- **American English consonant and vowel sounds**

Background resources:

- "Periodic table of speech sounds" video
- Consonant and vowel sound charts

0. Key points today

- Phonological awareness
- The consonant and vowel speech **sounds** of "standard" American English
  - Identifying and distinguishing them
  - IPA symbols for transcribing them
- Expectations for this material:
  - You do **not** have to **memorize** the terms and symbols introduced today
  - But: Be able to **use** and **understand** them (given a reference list or chart)

1. Phonological awareness

- Last time, you tried **dividing** spoken words into
  - **syllables** (*ma* • *ga* • *zine*)
  - **onset+rime** (*sp* • *ort*)
  - **phonemes** = invididual consonant and vowel sounds (/ s ɪ k s /)

- Remember: this was something we did with the **sounds** of the words, not their spellings

1. Phonological awareness

- These three tasks show aspects of **phonological awareness**
  - **Syllable** awareness
  - **Onset/rime** awareness
  - **Phonemic** (phoneme) awareness

- **Phonological awareness**: *conscious* awareness of aspects of the sound structure of spoken language
  - Reinforces, and is reinforced by, **phonics-based reading instruction**

1. Phonological awareness

- Every spoken language **has** phonological structure
- But: Speakers typically develop (conscious) phonological ***awareness*** only when guided or taught
  - **Syllable** awareness — comes easily
  - **Onset/rime** awareness — more difficult
  - **Phonemic** (phoneme) awareness
    - requires the most practice
    - develops later
    - is the least consciously accessible without explicit teaching and practice

2. We need phonetic symbols

- How can we **represent** the speech sounds of a language in order to …
    - distinguish
    - describe
    - compare
    - discuss

  … them?

2. We need phonetic symbols

- **English letters** do not always **directly** represent speech sounds
  - How many **speech sounds** are there in these English words? (from last class)
    (a) *she* 2
    (b) *six* 4
    (c) *using* 5…but maybe not the ones you thought?

2. We need phonetic symbols

- **English letters** do not always **directly** represent speech sounds
  - Do *thigh* / *thy* start with the same sound?
  - How many ways can we spell the sound [k] as in *kite*?
  - How many pronunciations can be spelled *ough*?

2. We need phonetic symbols

- **English letters** do not always **directly** represent speech sounds
  - Do *thigh* / *thy* start with the same sound? No!
  - How many ways can we spell the sound [k] as in *kite*? k, kk, ck, c, cc, ch, cque, +…
  - How many pronunciations can be spelled *ough*? *dough, bough, through, cough, enough,* +…

2. We need phonetic symbols

- **English letters** do not always **directly** represent speech sounds
  - A sequence of letters can spell one sound / one letter can spell a sequence of sounds
  - The same letter(s) can spell different sounds
  - The same sound(s) can be spelled by different letters
- We need a way to **notate speech sounds**, independently of the spelling system of a given language

2. We need phonetic symbols

- The **International Phonetic Alphabet (IPA)** is a system that (approximately) represents **each distinct speech sound** found in the languages of the world with a **single, unique symbol**
  - Note: Two sounds that are slightly different may be classified under the same symbol if they are not usually treated as distinct sounds within a single language

- Square brackets '[ ]' show that a letter or symbol is being used as a **phonetic symbol**, which in turn represents a **speech sound**
  - So **[k] is a <u>sound</u>, NOT a letter**

3. Consonant sounds of English

- In school, you probably learned about consonant and vowel *letters*
- Do you know what the **difference** is between **consonant** and **vowel speech sounds**?

3. Consonant sounds of English

- Do you know what the **difference** is between **consonant** and **vowel speech sounds**?
- *Phonetics* (sound production & perception):
  - Vowels: relatively **unobstructed** vocal tract
  - **Consonants**: have a **constriction** (obstruction)
    - We can classify consonants according to the **position** and **type** of this constriction
- *Phonology* (sound patterning / next time):
  - Vowels typically form the nucleus of a syllable
  - Consonants are on the syllable margins

3. Consonant sounds of English

Group activity

- Consider the underlined letters and combinations. How many **distinct sounds** do we find here? Do any of these spellings represent the **same sound**?

(1) *pill*
fill
Bill
mill
Phil
village

3. Consonant sounds of English

- Consider the underlined letters and combinations. How many **distinct sounds** do we find here? Do any of these spellings represent the **same sound**?

(1)

pill	[p]
fill	[f]
Bill	[b]
mill	[m]
Phil	([f] again)
village	[v]

—Different spellings can represent the same sound

3. Consonant sounds of English

- Consider the underlined letters and combinations. How many **distinct sounds** do we find here?

(2) *tail*
day
knotting
nodding
leaf
reef
feel
fear

3. Consonant sounds of English

- Consider the underlined letters and combinations. How many **distinct sounds** do we find here?

(2)

tail	[t]
day	[d]
knotting	[n], [ɾ]
nodding	([n] again, [ɾ] again)
leaf	[l]
reef	[ɹ] — some sources use [r] for this
feel	[ɬ]
fear	([ɹ] again)

—Physically, some “t”, “d”, “l” sounds are different by context

3. Consonant sounds of English

- Consider the underlined letters and combinations. How many **distinct sounds** do we find here?

(3) *sass*

zoos

fresher

measure

check

jacks

thistles

this

3. Consonant sounds of English

- Consider the underlined letters and combinations. How many **distinct sounds** do we find here?

(3)

sass	[s], ([s] again)
zoos	[z], ([z] again)
fresher	[ʃ]
measure	[ʒ]
check	[ʧ]
jacks	[ʤ], ([s] again)
thistles	[θ], ([z] again)
this	[ð], ([s] again)

—Two different sounds are spelled “th”; “s” spells many sounds

3. Consonant sounds of English

- Consider the underlined letters and combinations. How many **distinct sounds** do we find here?

(4) *thi<u>ck</u>*
fig
si<u>ng</u>er
di<u>nn</u>er
fi<u>ng</u>er
<u>y</u>ou
<u>w</u>oo
<u>wh</u>o

3. Consonant sounds of English

- Consider the underlined letters and combinations. How many **distinct sounds** do we find here?

(4)

thi<u>ck</u>	[k]
fig	[g]
si<u>ng</u>er	[ŋ] (some varieties may have [ŋg])
di<u>nn</u>er	([n] again)
fi<u>ng</u>er	([ŋg] — two sounds here)
<u>y</u>ou	[j]
<u>w</u>oo	[w]
<u>wh</u>o	[h]

—The spelling “ng” can represent one sound or two

3. Consonant sounds of English

- **Consonants**: have a **constriction** (obstruction)
  - We can **classify** consonants according to the **place** (position) and **manner** of this constriction
  - The details of this classification are summarized in the next few slides, FYI
    - You do not need to memorize this information
    - However, if you see these terms being used in a research paper, you should refer to today's materials and slides for information
    - If these details interest you, try LING 101!

3. Consonant sounds of English

- **Manner** of articulation
  - **Stops**: Complete constriction [p b t d k g]
  - **Nasals**: Stops, but airflow through nose [m n ŋ]
  - **Fricatives**: Narrow opening, turbulent airflow [f v θ ð s z ʃ ʒ h]
  - **Affricates**: Stop+fricative combinations [ʧ ʤ]
  - **Liquids**: *L* (lateral) and *R* (rhotic) sounds [l ɫ ɹ ɾ]
    - Grayed-out sounds are **not** separate **phonemes**—more on Wed)
  - **Glides**: Like very short vowels [w j]
- Stops, fricatives, affricates, can be **voiced** (with vocal-cord vibration) or **voiceless** (without)
  - The other classes are all **voiced**

3. Consonant sounds of English

- Place of articulation

  lips → **labial**

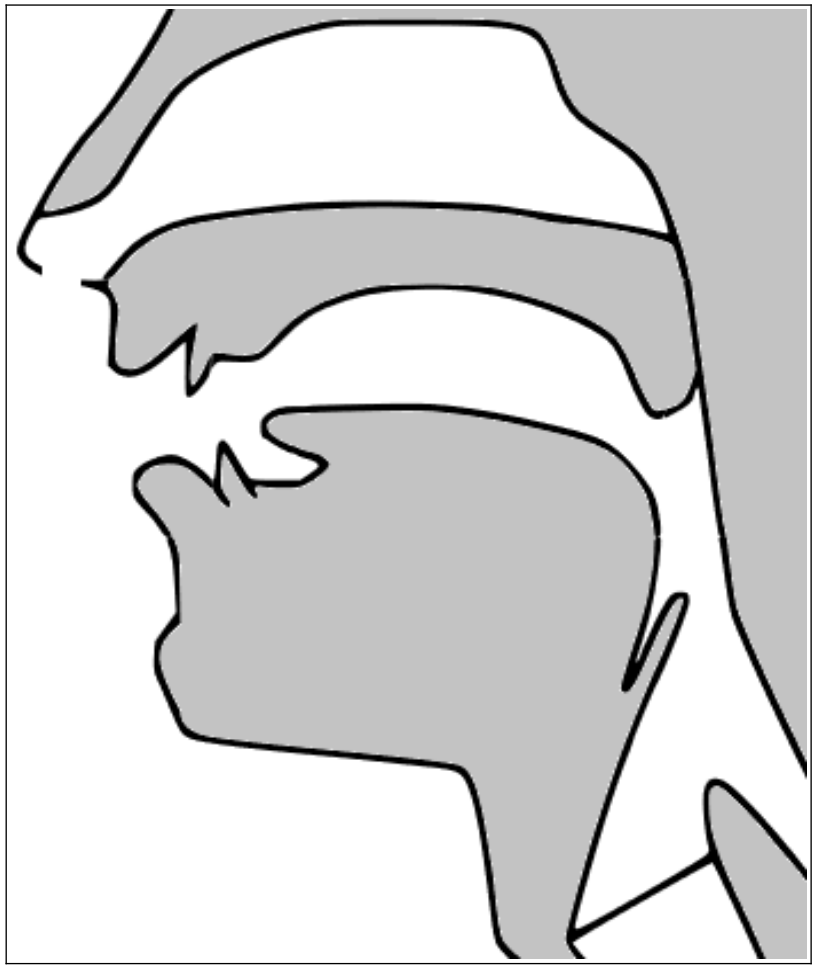
  teeth → **dental**

  alveolar ridge → **alveolar**
  - Bony ridge behind top teeth

  (hard) palate → **palatal**

  velum (soft palate) → **velar**

  glottis (in larynx) → **glottal**



Vocal tract drawing adapted from Daniel Currie Hall's interactive web site

3. Consonant sounds of English

(gray symbols are variants of another phoneme category)

		bilabial	labio-dental	inter-dental	alveolar	post-alveolar	palatal	velar	glottal
stops:	*voiceless*	[p]			[t]			[k]	
	voiced	[b]			[d]			[g]	
nasals		[m]			[n]			[ŋ]	
fricatives:	*voiceless*		[f]	[θ]	[s]	[ʃ]			[h]
	voiced		[v]	[ð]	[z]	[ʒ]			
affricates:	*voiceless*					[ʧ]			
	voiced					[ʤ]			
liquids, lateral					[l]			[ɬ]	
liquids, rhotic					[ɾ]	[ɹ]			
glides		[w]					[j]		

3. Consonant sounds of English

- Why could the consonant (and vowel) charts be called “the periodic table of speech sounds”?

3. Consonant sounds of English

- Why could the consonant (and vowel) charts be called “the periodic table of speech sounds”?
  - These charts are intended to represent all the possible speech sounds in the world’s spoken languages
  - The organization of the chart (rows and columns) sorts the speech sounds into classes

4. Vowel sounds of American English

Poll time

- How many distinct vowel sounds do most varieties of American English have?
  1. About 6
  2. About 10
  3. About 15

4. Vowel sounds of American English

- What is the **difference** between a **consonant** (sound) and a **vowel** (sound)?
- *Phonetics* (sound production & perception):
  - **Vowels**: relatively **unobstructed** vocal tract
    - We can classify vowels according to the **height** and **backness** of the tongue
  - Consonants: have a **constriction** (obstruction)
- *Phonology* (sound patterning / next time):
  - Vowels typically form the nucleus of a syllable
  - Consonants are on the syllable margins

4. Vowel sounds of American English

- Simple vowels

	front		central		back	
high	*gr<u>ee</u>n*	[i]			*bl<u>ue</u>*	[u]
	s<u>i</u>lver	[ɪ]			*w<u>oo</u>den*	[ʊ]
mid	*gr<u>ay</u>*	[e]	*p<u>ur</u>ple*	[ɚ]	*r<u>o</u>se*	[o]
			sof<u>a</u>	[ə]		
	r<u>e</u>d	[ɛ]	*m<u>u</u>stard*	[ʌ]	*<u>au</u>burn*	[ɔ]
low	*bl<u>a</u>ck*	[æ]			*<u>o</u>live*	[ɑ]

- Color example words are from the “color vowel chart”, available at https://americanenglish.state.gov/resources/color-vowel-chart

4. Vowel sounds of American English

- Diphthongs

  turquoise [ɔj]

  white [aj]

  brown [aw]

  - Diphthongs are vowel categories that are made up of a combination of two distinct sounds

- Color example words are from the “color vowel chart”, available at https://americanenglish.state.gov/resources/color-vowel-chart

4. Vowel sounds of American English

- Practice listening to vowel sounds:
  Which vowel category (“color”) do these words have?
  - *plate*
  - *flat*
  - *both*
  - *odd*
  - *boot*
  - *book*

4. Vowel sounds of American English

- Varieties (dialects) of English differ mostly in vowels

Group activity

- Compare with your neighbors:
  - *i.* Same vowel or two different vowels?
    - *cot* vs. *caught* • *pin* vs. *pen* • *tight* vs. *tide*
  - *ii.* Do you all say this vowel the same way?
    - *red*
  - *iii.* Say these vowels slowly — what do you notice? (Was this ever an issue in learning another language?)
    - *gray*, *rose*

4. Vowel sounds of American English

- Varieties (dialects) of English differ mostly in vowels

  How do yours compare with your neighbors'?

  i. Some distinctions between vowels are found only in certain varieties
  - *olive (cot)* vs. *auburn (caught)* (in all contexts)
  - *pin* vs. *pen* (before nasals)
  - *tight* vs. *tide* (the vowel in *white* may have variants depending on the voicing of the following sound)

4. Vowel sounds of American English

- Varieties (dialects) of English differ mostly in vowels

  How do yours compare with your neighbors'?

  ii. Some vowel categories sound different in different varieties
    - *r<u>e</u>d* in "Standard" vs. North Midland (e.g., Chicago, Detroit) vs. southeastern

  iii. Most English varieties have **diphthongs** (two-part vowels) in place of "pure" [e], [o]
    - *gr<u>ay</u>* [gɹej] but for simplicity, some use: [gɹe]
    - *r<u>o</u>se* [ɹowz] [ɹoz]

5. Next time

- **Phonology** — the cognitive organization of sound categories in a language
  - Which physically different sounds are used to distinguish meanings?
  - Which sound combinations are allowed?
- **Syllables** — one phonological factor that organizes how individual consonants and vowel sounds can be combined in a word
- **Orthographic depth** — how directly the writing system of a language represents its sounds