



Phonetics II

Merlin Balkhash
Department of Linguistics, Rutgers University
2025/11/14 (updated: 2025-11-20)

Previously on 201

vowels vs. consonants vs. glides

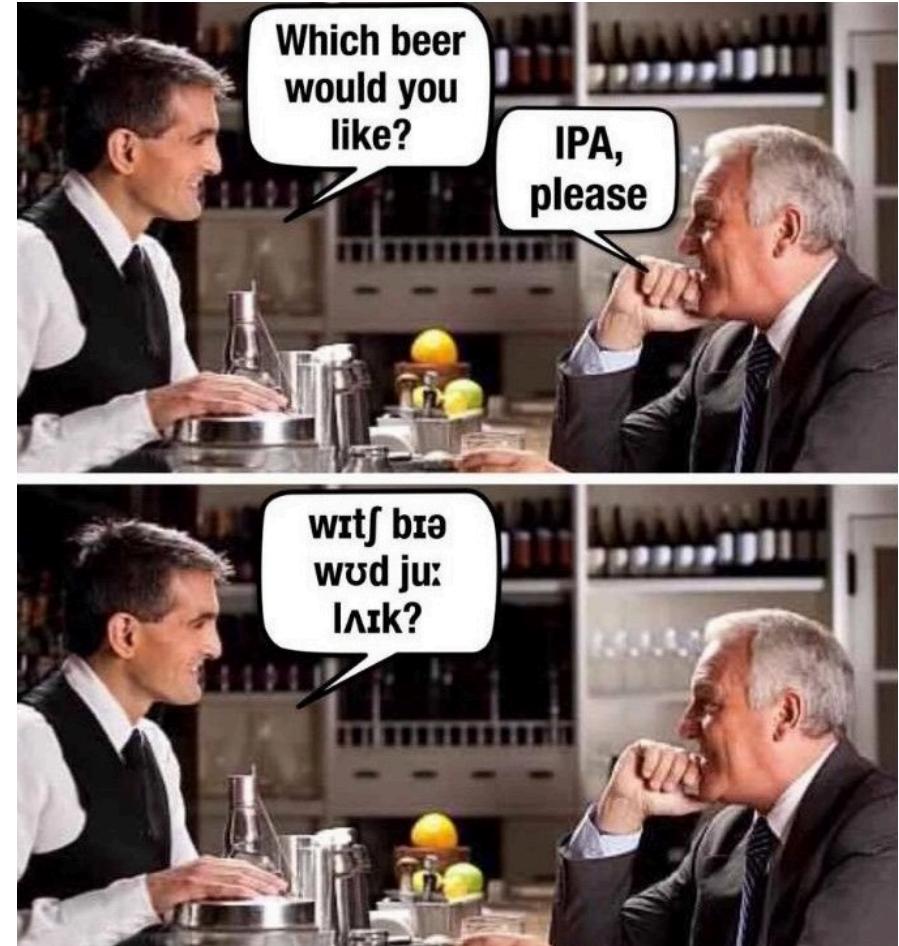
- **vowels** - no obstruction
- **consonants** - with complete obstruction
- **glides** - with partial obstruction

vowel articulation

- tongue **height** (high, mid, low)
- tongue **backness** (front, central, back)
- lip **roundness** (rounded, unrounded)

other vowel features

- **nasalisation**
- **vowel length**
- **pitch** (tone, etc)



Previously on 201

| CONSONANTS (PULMONIC) | | | | | | | | | | | | © 2020 IPA | |
|-----------------------|----------|-------------|--------|----------|--------------|-----------|---------|-------|--------|------------|---------|------------|--|
| | Bilabial | Labiodental | Dental | Alveolar | Postalveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal | | |
| Plosive | p b | | | t d | | t̪ d̪ | c j | k g | q G | | | ? | |
| Nasal | m | nj | | n | | n̪ | n̪ | n̪ | n̪ | N | | | |
| Trill | B | | | r | | | | | | R | | | |
| Tap or Flap | | v̪ | | r̪ | | t̪ | | | | | | | |
| Fricative | f̪ β | f v | θ ð | s z | ʃ ʒ | s̪ z̪ | ç j | x y | χ ʁ | h f̪ | h f̪ | | |
| Lateral Fricative | | | ɬ | ɬ | | | | | | | | | |
| Approximant | | v̪ | | ɹ̪ | | ɺ̪ | j̪ | w̪ | | | | | |
| Lateral approximant | | | l̪ | | ɺ̪ | ɻ̪ | L̪ | | | | | | |

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.



vowels vs. consonants vs. glides

- **vowels** - no obstruction
- **consonants** - with complete obstruction
- **glides** - with partial obstruction

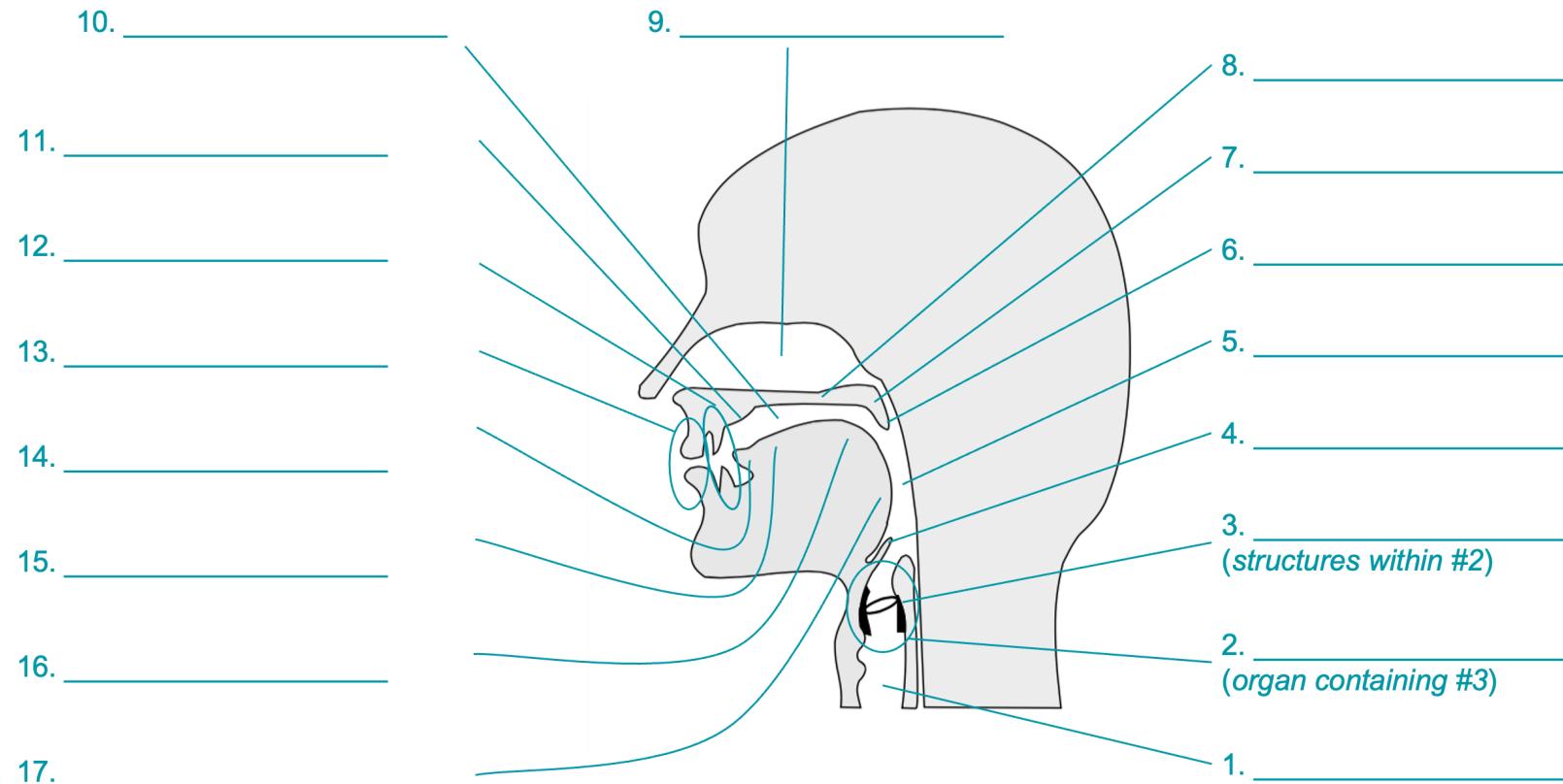
categories to differentiate consonants

- **voicing**
 - **whether** the vocal cords vibrate or not
- **place**
 - **where** the obstruction of airflow in the vocal tract is
- **manner**
 - **what type** of obstruction of airflow occurs
- there is some sort of obstruction of airflow (complete or partial), for sure

Vocal Tract Anatomy

| | | |
|-----------------------|---------------|---------------------|
| alveolar ridge | nasal cavity | teeth |
| epiglottis | oral cavity | tongue back |
| glottis & vocal folds | (hard) palate | trachea |
| larynx | pharynx | uvula |
| lips | | velum (soft palate) |

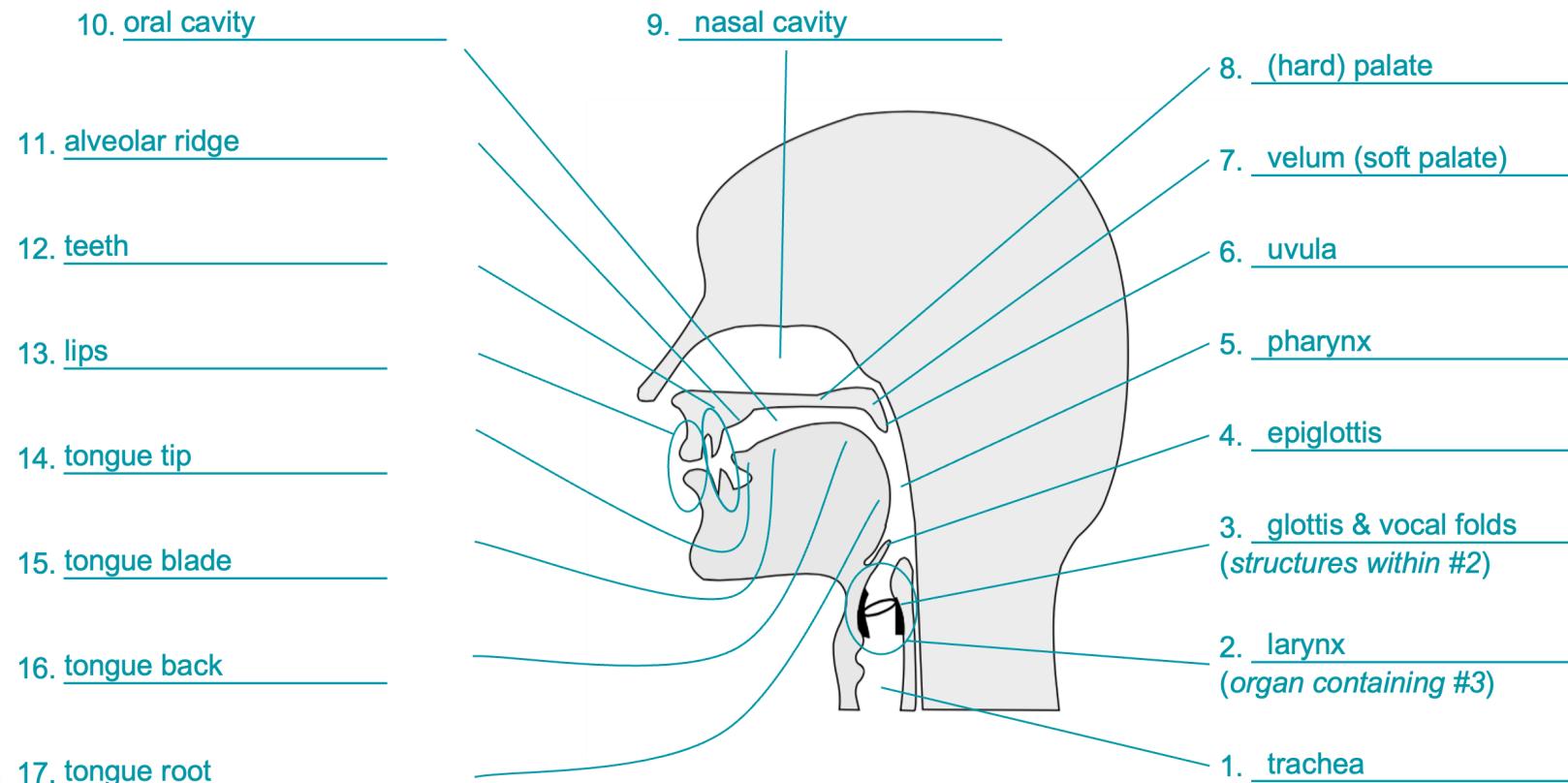
Fill in the blanks with the appropriate **anatomical term** for each **articulator** from the box. #5, 9, 10 refer to **cavities** (open spaces), not structures. (You may consult the reading, page 22)



Vocal Tract Anatomy

| | | |
|-----------------------|---------------|--------------|
| alveolar ridge | nasal cavity | teeth |
| epiglottis | oral cavity | tongue back |
| glottis & vocal folds | (hard) palate | trachea |
| larynx | pharynx | tongue blade |
| lips | | tongue root |

Fill in the blanks with the appropriate **anatomical term** for each **articulator** from the box. #5, 9, 10 refer to **cavities** (open spaces), not structures. (You may consult the reading, page 22)



Categories to Differentiate Consonants

CONSONANTS (PULMONIC)

© 2020 IPA

| | Bilabial | Labiodental | Dental | Alveolar | Postalveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal |
|---------------------|----------|-------------|--------|----------|--------------|-----------|---------|-------|--------|------------|---------|
| Plosive | p b | | | t d | | t d | c j | k g | q g | | ? |
| Nasal | m | m̪ | | n | | n̪ | n̪ | ŋ | N | | |
| Trill | B | | | r | | | | | R | | |
| Tap or Flap | | v̪ | | f̪ | | t̪ | | | | | |
| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | s z̪ | ç j | xɣ | χ w | ħ ŋ | h f̪ |
| Lateral fricative | | | | ɬ ɭ | | | | | | | |
| Approximant | | v̪ | | ɹ̪ | | ɻ̪ | j | w̪ | | | |
| Lateral approximant | | | | l̪ | | ɺ̪ | ɻ̪ | L̪ | | | |

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

columns - **PLACE** - where the obstruction of airflow in the vocal tract is

row - **MANNER** - what type of obstruction of airflow occurs

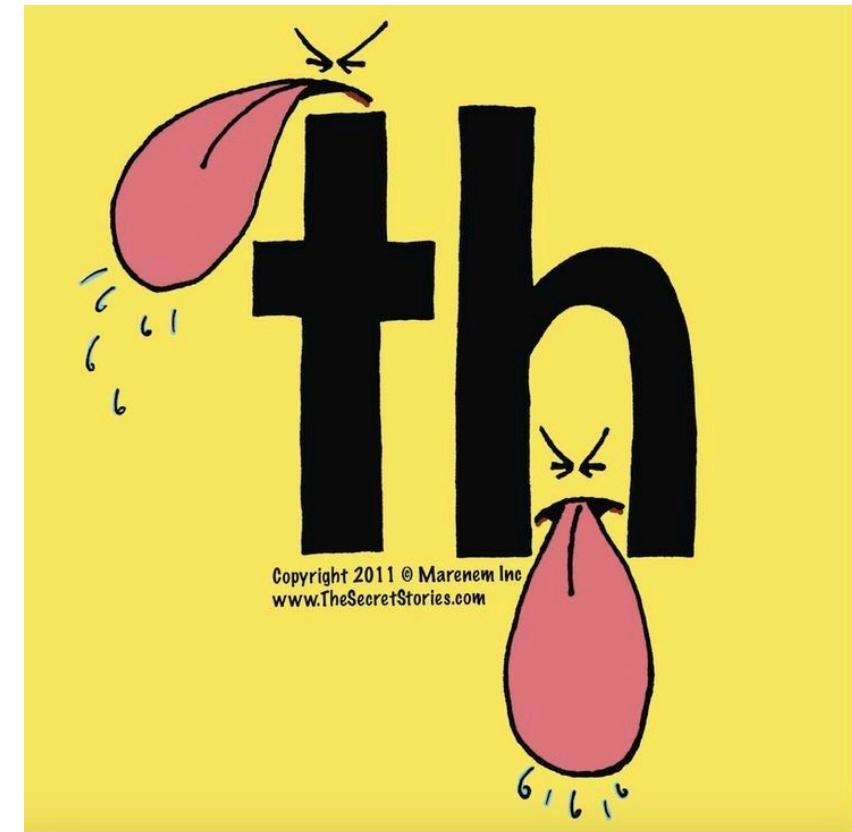
in a **single cell** - **VOICING** - whether the vocal cords vibrate or not (the right is *voiced*)

[IPA clickable chart](#)

Place of Articulation

(where the obstruction is in the vocal tract)

- **labials:** lips
 - bilabials: both **lips** [b, p]
 - labio-dentals: the lower **lip** and **upper teeth** [f, v]
- **coronals:** between the tongue tip/blade and the **front** part of the mouth
 - **dentals:** tongue and **teeth** [θ, ð]
 - **alveolars:** tongue and **alveolar ridge** [t, d]
 - **post-alveolars:** tongue and the space right behind **alveolar ridge** [ʃ, ʒ]
- **retroflexes:** the tongue **tip** is arched backward [t, d]



Place of Articulation

(where the obstruction is in the vocal tract)



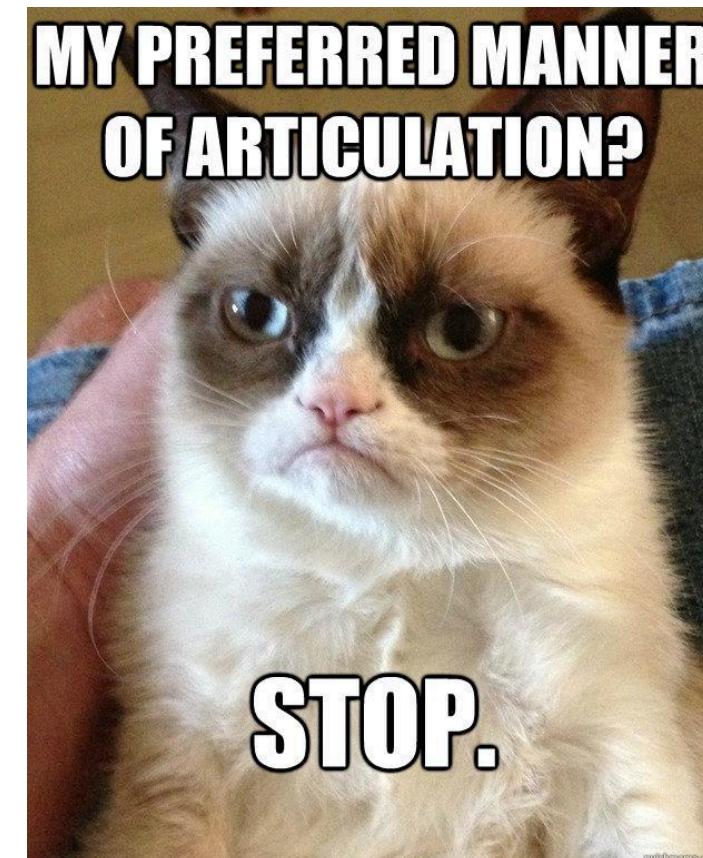
- **palatals**: tongue body raised against the hard palate [j]
- **velars**: tongue back against the soft palate (velum) [k, g]
- **gutturals**: pronounced in the very back of the mouth (around the throat area)
 - **uvulars**: tongue back against the uvula [q, ρ]
 - **pharyngeals**: root of tongue obstructing the pharynx [h, ɻ]
 - **glottals**: vocal folds close the glottis [?]

Manner of Articulation

(what type of obstruction of airflow occurs)

complete blockage of airflow

- stops/plosives [p/b, t/d, k/g]
 - stops can be **aspirated** (with a [h] sound after the obstruction is released)
 - [p^h, p] ([p^hejs], [spejs])
- trills, taps/flaps [r, R, r]
 - obstruction doesn't last long enough to cause a **release of pressure** at the end



Manner of Articulation

(what type of obstruction of airflow occurs)

partial blockage of airflow

- fricatives [ʃ, ʒ]
- approximants [ɹ]
 - less obstruction than **fricatives**
- laterals [l]
 - obstruction in the center, but air flows past the tongue on the side(s)



Manner of Articulation

(what type of obstruction of airflow occurs)

airflow blocked in **one part** of the vocal tract but flow through **a different part**

- affricates [tʃ, dʒ] ???[dʒ]
 - a combination between stops and fricatives
- nasals [m, n, ɳ]
 - complete obstruction through the oral cavity but air is **redirected** to flow through the nasal cavity

EMPTY

EMPT

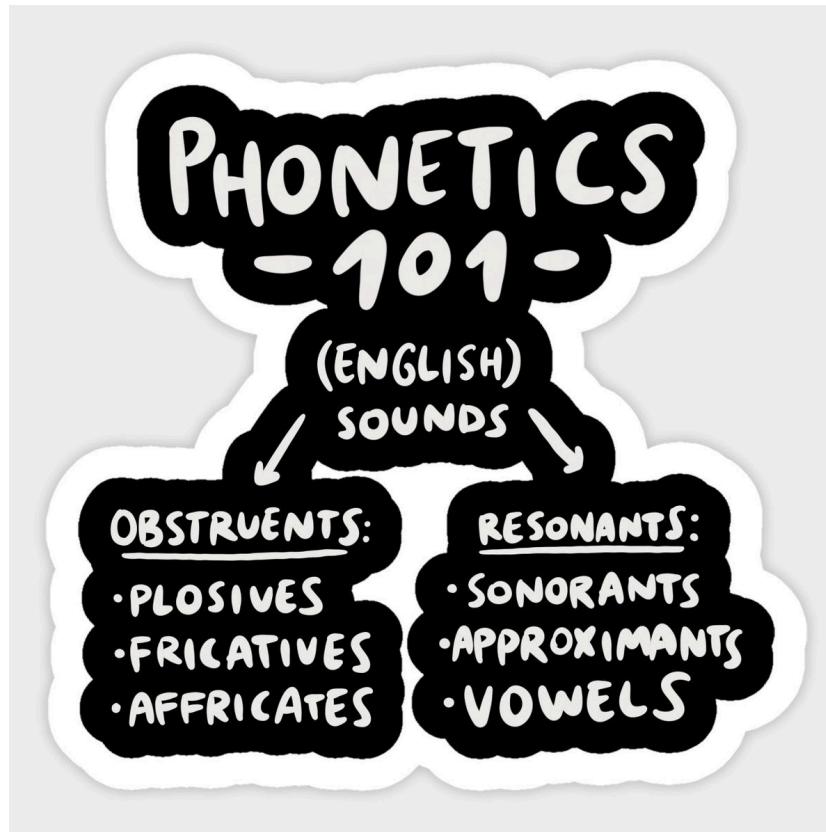
MPTY

MT



Manner of Articulation

(what type of obstruction of airflow occurs)



further grouping into **sound class**

- **rhotics**: *r*-like sounds [ɹ, ɿ, r, R, ɾ, ɻ...]
- **liquids**: rhotics and laterals
- **obstruents**
 - consonants with **more** obstruction
 - stops, fricatives, affricates
- **sonorants**
 - consonants with **less** obstruction
 - nasals, liquids, approximants

Voicing

(whether vocal cords vibrate or not)



Practice: Identifying Consonants

Give a full description for **voicing**, **place**, and **manner** of **each consonant** in the following words and give the corresponding **IPA** symbol:

move

hide

cloth

stove

gosh

bank

CONSONANTS (PULMONIC)

© 2020 IPA

| | Bilabial | Labiodental | Dental | Alveolar | Postalveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal |
|---------------------|----------|-------------|--------|----------|--------------|-----------|---------|-------|--------|------------|---------|
| Plosive | p b | | | t d | | t̪ d̪ | c ɟ | k ɡ | q ɢ | | ? |
| Nasal | m | n̪j | | n | | n̪ | n̪l | n̪ŋ | N | | |
| Trill | B | | | r | | | | | | R | |
| Tap or Flap | | v̪ | | f̪ | | t̪ | | | | | |
| Fricative | ɸ β | f v̪ | θ ð | s z | ʃ ʒ | ʂ ʐ | ç ɟ | x ɣ | χ ʁ | ħ ʕ | h ɦ |
| Lateral fricative | | | ɬ ɭ | | | | | | | | |
| Approximant | | v̪ | | ɹ | | ɻ | j | w̪ | | | |
| Lateral approximant | | | | l̪ | | ɺ | ɻ | L | | | |

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

Practice: Identifying Consonants

Give a full description for **voicing**, **place**, and **manner** of **each consonant** in the following words and give the corresponding **IPA** symbol:

| | | | |
|-------|---|-------|--|
| move | [m]: voiced bilabial nasal [v]: voiced labio-dental fricative | hide | [h]: voiceless glottal fricative [d]: voiced bilabial stop |
| cloth | [k]: voiceless velar stop [l]: voiced alveolar lateral approximant [θ]: voiceless dental fricative | stove | [s]: voiceless alveolar fricative [t]: voiceless alveolar stop [v]: voiced labio-dental fricative |
| gosh | [g]: voiced velar stop [ʃ]: voiceless post-alveolar fricative | bank | [b]: voiced bilabial stop [ŋ]: voiced velar nasal [k]: voiceless velar stop |

Practice: Identifying Consonants

Give a full description for **voicing**, **place**, and **manner** of **each consonant** in the following words and give the corresponding **IPA** symbol:

| CONSONANTS (PULMONIC) | | | | | | | | | | | © 2020 IPA | |
|-----------------------|----------|-------------|--------|----------|--------------|-----------|---------|-------|--------|------------|------------|--|
| | Bilabial | Labiodental | Dental | Alveolar | Postalveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal | |
| Plosive | p b | | | t d | | t̪ d̪ | c j | k g | q ɣ | | ? | |
| Nasal | m | m̪ | | n | | n̪ | n̥ | ŋ | N | | | |
| Trill | B | | | r | | | | | | R | | |
| Tap or Flap | | v̪ | | f | | t̪ | | | | | | |
| Fricative | ɸ β | f v | θ ð | s z | ʃ ʒ | ʂ ʐ | ç j | xɣ | χ ʁ | ħ ʕ | h f | |
| Lateral fricative | | | | ɬ ɺ | | | | | | | | |
| Approximant | | v̪ | | ɹ̪ | | ɻ̪ | j | w̪ | | | | |
| Lateral approximant | | | | l̪ | | ɻ̪ | ɻ̥ | L̪ | | | | |

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

CHANLLANGE: Write a phonetic transcription of your name. How would you describe each vowel and consonant?

Practice: Reading IPA

What **English words** do these **phonetic transcriptions** correspond to?

1. ['el.bow]
2. [vaj.ə'lɪn]
3. ['aɪ.lənd]
4. ['pi.pl]
5. [jɪ.ər]
6. ['dejn.dʒə.rəs]
7. [jʌŋ]



'phonetically speaking, ...'

Practice: Reading IPA

What **English words** do these **phonetic transcriptions** correspond to?

1. ['el.bow] **elbow**

2. [vaj.ə'lɪn] **violin**

3. ['aɪ.lənd] **island**

4. ['pi.pl] **people**

5. [jɪ.ər] **year**

6. ['dejn.dʒə.rəs] **year**

7. [jʌŋ] **young**

8. [grɛps] **grapes**



'cat and linguistics lover'

Practice: Reading IPA



What **English words** do these **phonetic transcriptions** correspond to?

1. ['bʌ.tər.flaj]
2. ['ʌŋ.kl]
3. ['rʌ.bər]
4. [raɪt]
5. ['eə.pɔ:t]
6. ['o:gəst]
7. [gə.'rɪ.lə]
8. [məs.'ki.tow]

Practice: Reading IPA



'I survived phonetics class'

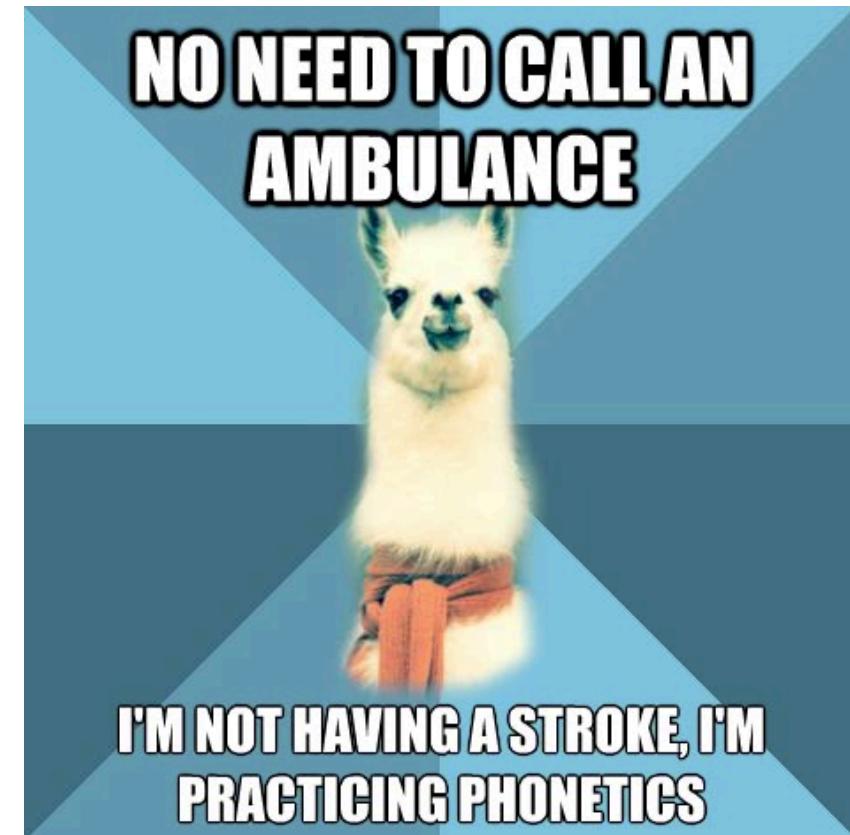
What **English words** do these **phonetic transcriptions** correspond to?

1. ['bʌ.tər.flaj] **butterfly**
2. ['ʌŋ.kl] **uncle**
3. ['rʌ.bər] **rubber**
4. [raɪt] **right**
5. ['eə.pɔ:t] **airport**
6. ['o:gəst] **August**
7. [gə.'rɪ.lə] **gorilla**
8. [məs.'ki.tow] **mosquito**

Practice: Writing with IPA

Represent the following **English words** each with a **phonetic transcription**.

1. camera
2. cotton
3. decision
4. length
5. weather
6. judge
7. visionary



Practice: Writing with IPA

Represent the following **English words** each with a **phonetic transcription**.

1. camera [ˈkæ.m(ə).rə]

2. cotton [ˈkɔ.tən]

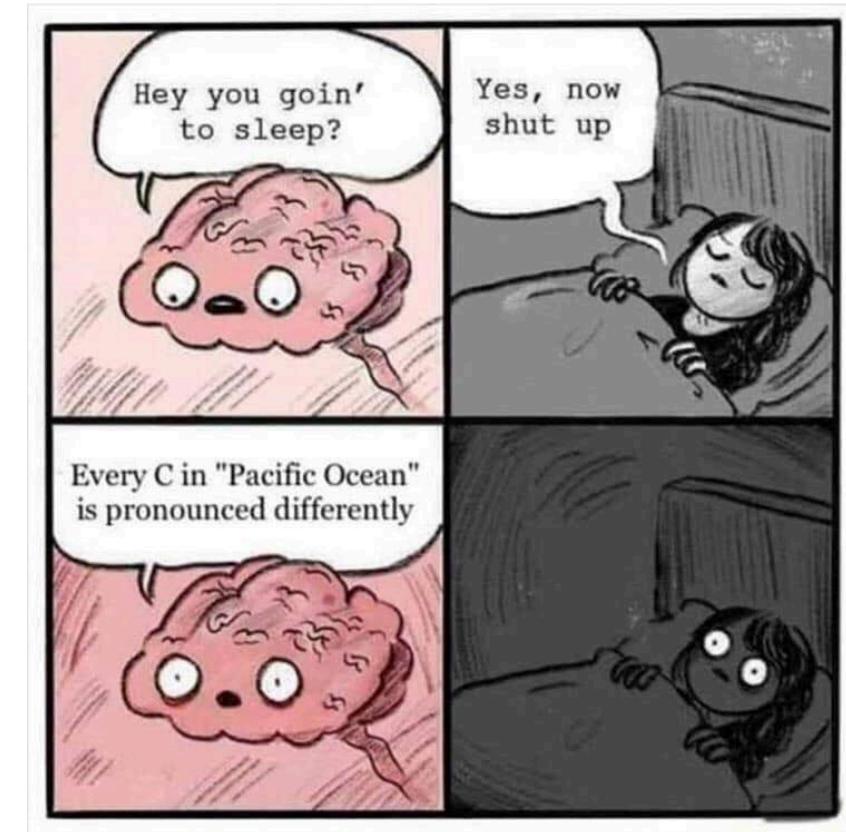
3. decision [dɪ.ˈsɪ.zən̩]

4. length [lɛŋθ̩]

5. weather [ˈwɛðər̩]

6. judge [dʒudʒ̩]

7. visionary [vɪ.ʒə.nəri]



Homework VII will be posted this Sunday and it is due next Sunday (**Nov 23rd**)

reading materials:

Phonology: The Function and Patterning of Sounds

in O'Grady et al.'s *Contemporary Linguistics: An Introduction*

This is Schwa.

Schwa is not stressed.

Schwa is cool.

Be like Schwa.



Slides created via the R package **xaringan**.