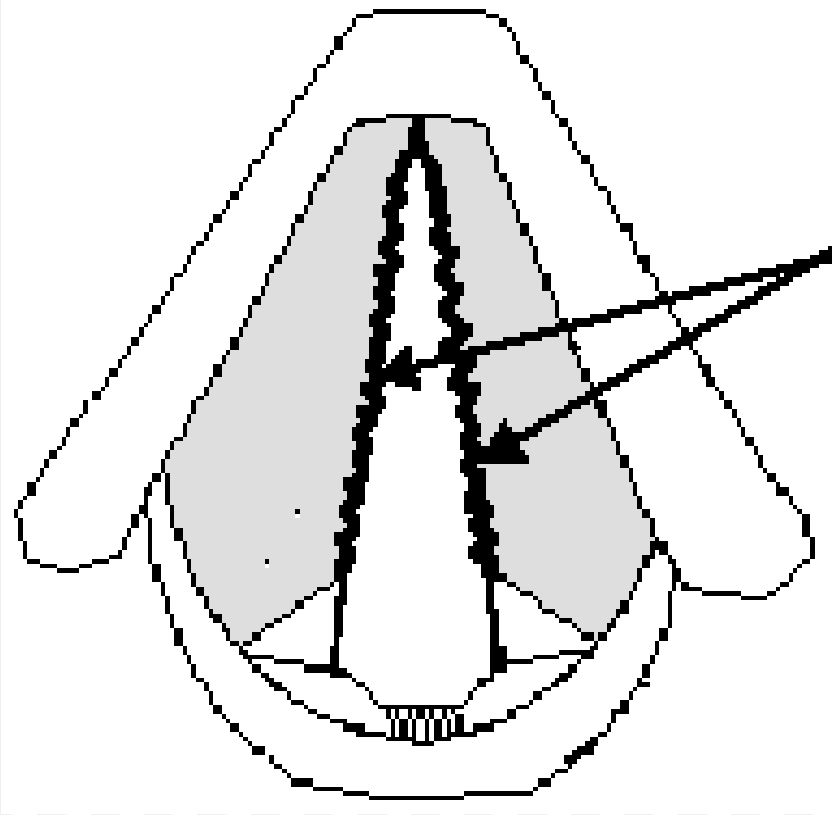

Vibrating
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- the term plosive refers to the release phase of the articulation, when the air explodes from the oral cavity

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- it is similar to the spray that occurs when you restrict the flow of water from a hose by putting your finger over the end

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- [h], as in *high* or *help*, is also considered a fricative by most linguists

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- this presents a challenge for Korean learners of English

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- similarly, a combination of [t] and [ʃ], which appears

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- Korean has three distinct affricates:
  - [ʧ], as in 잘 `good' [ʧal]
  - [ʧʰ], as in 친구 `friend' [ʧʰɪŋgu]
  - [ʧ’], as in 쪽 `page' [ʧ’ok]

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- Korean has the same three nasals in the same position, e.g. kɔ[m] 검 `sword', pʰa[n] 판 `board', to[ŋ] 동 `East'

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- other linguists have described English r as `retroflex'

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- it varies between the two liquids according to the environment

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- The nasal cavity may also be involved, producing nasal sounds

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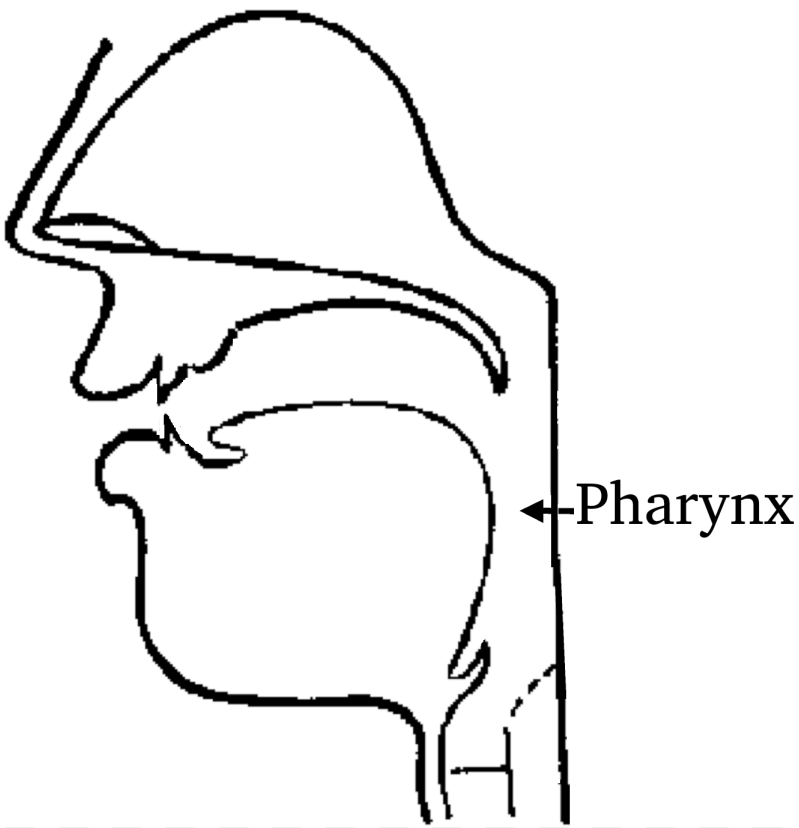
  - 1. Pharynx



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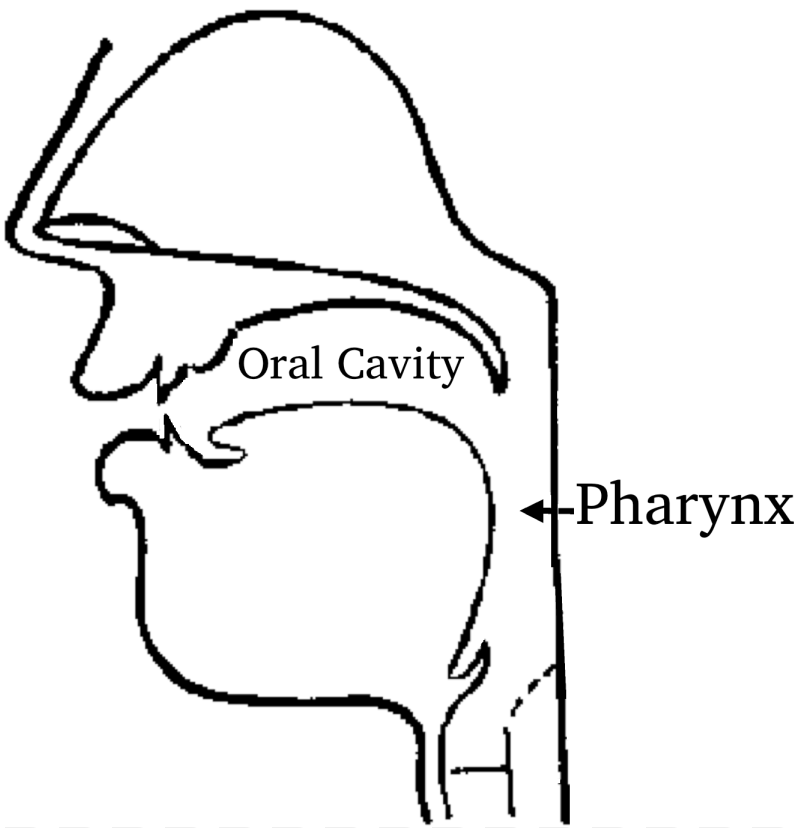
  - 1. Pharynx
  - 2. Oral cavity



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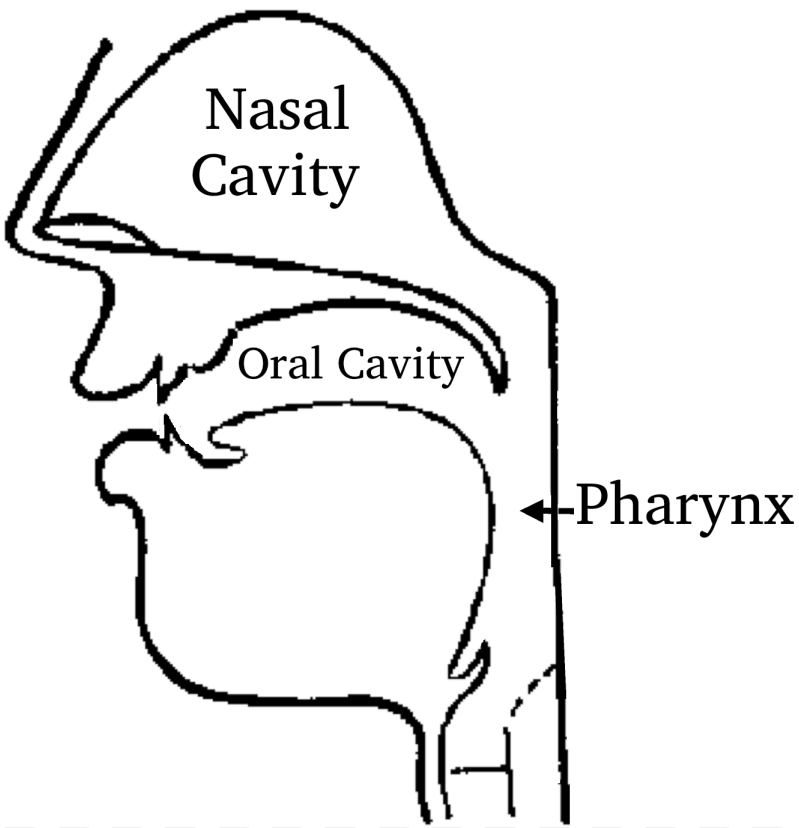

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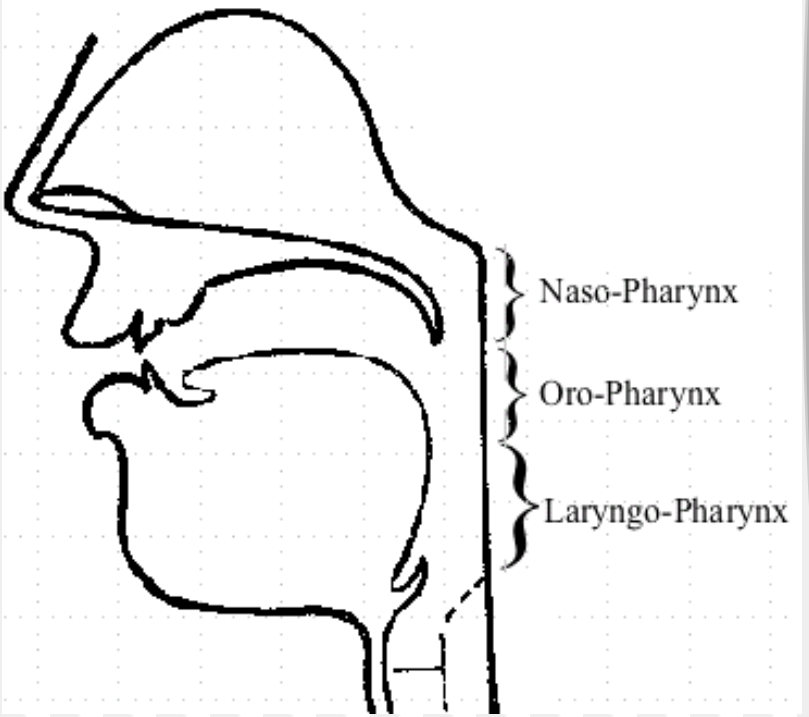

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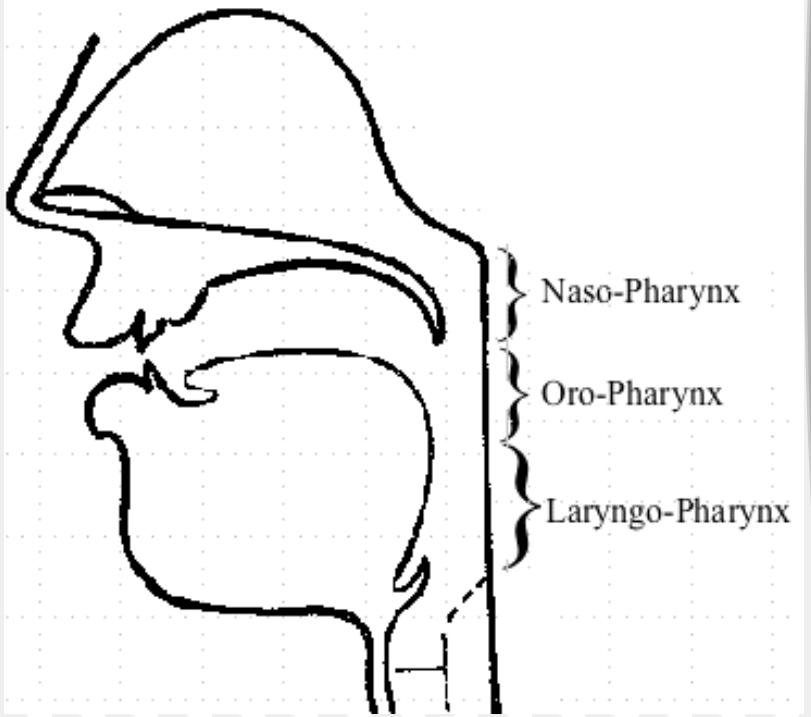

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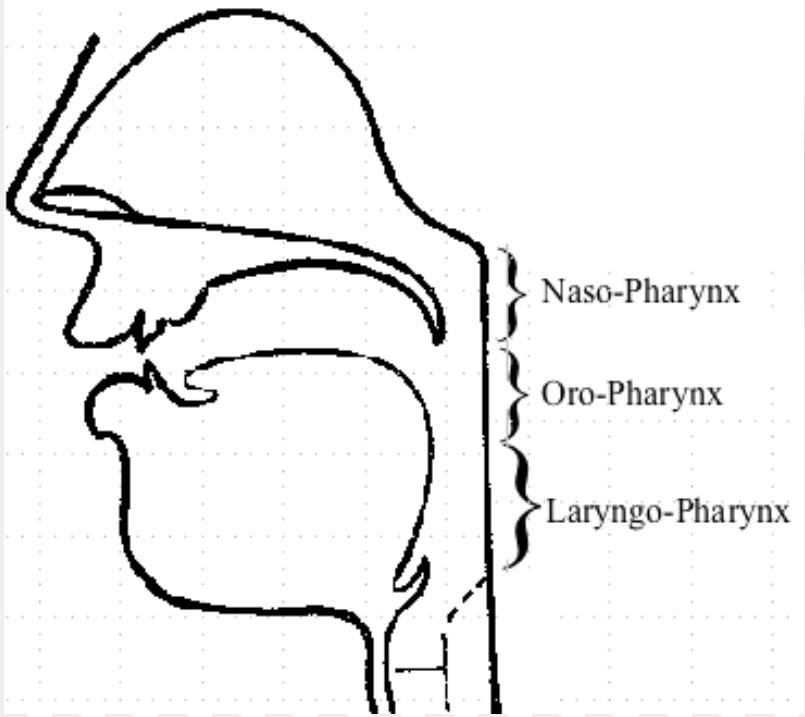
- This makes pharyngeal sounds like ħ and ʕ



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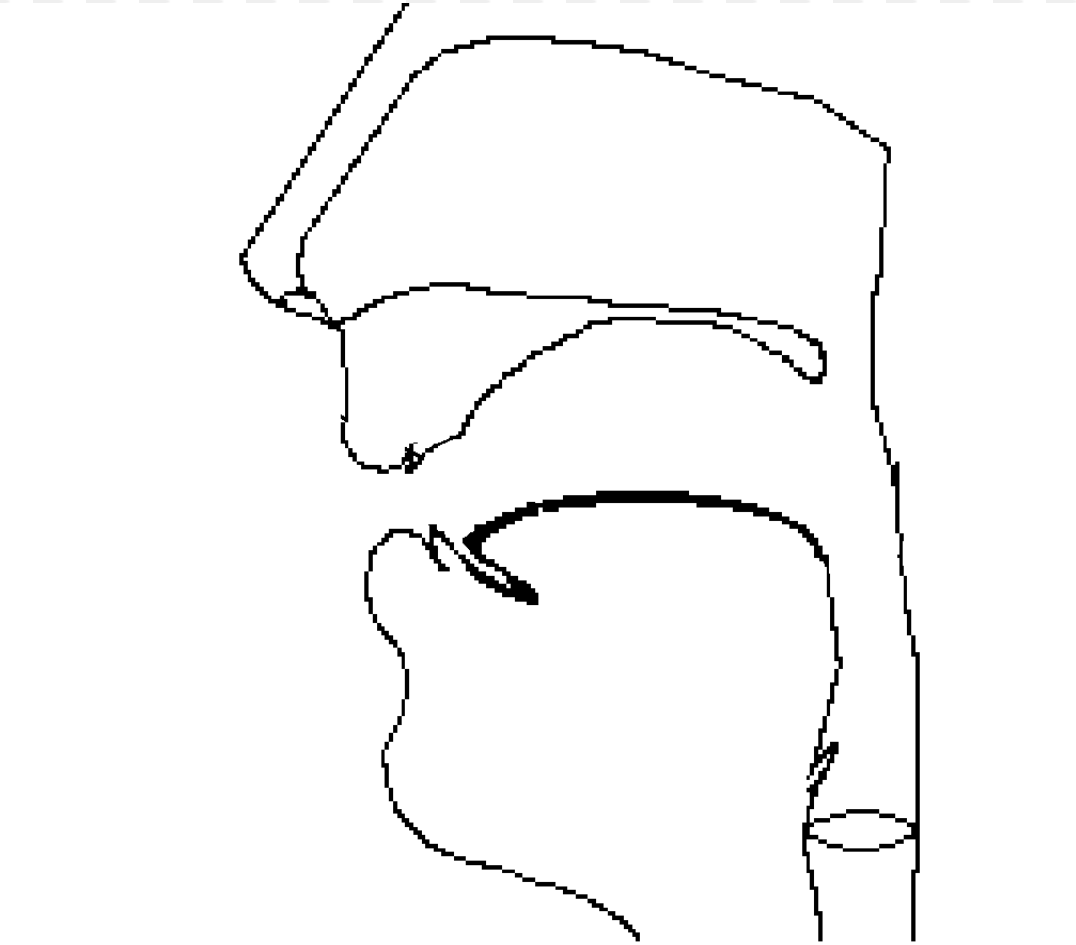
- an important aspect of this production is the use of various articulators, which make contact or come close to different parts of the oral cavity
- depending on where the articulators make contact, different sounds are produced

# The Tongue



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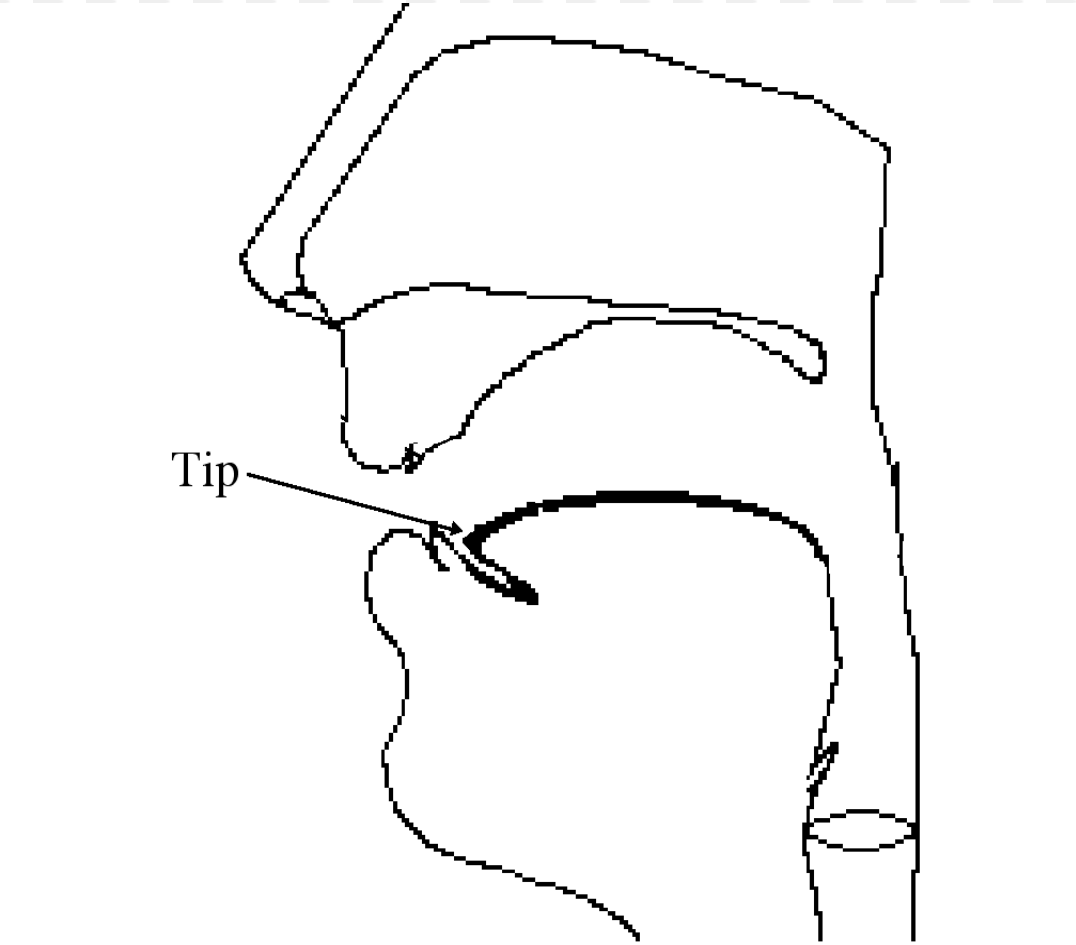

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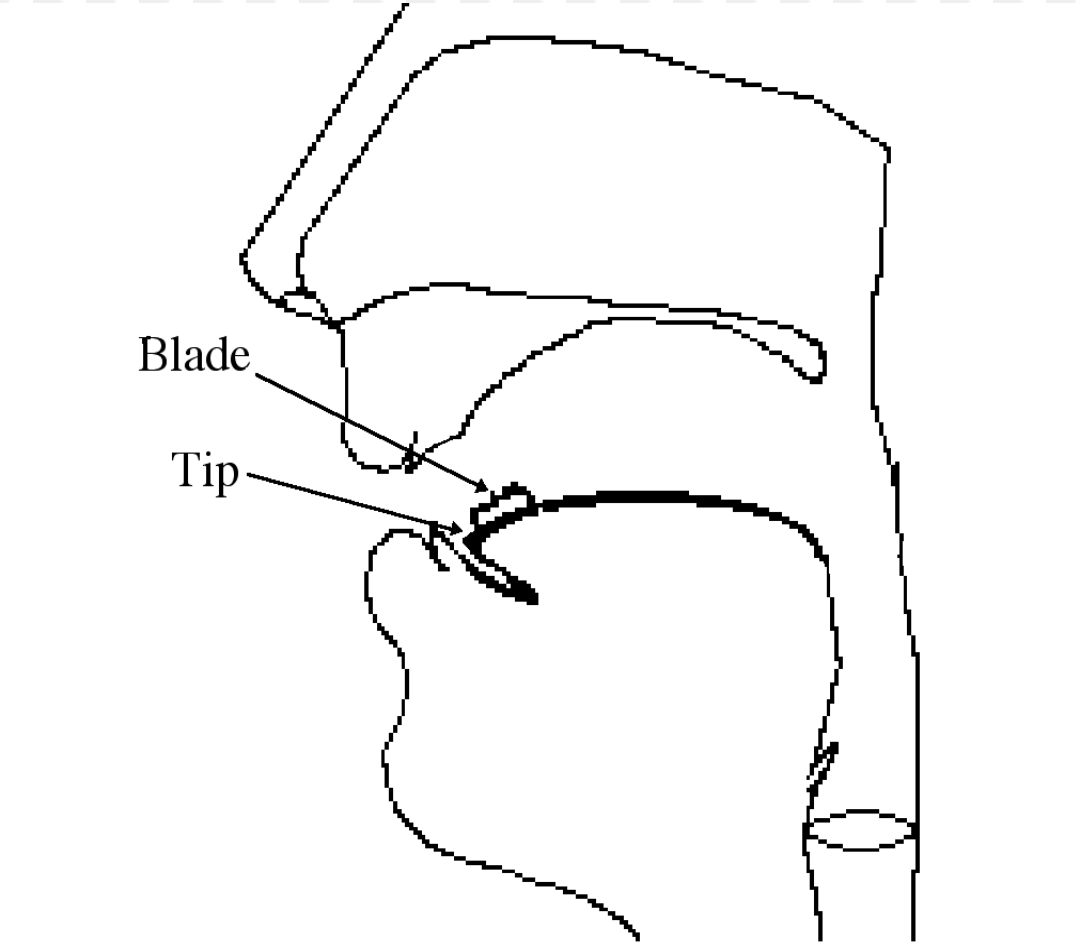

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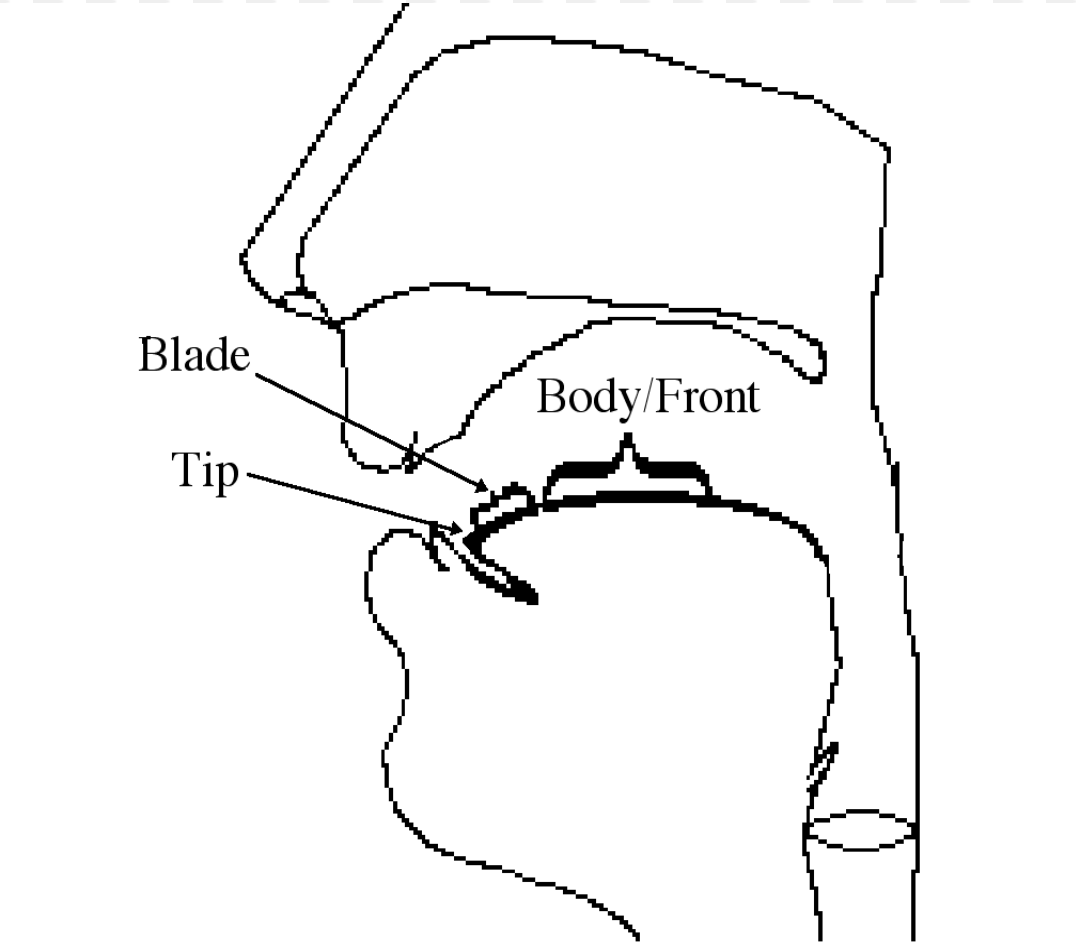

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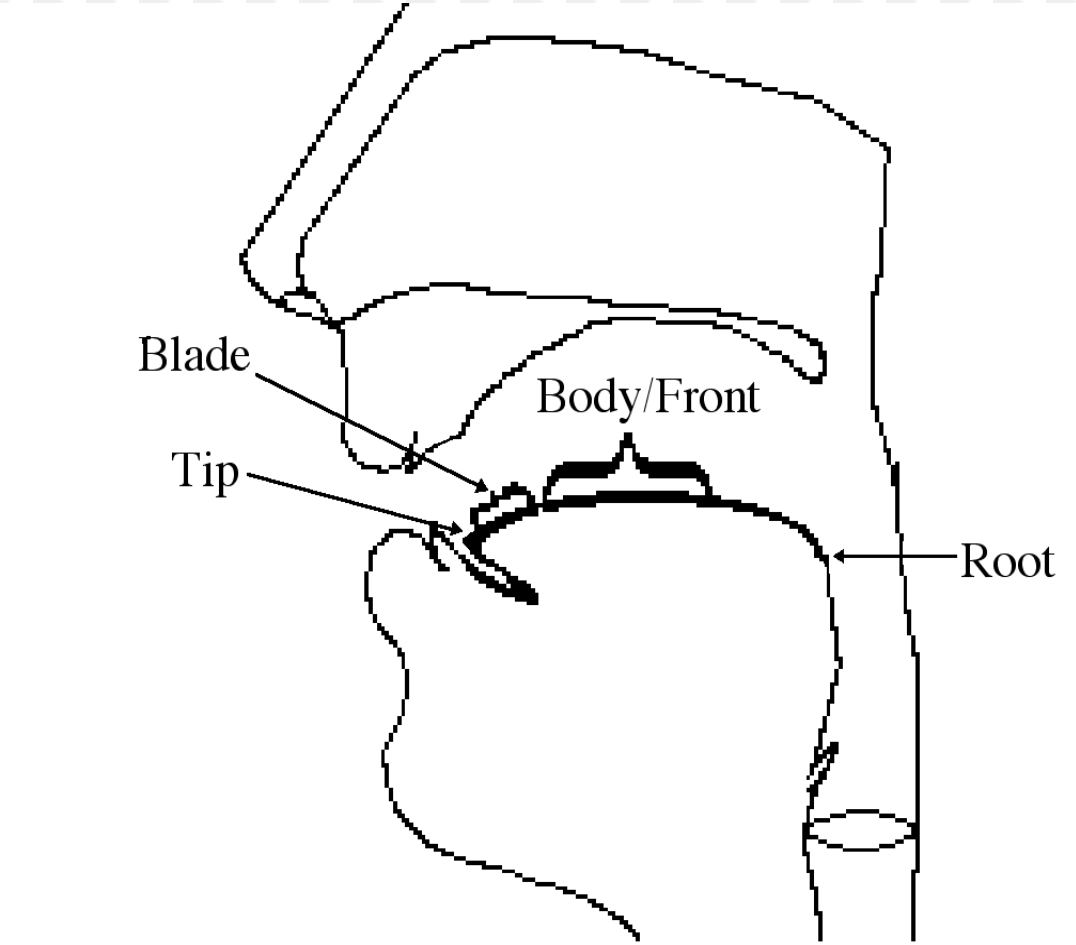

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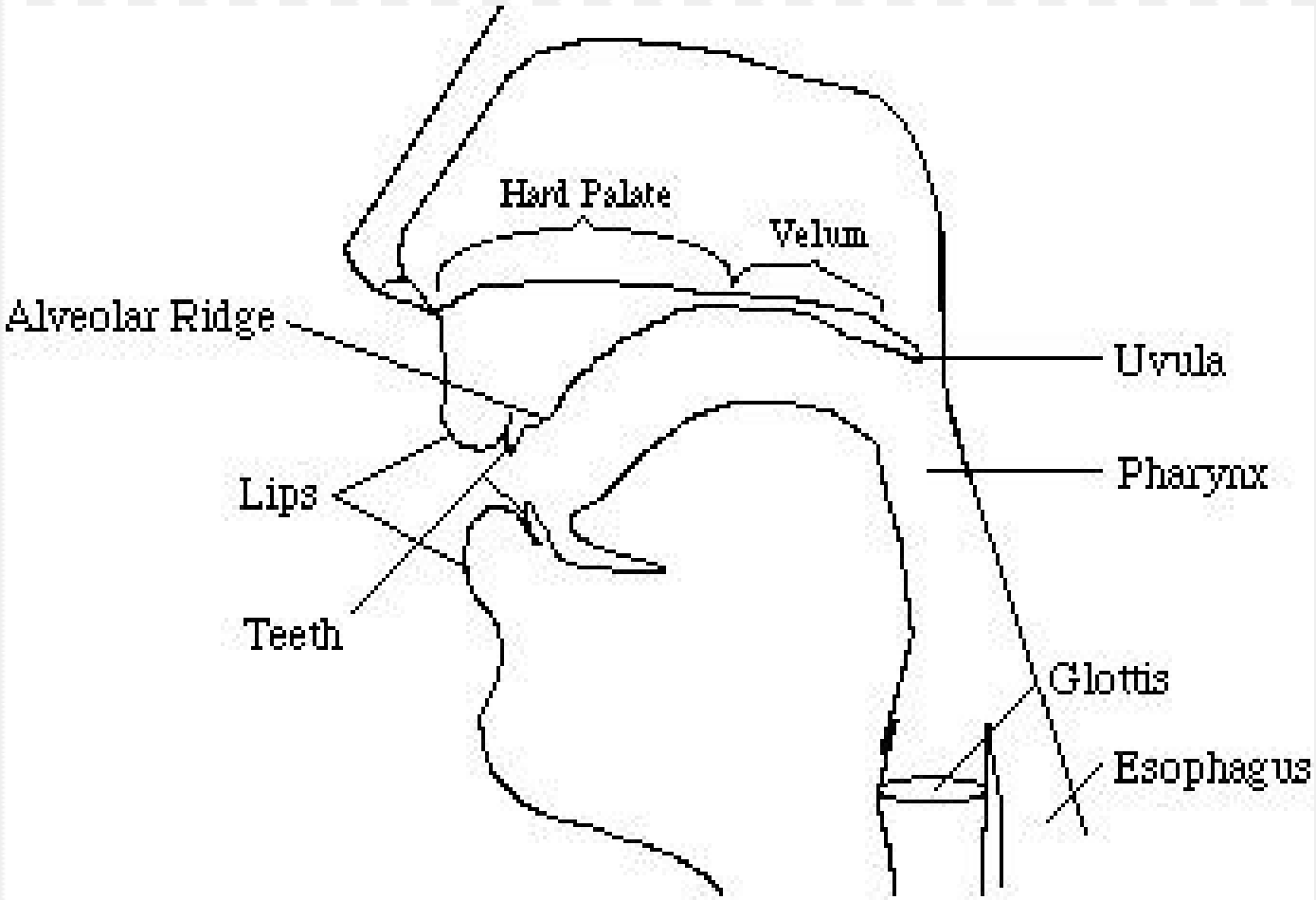
- there are a number of places where this can occur
- each combination produces a different sound represented in the IPA chart
- some combinations are not possible, e.g. lips with pharynx, tongue and glottis, etc.

# Vocal Tract Anatomy



# IPA Places of Articulation

The IPA divides the vocal tract into 11 different places:

- 1.Bilabial
- 2.Labiodental
- 3.Dental
- 4.Alveolar
- 5.Postalveolar
- 6.Retroflex
- 7.Palatal
- 8.Velar
- 9.Uvular
- 10. Pharyngeal
- 11. Glottal

# THE INTERNATIONAL PHONETIC ALPHABET (revised to 2005)

## CONSONANTS (PULMONIC)

© 2005 IPA

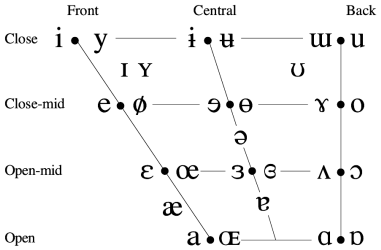
| | Bilabial | Labiodental | Dental | Alveolar | Postalveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | | r | | | | | ʀ | | |
| Tap or Flap | | ⱱ | | ɾ | | ɽ | | | | | |
| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
| Lateral fricative | | | | ɬ ɮ | | | | | | | |
| Approximant | | ʋ | | ɹ | | ɻ | j | ɰ | | | |
| Lateral approximant | | | | l | | ɭ | ʎ | ʟ | | | |

Where symbols appear in pairs, the one to the right represents a voiced consonant. Shaded areas denote articulations judged impossible.

## CONSONANTS (NON-PULMONIC)

| Clicks | | Voiced implosives | | Ejectives | |
|---|---|---|---|---|---|
| ʘ | Bilabial | ɓ | Bilabial | ʼ | Examples: |
| ǀ | Dental | ɗ | Dental/alveolar | pʼ | Bilabial |
| ǃ | (Post)alveolar | ʄ | Palatal | tʼ | Dental/alveolar |
| ǂ | Palatoalveolar | ɠ | Velar | kʼ | Velar |
| ǁ | Alveolar lateral | ʛ | Uvular | sʼ | Alveolar fricative |

## VOWELS




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

## OTHER SYMBOLS

- ʍ Voiceless labial-velar fricative
- w Voiced labial-velar approximant
- ɥ Voiced labial-palatal approximant
- ʜ Voiceless epiglottal fricative
- ʢ Voiced epiglottal fricative
- ʡ Epiglottal plosive
- ɕ ʑ Alveolo-palatal fricatives
- ɺ Voiced alveolar lateral flap
- ɧ Simultaneous ʃ and x

Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary. k͡p t͜s

## SUPRASEGMENTALS

- ˈ Primary stress
- ˌ Secondary stress ˌfoʊnəˈtɪʃən
- ː Long eː
- ˑ Half-long eˑ
- ˘ Extra-short ĕ
- ǀ Minor (foot) group
- ǁ Major (intonation) group
- . Syllable break ɹi.ækt
- ‿ Linking (absence of a break)

## DIACRITICS

Diacritics may be placed above a symbol with a descender, e.g. ŋ̊

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ̥ | Voiceless | n̥ d̥ | ̤ | Breathy voiced | b̤ a̤ | ̪ | Dental | t̪ d̪ |
| ̬ | Voiced | s̬ t̬ | ̰ | Creaky voiced | b̰ a̰ | ̺ | Apical | t̺ d̺ |
| ʰ | Aspirated | tʰ dʰ | ̼ | Linguolabial | t̼ d̼ | ̻ | Laminal | t̻ d̻ |
| ̹ | More rounded | ɔ̹ | ʷ | Labialized | tʷ dʷ | ̃ | Nasalized | ẽ |
| ̜ | Less rounded | ɔ̜ | ʲ | Palatalized | tʲ dʲ | ⁿ | Nasal release | dⁿ |
| ̟ | Advanced | u̟ | ˠ | Velarized | tˠ dˠ | ˡ | Lateral release | dˡ |
| ̠ | Retracted | e̠ | ˤ | Pharyngealized | tˤ dˤ | ̚ | No audible release | d̚ |
| ̈ | Centralized | ë | ̴ | Velarized or pharyngealized | ɫ | | | |
| ̽ | Mid-centralized | e̽ | ̝ | Raised | e̝ | | (ɹ̝ = voiced alveolar fricative) | |
| ̩ | Syllabic | n̩ | ̞ | Lowered | e̞ | | (β̞ = voiced bilabial approximant) | |
| ̯ | Non-syllabic | e̯ | ̟ | Advanced Tongue Root | e̟ | | | |
| ̴ | Rhoticity | ə̴ a̴ | ̠ | Retracted Tongue Root | e̠ | | | |

## TONES AND WORD ACCENTS

| LEVEL | | | CONTOUR | | |
|---|---|---|---|---|---|
| ˝ or ˥ | Extra high | | ˇ or ˩˥ | Rising | |
| ˊ | High | | ˆ | Falling | |
| ˉ | Mid | | ˇ | High rising | |
| ˋ | Low | | ˇ | Low rising | |
| ˏ | Extra low | | ˇ | Rising-falling | |
| ↓ | Downstep | | ↗ | Global rise | |
| ↑ | Upstep | | ↘ | Global fall | |

# IPA Consonants

CONSONANTS (PULMONIC) © 2005 IPA

| | Bilabial | Labiodental | Dental | Alveolar | Postalveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | | r | | | | | ʀ | | |
| Tap or Flap | | ⱱ | | ɾ | | ɽ | | | | | |
| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
| Lateral fricative | | | | ɬ ɮ | | | | | | | |
| Approximant | | ʋ | | ɹ | | ɻ | j | ɰ | | | |
| Lateral approximant | | | | l | | ɭ | ʎ | ʟ | | | |

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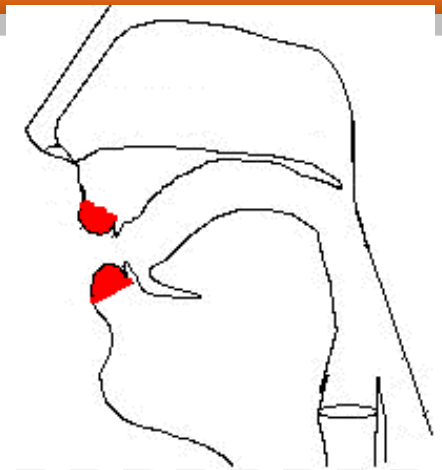

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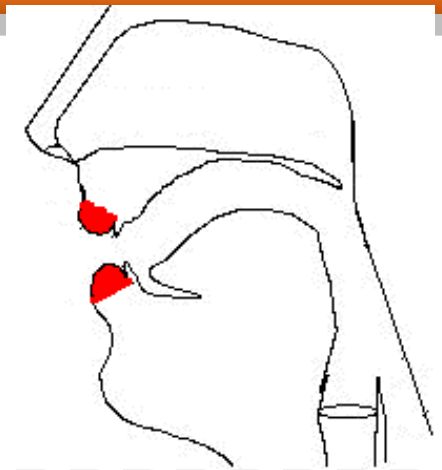

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| Lateral fricative | | | | ɬ ɮ | | | | | | | |
| Approximant | | ʋ | | ɹ | | ɻ | j | ɰ | | | |
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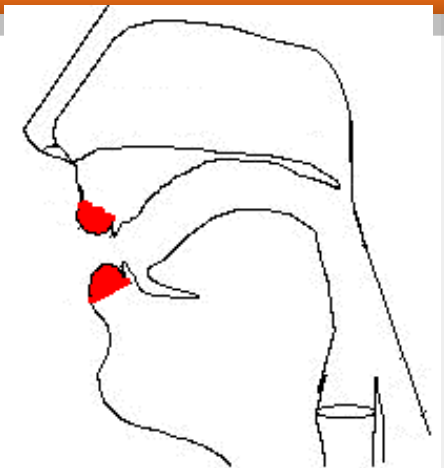

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
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| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
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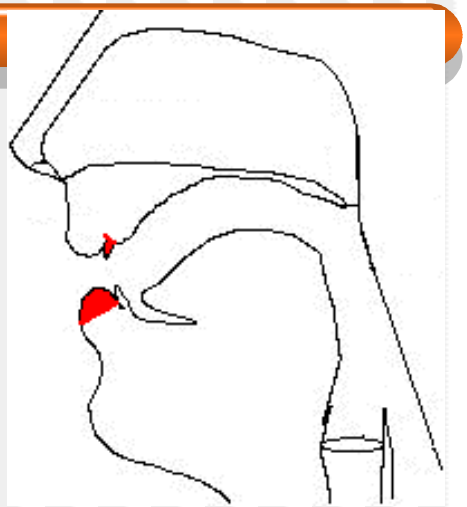

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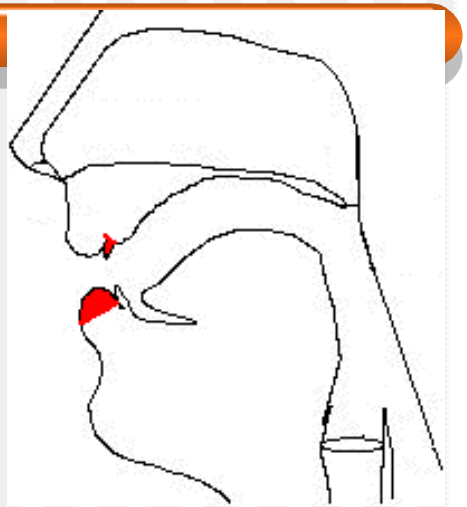

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | | r | | | | | ʀ | | |
| Tap or Flap | | ⱱ | | ɾ | | ɽ | | | | | |
| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
| Lateral fricative | | | | ɬ ɮ | | | | | | | |
| Approximant | | ʋ | | ɹ | | ɻ | j | ɰ | | | |
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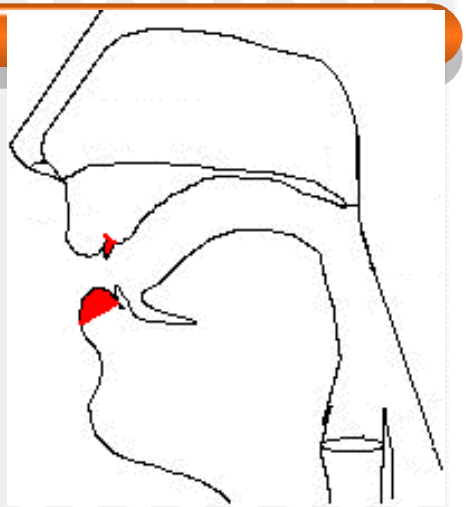

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k ɡ | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | | r | | | | | ʀ | | |
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| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
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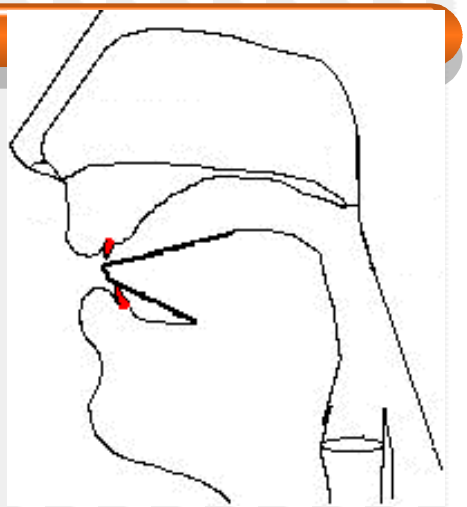

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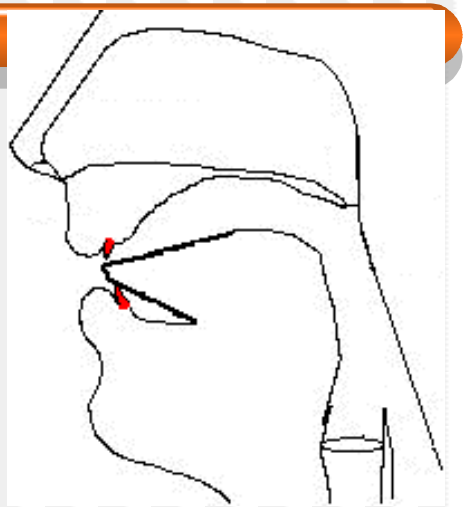

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | | r | | | | | ʀ | | |
| Tap or Flap | | ⱱ | | ɾ | | ɽ | | | | | |
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| Lateral fricative | | | | ɬ ɮ | | | | | | | |
| Approximant | | ʋ | | ɹ | | ɻ | j | ɰ | | | |
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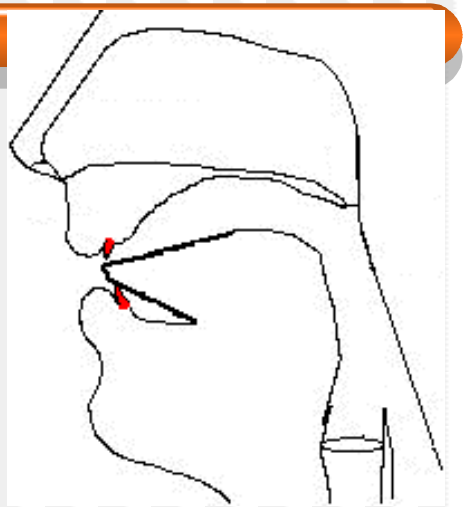

CONSONANTS (PULMONIC) © 2005 IPA

| | Bilabial | Labiodental | Dental | Alveolar | Postalveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
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| Lateral fricative | | | | ɬ ɮ | | | | | | | |
| Approximant | | ʋ | | ɹ | | ɻ | j | ɰ | | | |
| Lateral approximant | | | | l | | ɭ | ʎ | ʟ | | | |

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# Places of Articulation

- Bilabial
- Labiodental
- Dental
- Alveolar

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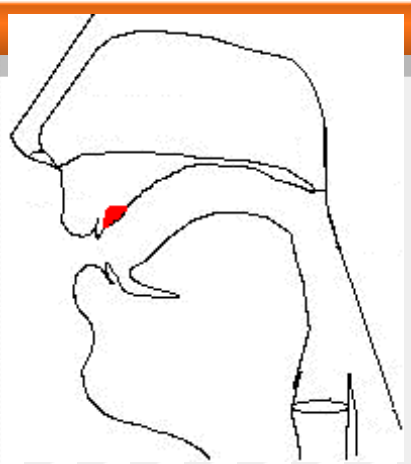

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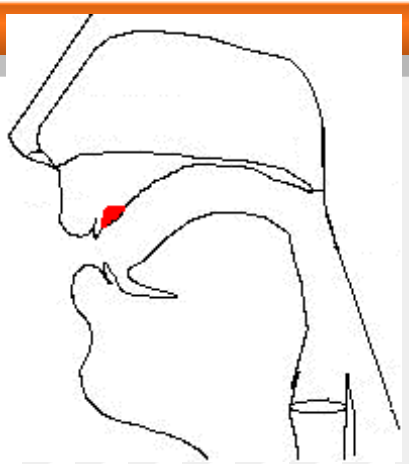

CONSONANTS (PULMONIC) © 2005 IPA

| | Bilabial | Labiodental | Dental | Alveolar | Postalveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | | r | | | | | ʀ | | |
| Tap or Flap | | ⱱ | | ɾ | | ɽ | | | | | |
| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
| Lateral fricative | | | | ɬ ɮ | | | | | | | |
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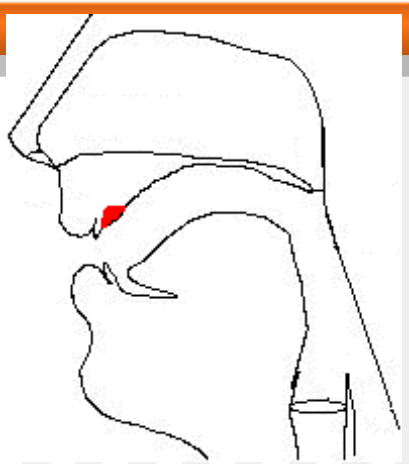

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
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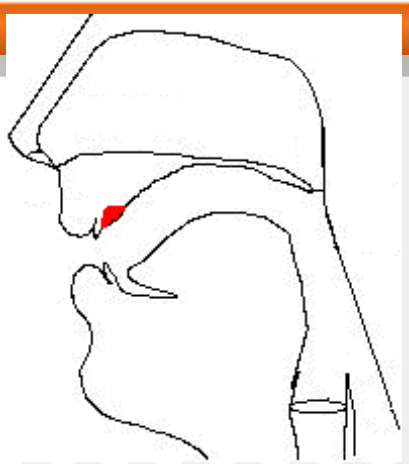

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| | Bilabial | Labiodental | Dental | Alveolar | Postalveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | | r | | | | | ʀ | | |
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| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
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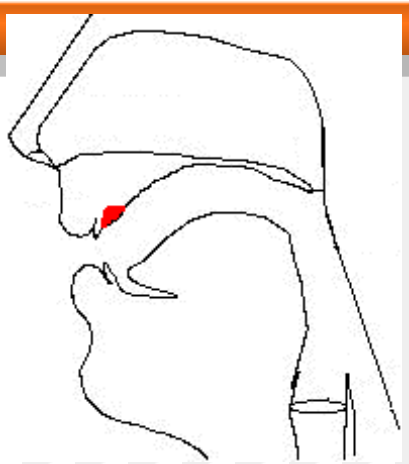

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | | r | | | | | ʀ | | |
| Tap or Flap | | ⱱ | | ɾ | | ɽ | | | | | |
| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
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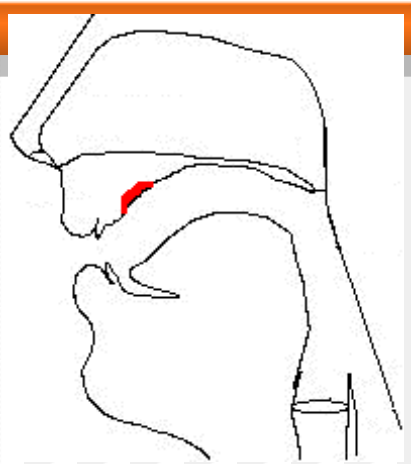

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- Bilabial
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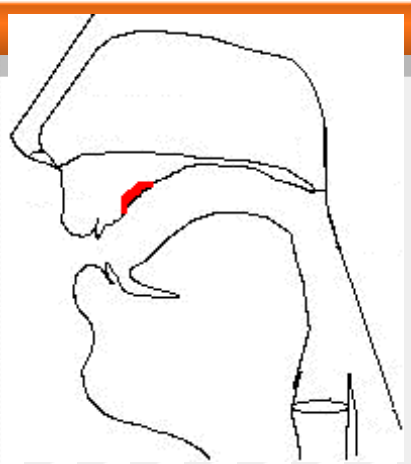

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| | Bilabial | Labiodental | Dental | Alveolar | Post alveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | | r | | | | | ʀ | | |
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| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
| Lateral fricative | | | | ɬ ɮ | | | | | | | |
| Approximant | | ʋ | | ɹ | | ɻ | j | ɰ | | | |
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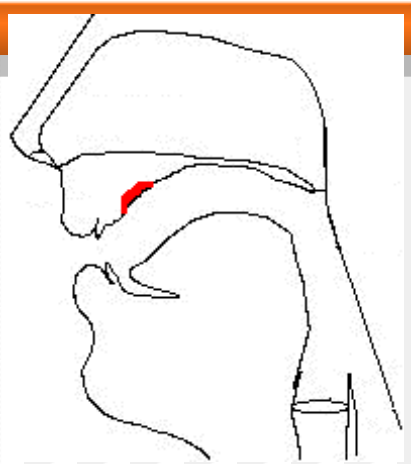

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| | Bilabial | Labiodental | Dental | Alveolar | Postalveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
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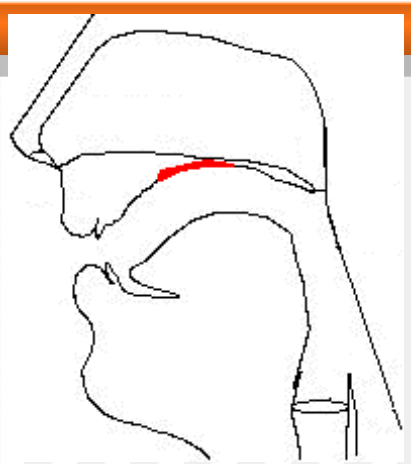

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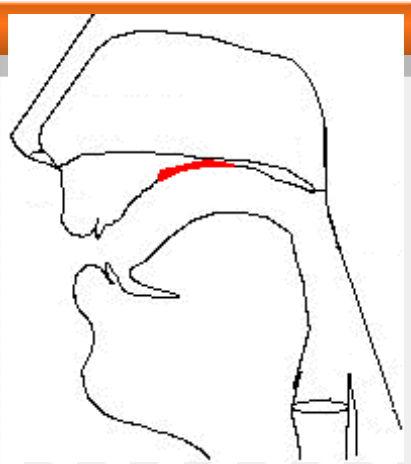

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | | r | | | | | ʀ | | |
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| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
| Lateral fricative | | | | ɬ ɮ | | | | | | | |
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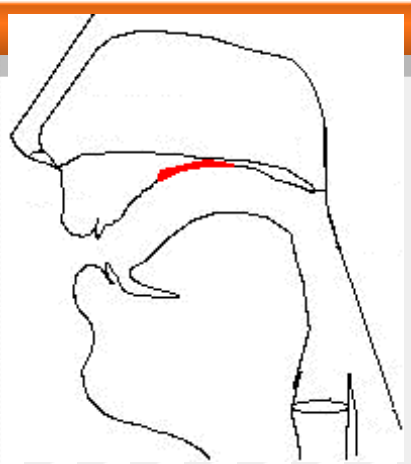

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| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
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| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
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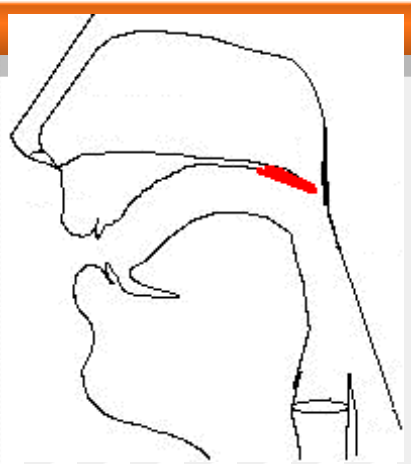

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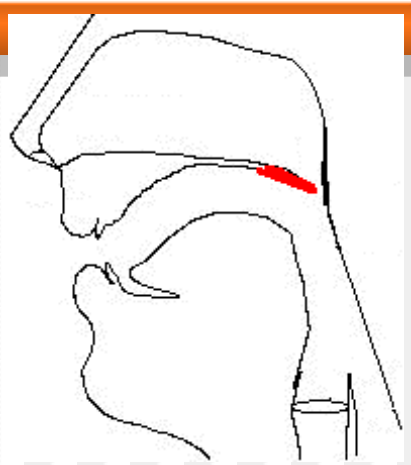

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k ɡ | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | | r | | | | | ʀ | | |
| Tap or Flap | | ⱱ | | ɾ | | ɽ | | | | | |
| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
| Lateral fricative | | | | ɬ ɮ | | | | | | | |
| Approximant | | ʋ | | ɹ | | ɻ | j | ɰ | | | |
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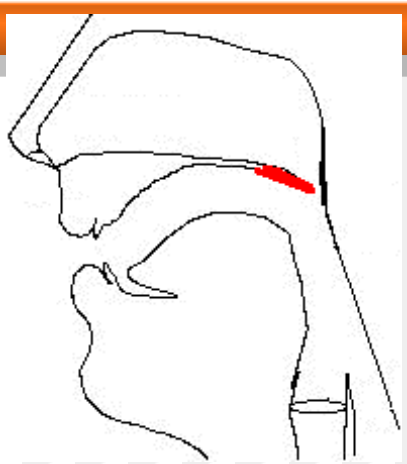

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | | r | | | | | ʀ | | |
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| Lateral fricative | | | | ɬ ɮ | | | | | | | |
| Approximant | | ʋ | | ɹ | | ɻ | j | ɰ | | | |
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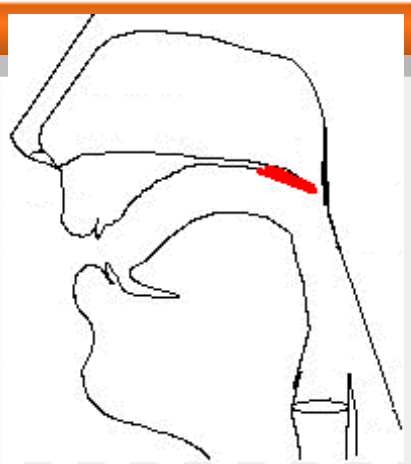

OTHER SYMBOLS

| | | | |
|---|---|---|---|
| ʍ | Voiceless labial-velar fricative | ɕ ʑ | Alveolo-palatal fricatives |
| w | Voiced labial-velar approximant | ɺ | Voiced alveolar lateral flap |
| ɥ | Voiced labial-palatal approximant | ɧ | Simultaneous ʃ and x |
| ħ | Voiceless epiglottal fricative | | |
| ʕ | Voiced epiglottal fricative | | |
| ʡ | Epiglottal plosive | | |

Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary.

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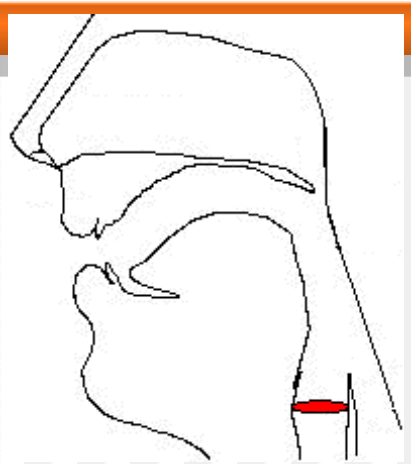

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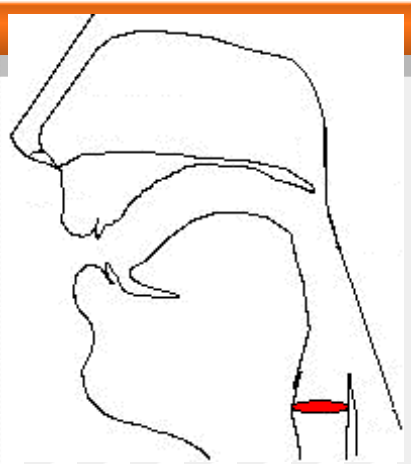

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | | r | | | | | ʀ | | |
| Tap or Flap | | ⱱ | | ɾ | | ɽ | | | | | |
| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
| Lateral fricative | | | | ɬ ɮ | | | | | | | |
| Approximant | | ʋ | | ɹ | | ɻ | j | ɰ | | | |
| Lateral approximant | | | | l | | ɭ | ʎ | ʟ | | | |

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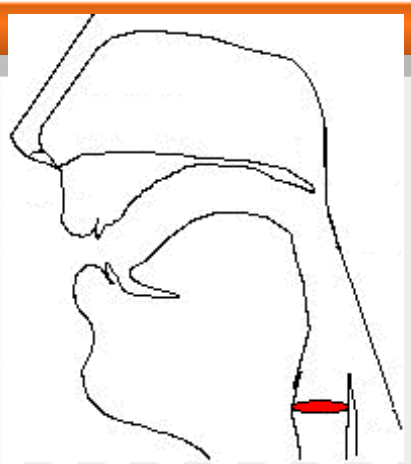

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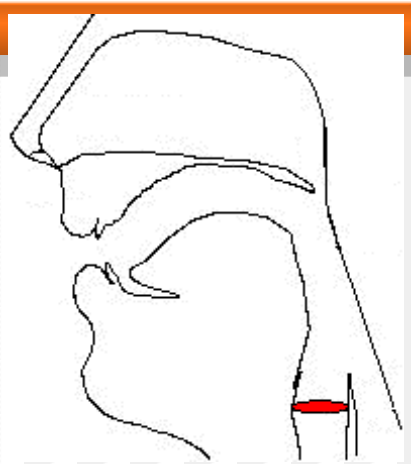
| | Bilabial | Labiodental | Dental | Alveolar | Post alveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | | r | | | | | ʀ | | |
| Tap or Flap | | ⱱ | | ɾ | | ɽ | | | | | |
| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
| Lateral fricative | | | | ɬ ɮ | | | | | | | |
| Approximant | | ʋ | | ɹ | | ɻ | j | ɰ | | | |
| Lateral approximant | | | | l | | ɭ | ʎ | ʟ | | | |

Where symbols appear in pairs, the one to the right represents a voiced consonant. Shaded areas denote articulations judged impossible.

# Places of Articulation

- Bilabial
- Labiodental
- Dental
- Alveolar
- Postalveolar
- Palatal
- Velar
- Glottal



CONSONANTS (PULMONIC) © 2005 IPA

| | Bilabial | Labiodental | Dental | Alveolar | Post alveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Plosive | p b | | | t d | | ʈ ɖ | c ɟ | k g | q ɢ | | ʔ |
| Nasal | m | ɱ | | n | | ɳ | ɲ | ŋ | ɴ | | |
| Trill | ʙ | | | r | | | | | ʀ | | |
| Tap or Flap | | ⱱ | | ɾ | | ɽ | | | | | |
| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ʝ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
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# Active & Passive Articulators

| ***Active*** | | ***Passive*** |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

# Active & Passive Articulators

| ***Active*** | | ***Passive*** |
|---|---|---|
| | | |
| Lower lip | | |

# Active & Passive Articulators

| ***Active*** | | ***Passive*** |
|---|---|---|
| | | |
| Lower lip | | Upper lip |

# Active & Passive Articulators

| ***Active*** | | ***Passive*** |
|---|---|---|
| | | |
| Lower lip | | Upper lip |
| | | Teeth |

# Active & Passive Articulators

| ***Active*** | | ***Passive*** |
|---|---|---|
| | | |
| Lower lip | | Upper lip |
| Tip of the tongue | | Teeth |

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| | | Alveolar ridge |

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| | | Velum |

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| | | etc. |

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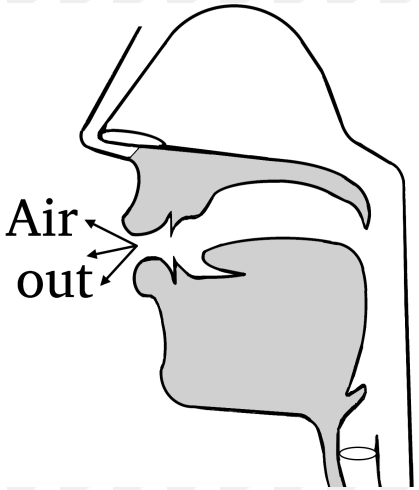
# Air Direction

- Egressive air involves the movement of air outwards



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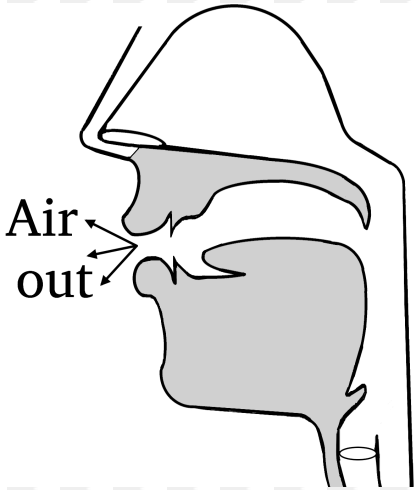

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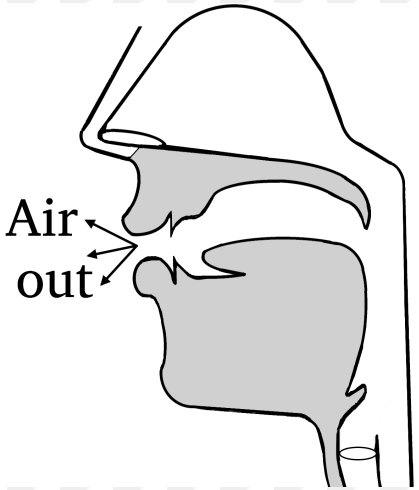

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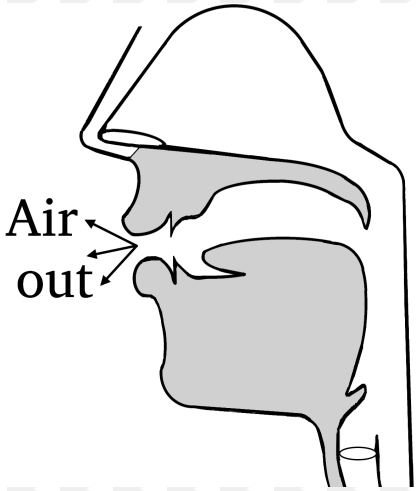


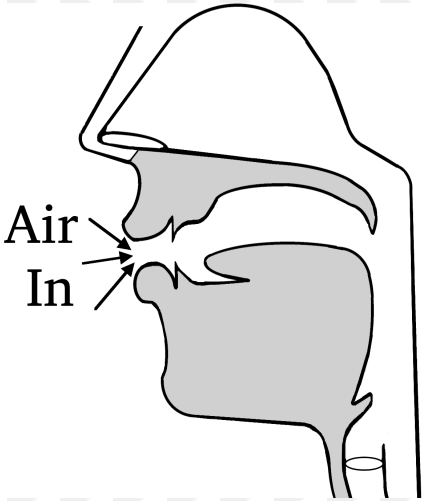

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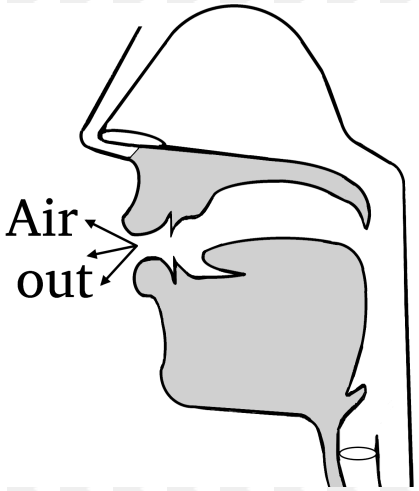


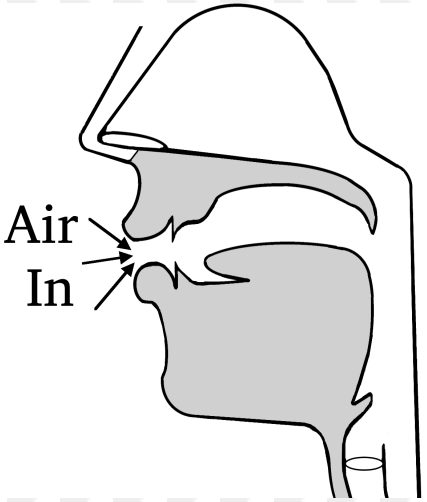

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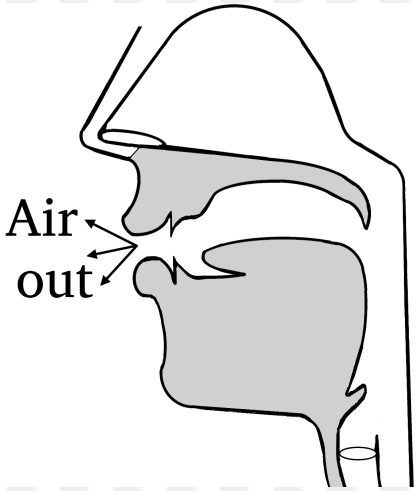


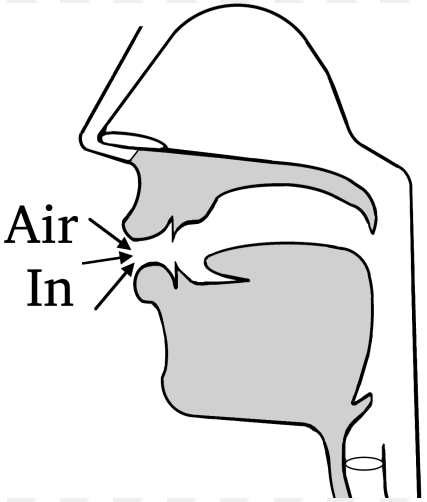

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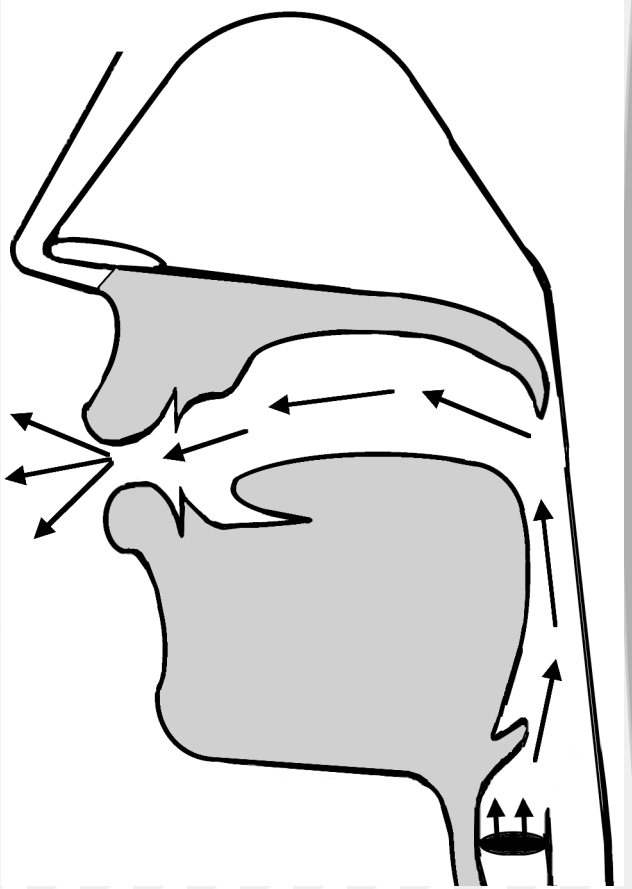
- it is the only mechanism employed in English

# Glottalic Action

- Air may be drawn into or forced out of the vocal tract by means of the larynx



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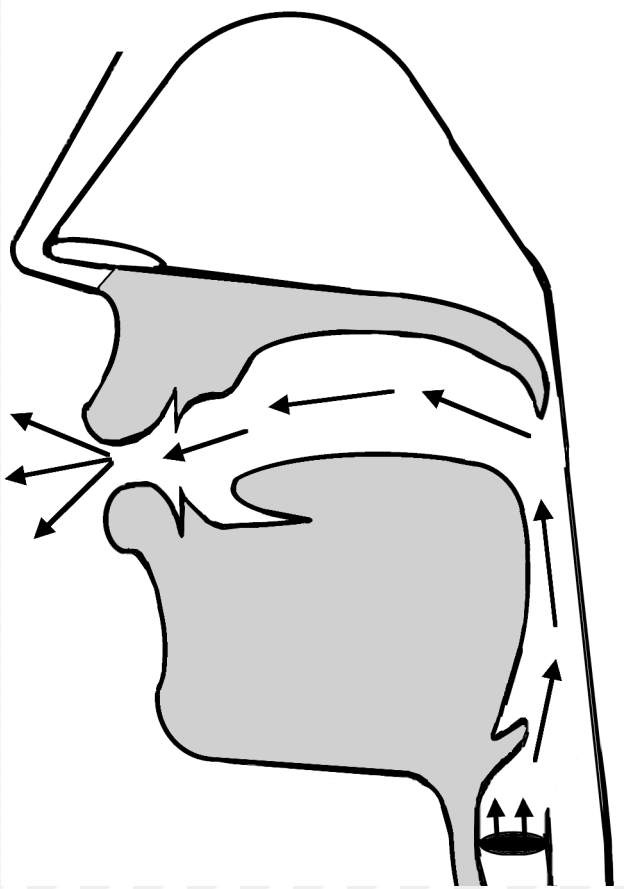

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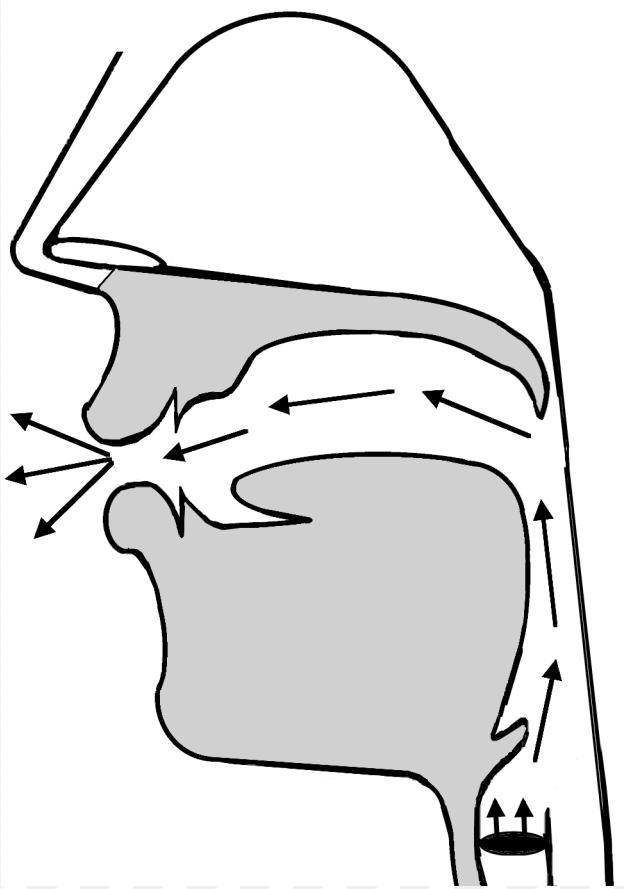

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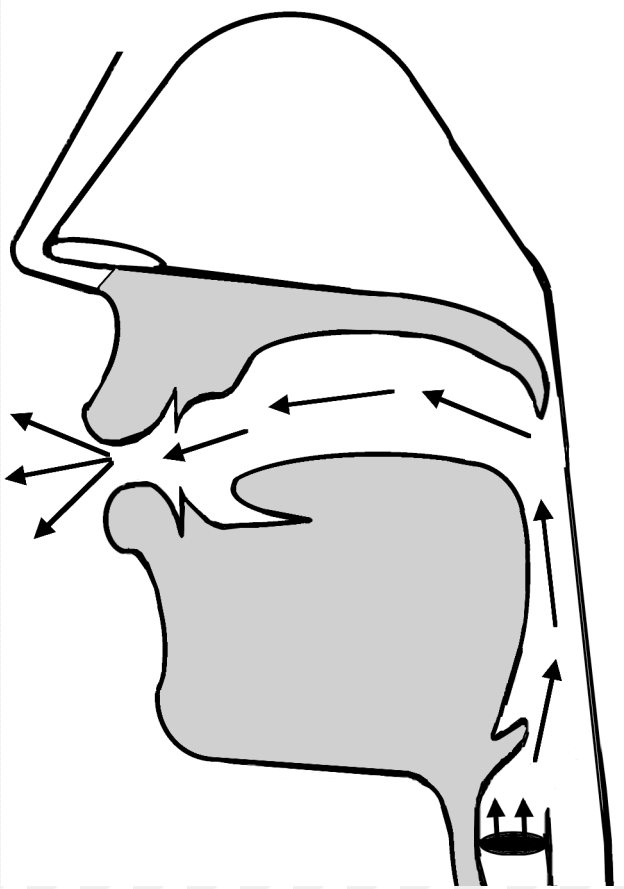
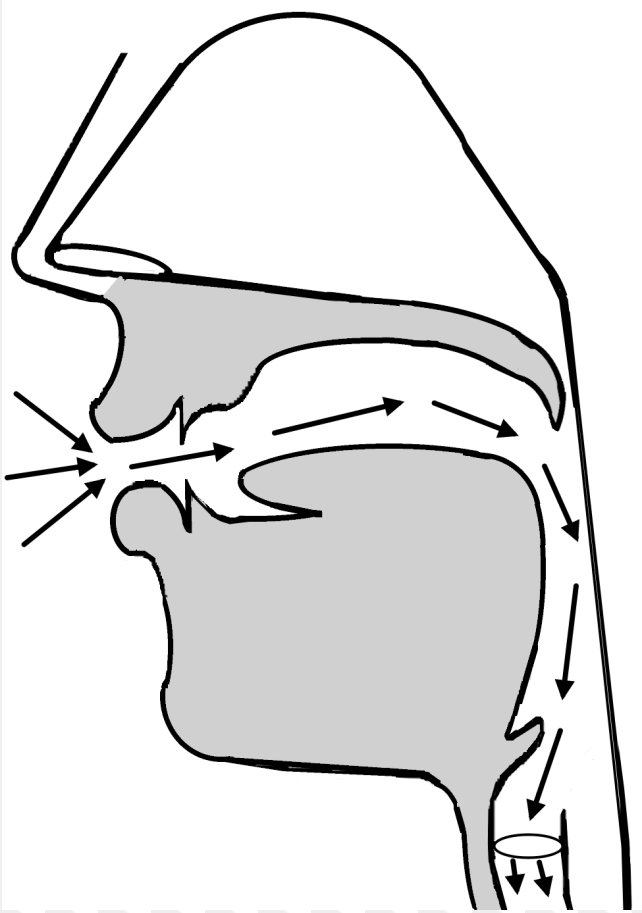


- The opposite situation may also exist



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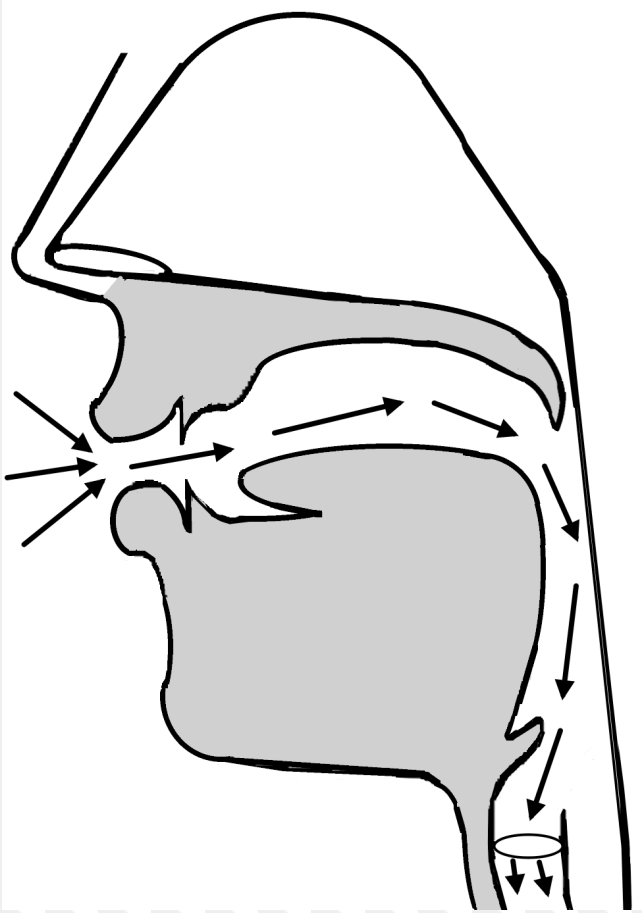

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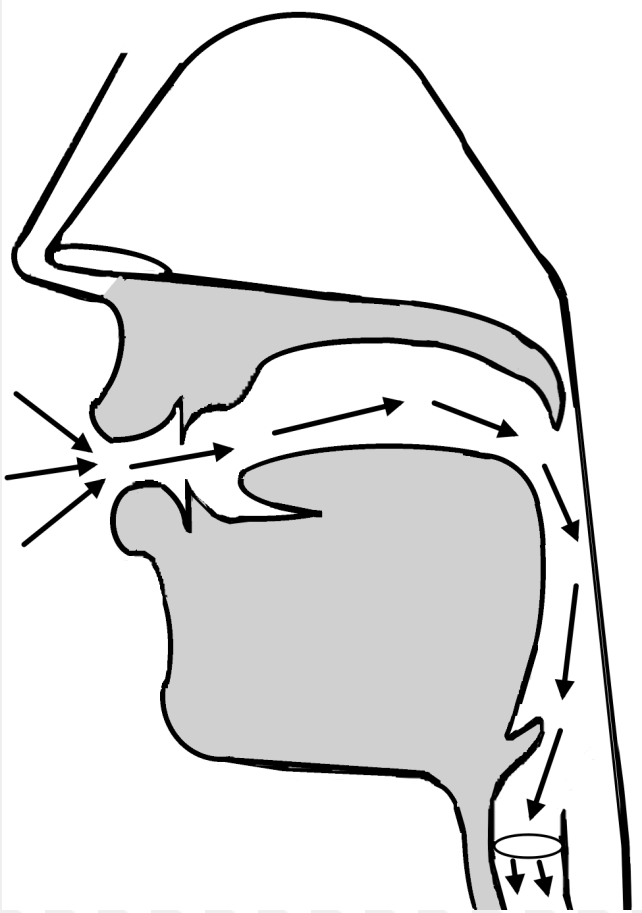

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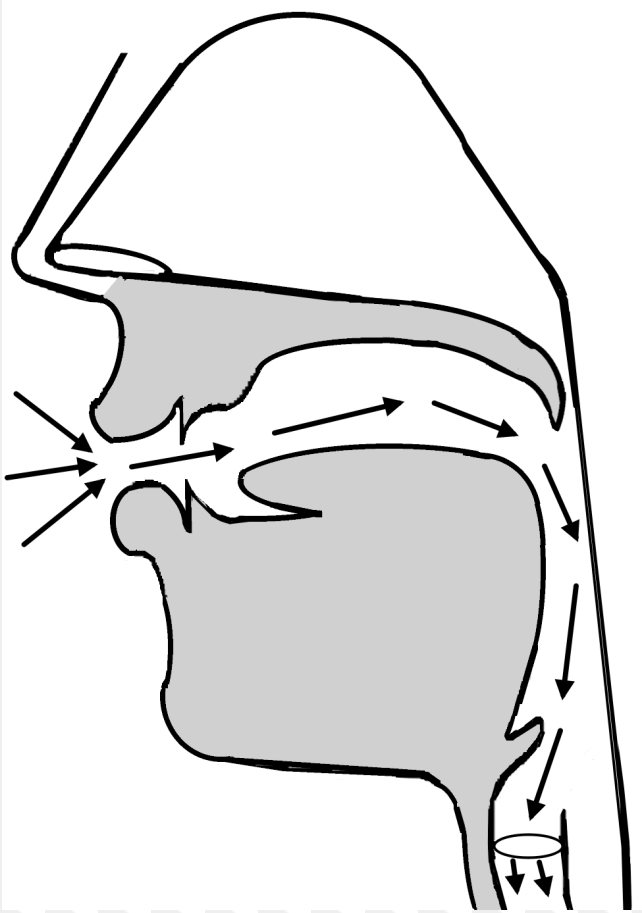

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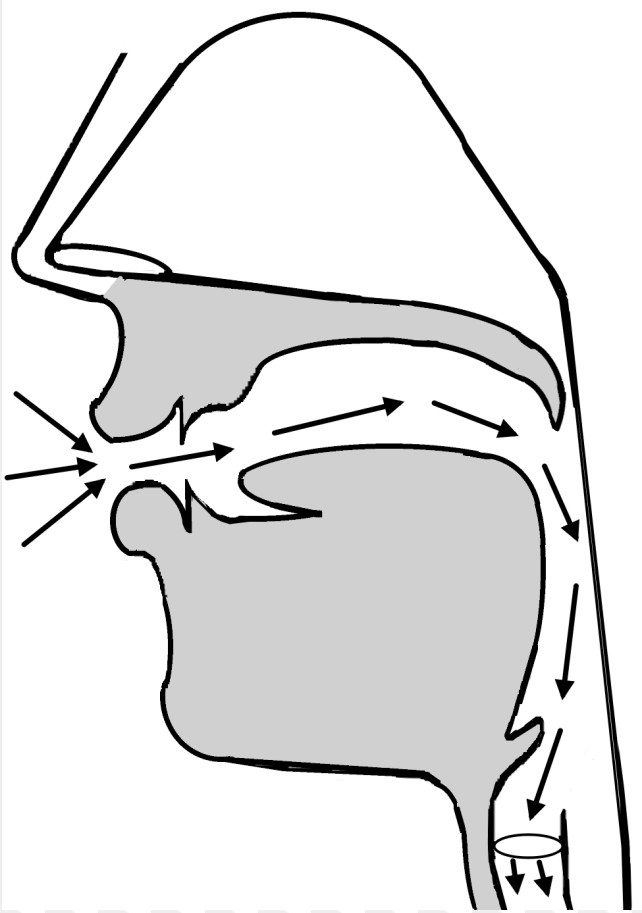

# Velaric Action

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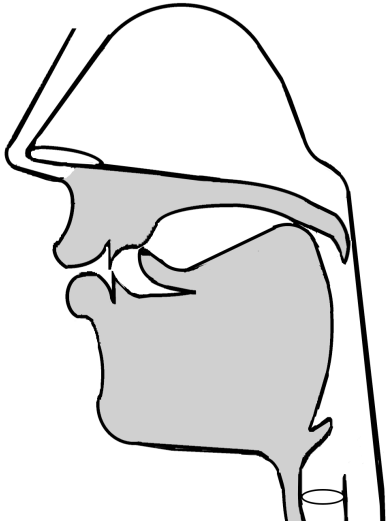

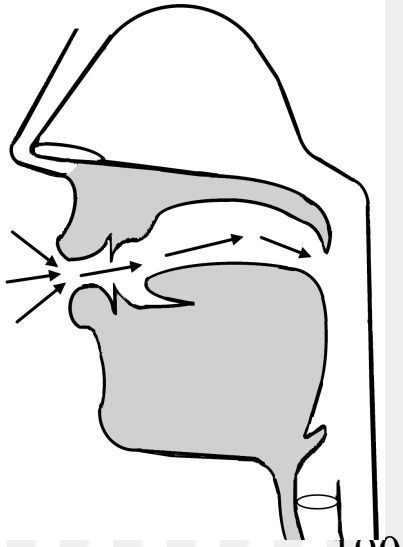

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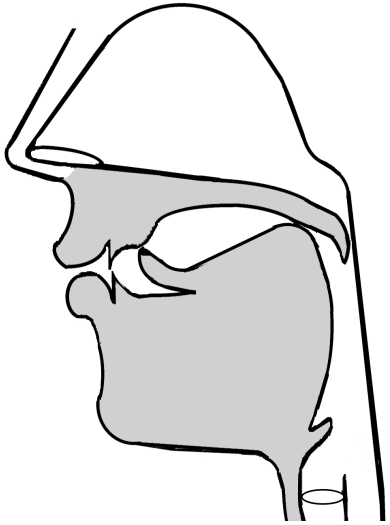
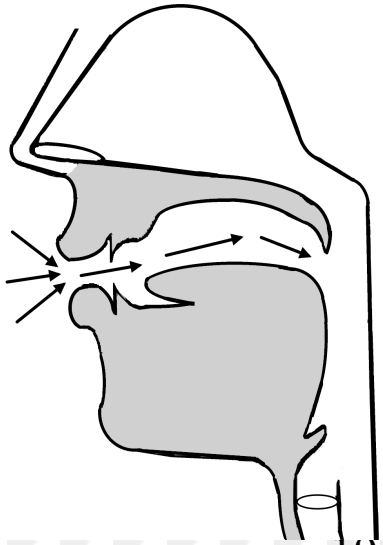
- Velaric action is another airstream mechanism involving the oral cavity alone
- the rarest of all airstream mechanisms





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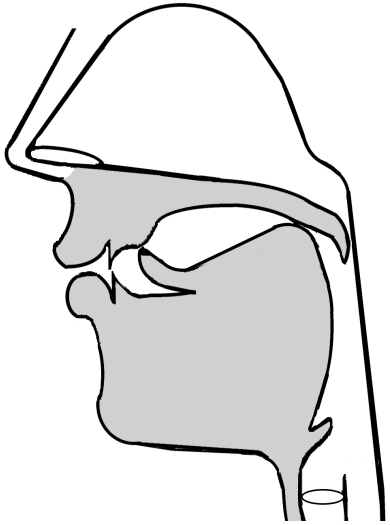

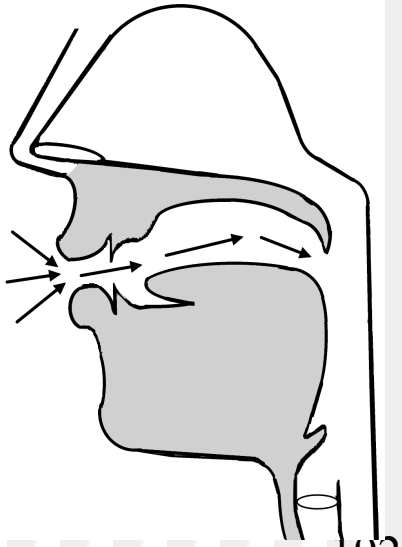

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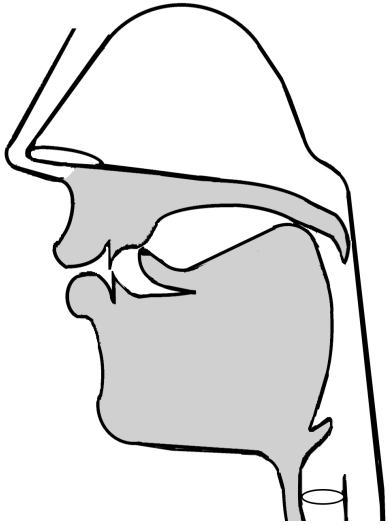

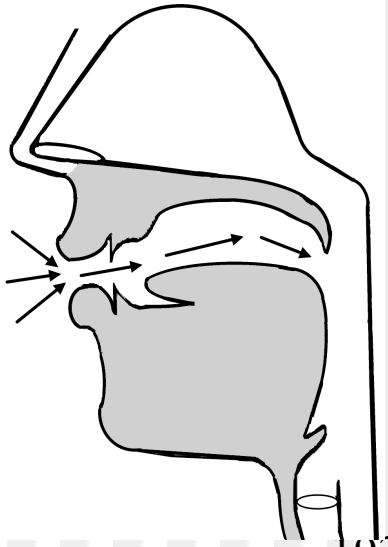

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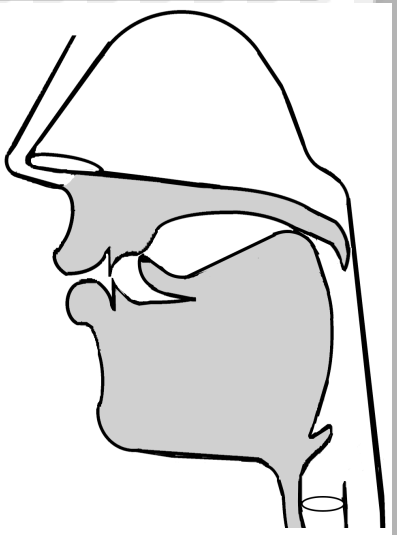

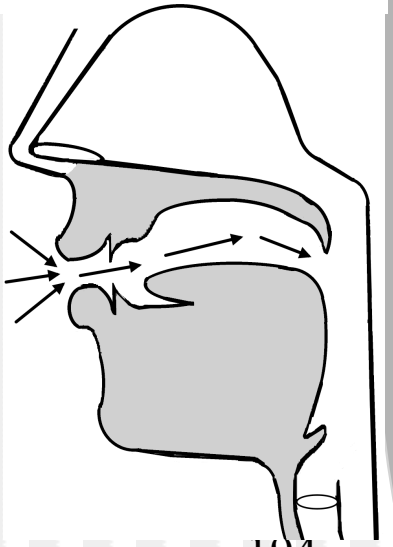

# Airstream Types

- Clicks involve *velaric ingressive* airstream

CONSONANTS (NON-PULMONIC)

| Clicks | | Voiced implosives | | Ejectives | |
|---|---|---|---|---|---|
| ʘ | Bilabial | ɓ | Bilabial | ʼ | Examples: |
| ǀ | Dental | ɗ | Dental/alveolar | pʼ | Bilabial |
| ǃ | (Post)alveolar | ʃ | Palatal | tʼ | Dental/alveolar |
| ǂ | Palatoalveolar | ɠ | Velar | kʼ | Velar |
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- may be contrastive effects or simply automatic concomitant phonetic effects on the segment

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- English: cotton vs. cat-tail
  - midden vs. midday
  - penny vs. penknife

# Aspiration

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- aspiration is entirely predictable from the position of the plosive in the word

# Aspiration in Korean

- Korean voiceless stops, which may be aspirated or unaspirated:
  - [pal] 발 `foot' [pʰal] 팔 `eight'
  - [tal] 달 `month' [tʰal] 탈 `mask'
  - [kɨn] 근 `muscle' [kʰɨn] 큰 `big'

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- This process is common in many languages

# English Palatalization

| | Non-palatalized | Obligatory Palatalization | Optional Palatalization | Palatal |
|---|---|---|---|---|
| a. | pool | puke | | |
| | booty | beauty | | |
| | food | fume | | |
| | moon | mucus | | |
| b. | coon | cube | | |
| | ghoul | virgule | | |
| c. | tool | | tune | [tʃun] |
| | douche | | dune | [dʒun] |
| | noon | | nude | [ɲud] |
| | loon | | lewd | [ʎud] |
| | soon | | suit | [ʃut] |

# Korean Palatalization

| | | |
|---|---|---|
| a. 곳 + 이 | 'place-SUBJ' | [koʃi] |
| 인터넷 + 이 | 'internet-SUBJ' | [intɔneʃi] |
| b. 기 + 어 | 'crawl-IMP' | [kʲəː] |
| 띠 + 어 | 'wear a belt-IMP' | [tʼʲəː] |
| c. 김치 | 'kimchi' | [ʧimʧi] |
| 길 | 'street' | [ʧil] |

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- In English, labialization is contrastive for alveolar and velar points of articulation
- it is rare for labial consonants

# English Labialization

| | | | | | |
|---|---|---|---|---|---|
| a. | tin | [tʰɪn] | twin | [tʷɪn] | |
| | deign | [deɪn] | Duane | [dʷeɪn] | |
| | seep | [siːp] | sweep | [sʷiːp] | |
| b. | keen | [kiːn] | queen | [kʷiːn] | |
| | gone | [gɔn] | guano | [gʷɔnoʊ] | (< Spanish) |
| c. | bond | [bɔnd] | bwana | [bʷɑnə] | (< Swahili) |
| | paw | [pɑ] | (petits) pois | [pʷɑ] | (< French) |

# Korean Labialization

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|---|---|---|
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- Korean also exhibits cases of labialization
- In the case of Korean, there is also an active, optional process of delabialization
- this removes the rounding effect, resulting in forms such as [ tʷeʤi] 돼지 becoming [ teʤi] `pig'

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- Some phonologists treat the Korean tense consonants, ㅃㄸㄲㅆㅉ , as glottalized, although the effect is somewhat different

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- In English, this is most commonly found in the so-called *dark l*
- The resulting velarized l is represented by the symbol [ɫ]
- it is found in words such as *tall, hill, bottle*, etc.

# The End