



# Phonetics I

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# Previously on 201



Syntax,  
Semantics, Pragmatics,  
Morphology, Historical  
Linguistics,  
Anthropological  
Linguistics,  
Dialectology, Sociolinguistics

## Phonetics and IPA

### Pragmatics

- the study of how **context** contributes to meaning or it is the study of **implied meaning**

### presuppositions

- background information that is taken for granted or in the **common ground** for an utterance to make sense

### conversational implicatures

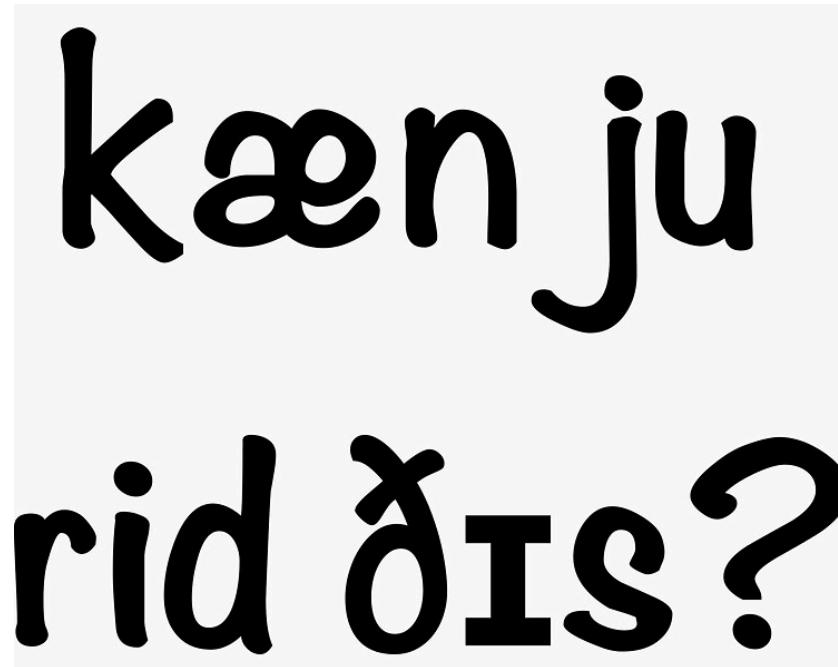
- meaning arises from our understanding of **how people behave** in conversation

### Gricean Maxims

- quality, **quantity**, relevance, **manner**

NEVER EVER  
BE FRIGHTENED BY  
PHONETICS  
AT ALL

# Phonetics and Phonology



Now we're looking at the smallest element of language: **sounds**

Phonetics and Phonology studies the **sounds** of language

- **Phonetics**: study of speech sounds as a physical phenomenon
- **Phonology**: study of how languages organize speech sounds into a system (pattern)

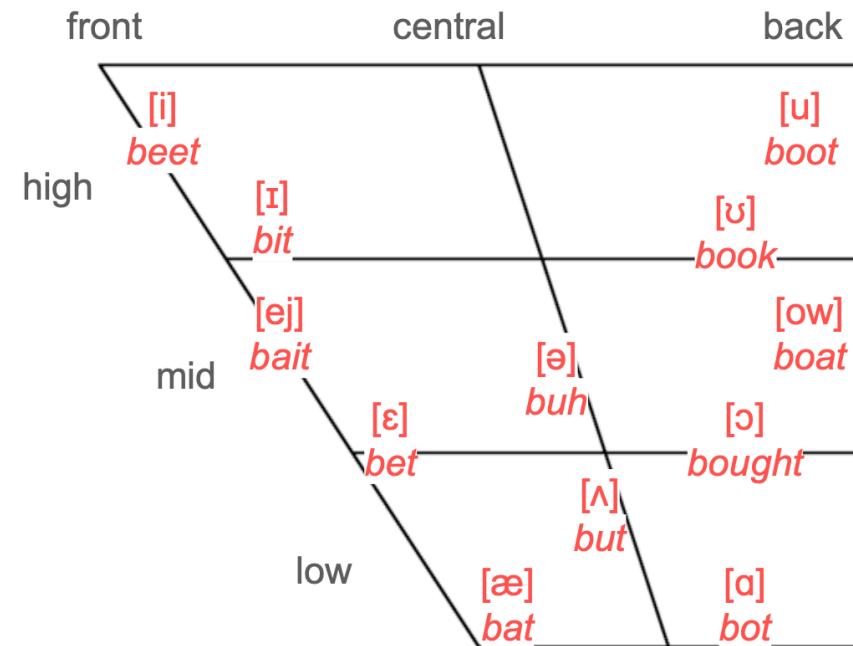
# Vowels

## vowels vs. consonants vs. glides

- whether airflow is obstructed somewhere
  - **vowels** - no obstruction
  - **consonants** - with obstruction
  - **glides** - somewhere between **vowels** and **consonants**

## vowel articulation

- tongue **height**
  - high, mid, low
- tongue **backness**
  - front, central, back
- lip **roundness**
  - rounded, unrounded
- tense and lax (**lax**: relaxed tongue)



# Other Vowel Features



**nasalization:** articulated by lowering the velum/soft palate, so that air flows through both the **nasal** and **oral** cavity

- **English**  
*æt 'at' vs. æ̃nt 'ant'*

**length:** long vowels **contrast** with short vowels

- **Mongolian**  
*[tsa'ssun] 'snow' vs. [tsaa'ssun] 'paper'*
- since adding or removing the **length feature** changes the meaning completely, we say that length is **contrastive** in mongolian

**pitch:** tonal languages **contrast** pitch

- **Mandarin Chinese**  
*ma<sup>55</sup>      ma<sup>35</sup>      ma<sup>214</sup>      ma<sup>51</sup>*  
*'mom'    'numb'    'horse'    'scold'*

# Identify the Vowel

In this **MRI** (Magnetic Resonance Imaging), the speaker is saying **5** vowels:

- [i] as in bee
- [e] as in bay
- [a] as in baa
- [o] as in bow
- [u] as in boo



1. What is the tongue **height** in each image?
2. What is the tongue **backness** in each image?
3. How are lips (**roundness**) acting in each image?
4. What **vowel** is being said in each image?



# Identify the Vowel

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2. What is the tongue **backness** in each image?
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4. What **vowel** is being said in each image?



[a]



[u]



[e]



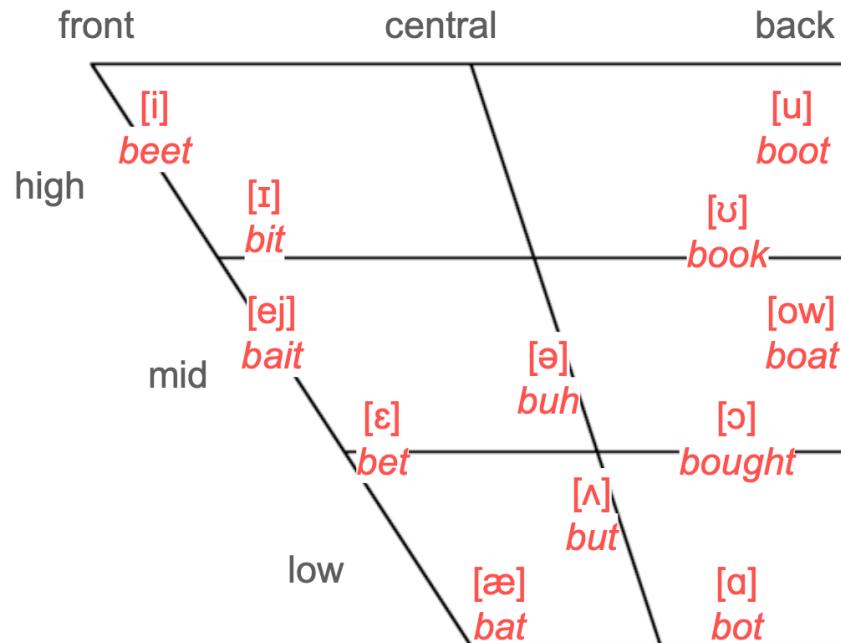
[o]



[i]

# Identify the Vowel

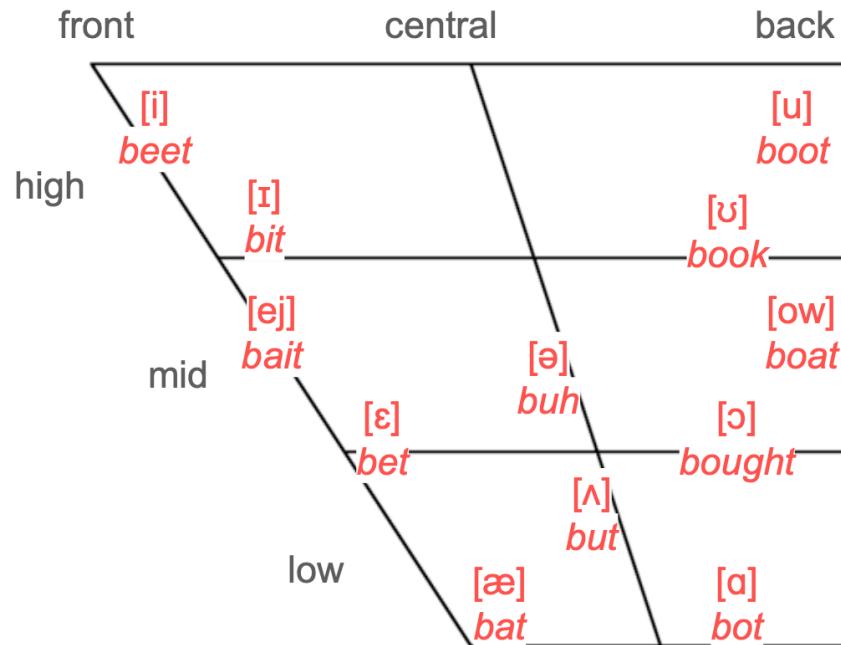
(1) identify which **vowels** are in the following words,  
 (2) give the **IPA** symbol for them, and (3) define  
 them using the big three **features**



1. cat
2. kit
3. red
4. reed
5. pot
6. boot
7. cut
8. should
9. fork

# Identify the Vowel

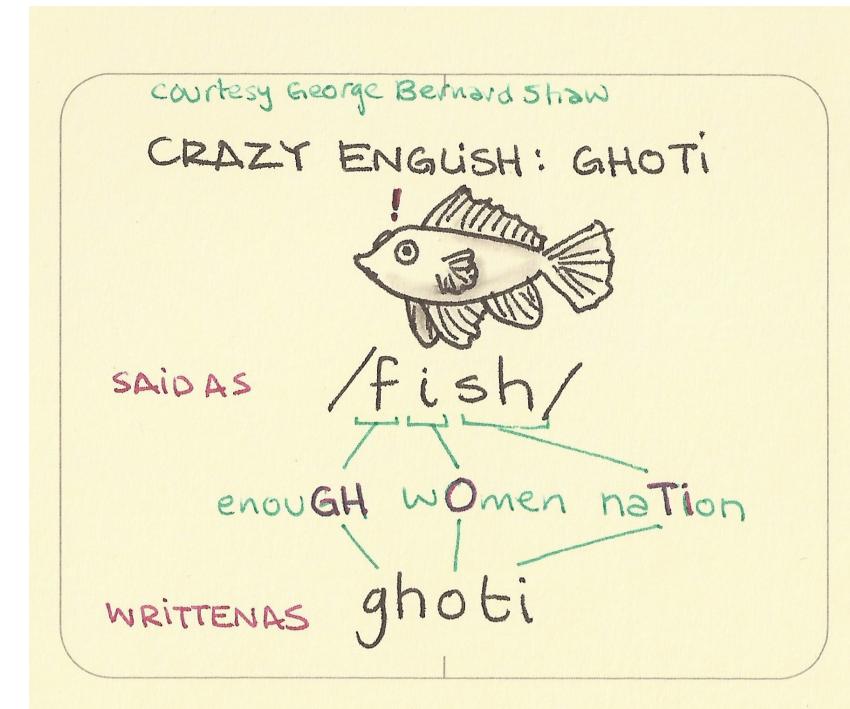
- (1) identify which **vowels** are in the following words,  
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 them using the big three **features**



1. cat **æ** [-high, +low, -back, -round]
2. kit **i** [+high, -low, -back, -round]
3. red **ɛ** [-high, -low, -back, -round]
4. reed **i** [+high, -low, -back, -round]
5. pot **a** [-high, +low, +back, -round]
6. boot **u** [+high, -low, +back, +round]
7. cut **ʌ** [-high, +low, +back, -round]
8. should **ʊ** [+high, -low, +back, +round]
9. fork **ɔ** [-high, -low, +back, +round]

# Sounds vs. Spellings

- **spelling** (orthography) has a problem: one sound doesn't always equal one letter
  
- two letters, one sound
  - **th** and **ng** in **thing**
- one letter, two sounds
  - **x** in **tax**
- one letter, no sound
  - **k**, **g**, and **h** in **knight**
- one sound, many spellings
  - **rush**, **notion**, **ocean**, **niche**, **issue**, **schlep**, **fuchsia**
- one spelling, many sounds
  - **through** ≠ **plough** ≠ **ought** ≠ **rough** ≠ **cough** ≠ **though**



# Sounds vs. Spellings



- no language has a writing system that can **perfectly** represent its speech sounds
- pronunciation **changes over time**; writing doesn't always reflect these changes  
*knight, time*
- pronunciation **varies by place and social group**; writing doesn't usually reflect this  
*schedule, cot/caught*
- **loanwords** (words borrowed from another language) often have spellings that reflect the pronunciation in the source language, not target language  
*zucchini, psychology*
- this becomes a problem when we want to talk precisely about **phonetics**, and we want to accurately represent the **pronunciation**

# an easy cryptographic game

|         |          |                   |
|---------|----------|-------------------|
| A: I    | N: XIV   | IX XVI I          |
| B: II   | O: XV    |                   |
| C: III  | P: XVI   | XVIII XXI XII XIX |
| D: IV   | Q: XVII  |                   |
| E: V    | R: XVIII | XXI XIX           |
| F: VI   | S: XIX   |                   |
| G: VII  | T: XX    |                   |
| H: VIII | U: XXI   |                   |
| I: IX   | V: XXII  |                   |
| J: X    | W: XXIII |                   |
| K: XI   | X: XXIV  |                   |
| L: XII  | Y: XXV   |                   |
| M: XIII | Z: XXVI  |                   |

# an easy cryptographic game

|         |          |                   |
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| G: VII  | T: XX    |                   |
| H: VIII | U: XXI   |                   |
| I: IX   | V: XXII  |                   |
| J: X    | W: XXIII |                   |
| K: XI   | X: XXIV  |                   |
| L: XII  | Y: XXV   |                   |
| M: XIII | Z: XXVI  |                   |

IPA  
RULES  
US

'IPA rules us.' (not U-S)

# International Phonetic Alphabet (IPA)



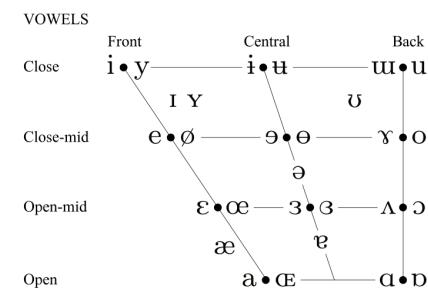
# International Phonetic Alphabet (IPA)

[ɪər'næʃənəl fə'nɛrič 'ælfə'bɛt]

- to **accurately** represent speech sounds, we use the **International Phonetic Alphabet (IPA)**
    - one symbol = one sound
  - same symbols for **all** spoken languages – all languages use some **subset** of these symbols (plus additional symbols on the full IPA chart)
  - many IPA symbols represent roughly the same sounds as the corresponding English letter
    - [p, t, k, b, d, g, f, v, s, z, h, m, n, l]
  - some IPA symbols do not
    - IPA [j] = English y, yes [jɛs]
    - [c, q, x] & most vowels ≠ English letters

| CONSONANTS (PULMONIC) |          |             |        |          |              |           |         |       |        |            | ©①② 2020 2020 IPA |  |
|-----------------------|----------|-------------|--------|----------|--------------|-----------|---------|-------|--------|------------|-------------------|--|
|                       | Bilabial | Labiodental | Dental | Alveolar | Postalveolar | Retroflex | Palatal | Velar | Uvular | Pharyngeal | Glottal           |  |
| Plosive               | p b      |             |        | t d      |              | t̪ d̪     | c ɟ     | k g   | q ɢ    |            | ?                 |  |
| Nasal                 | m        | n̪j         |        | n        |              | n̪        | n̪j     | n̪j   | N      |            |                   |  |
| Trill                 | B        |             |        | r        |              |           |         |       | R      |            |                   |  |
| Tap or Flap           |          | v̄          |        | f        |              | t̄        |         |       |        |            |                   |  |
| Fricative             | ɸ β      | f v         | θ ð    | s z      | ʃ ʒ          | s̪ z̪     | ç j     | x y   | χ ʁ    | ħ ʕ        | h f̄              |  |
| Lateral fricative     |          |             | ɬ      | ɺ        |              |           |         |       |        |            |                   |  |
| Approximant           |          | v̄          |        | ɹ        |              | ɻ         | j       | ɻ     | ɭ      |            |                   |  |
| Lateral approximant   |          |             |        | l̄       |              | ɺ̄        | ȳ      | ɭ̄    |        |            |                   |  |

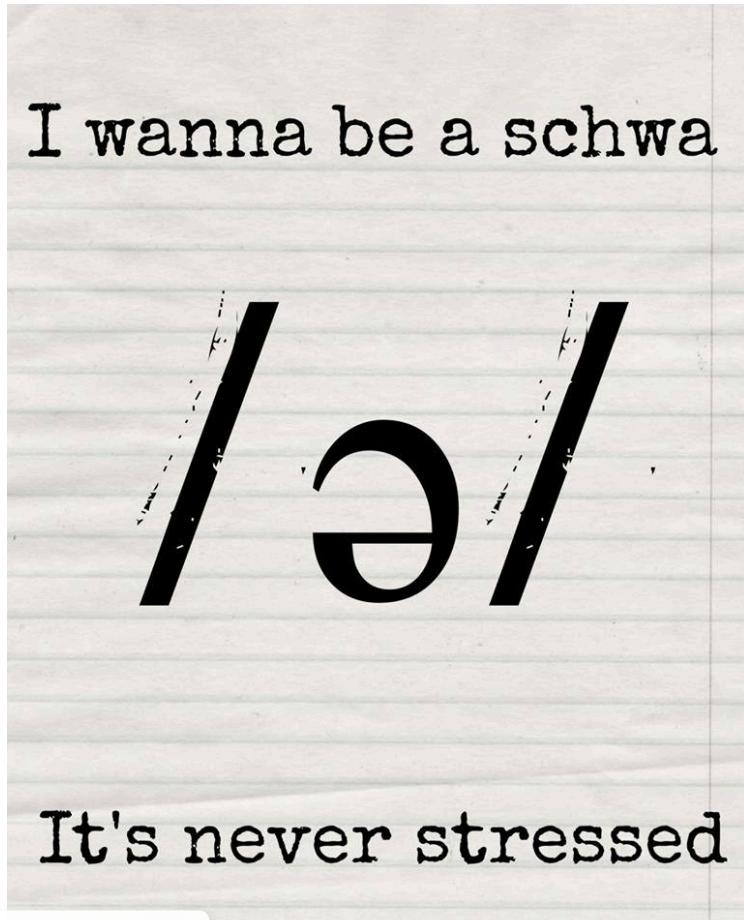
Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.



# International Phonetic Alphabet (IPA)

[ɪn'etər'næʃənəl fə'nɛtɪk 'ælfə'bɛt]

IPA is used for **phonetic transcription** – writing the exact sounds of a speech sample



some **conventions**

- phonetic transcriptions are put between **square brackets** [bə.'næ.nə]
- spelling (orthography) is written in **italics** or **angle brackets**: *banana*, <b>
- **all** sounds and **only** sounds are written:
  - no silent letters  
**phone** ['fown]; **through** ['θru]
  - write out actually pronounced sounds  
**next** ['nekst], **exam** [əg.'zæm]
- a dot (.) indicates **syllable divisions**:  
pronunciation [prə.'nʌn.si.'ej.sən]
- **primary** and **secondary** stress are indicated with ' and , before the stressed syllable

# Practice: IPA to English

What **English words** do the following **phonetic transcriptions** represent?

1. [kæ.lən.dr]

2. [bɪŋ.ɪŋ]

3. [tɛ.lə.vɪ.ʒn]

4. [ðiz]

5. [θɪŋk]

6. [ʃæk]

7. [nʌ.θɪŋ]

## Common IPA Symbols for English

|             |                    |                  |
|-------------|--------------------|------------------|
| [i] bee     | [θ] <u>think</u>   | [p] <u>pay</u>   |
| [ɪ] kit     | [ð] <u>that</u>    | [t] <u>take</u>  |
| [eɪ] face   | [ʃ] <u>ship</u>    | [k] <u>can</u>   |
| [ɛ] pet     | [ʒ] <u>measure</u> | [b] <u>about</u> |
| [æ] ash     | [tʃ] <u>chop</u>   | [d] <u>ado</u>   |
| [ʌ] cup     | [dʒ] <u>bridge</u> | [g] <u>agree</u> |
| [ə] about   | [r] <u>red</u>     | [f] <u>feel</u>  |
| [ɑ] lot     | [ŋ] <u>sing</u>    | [v] <u>very</u>  |
| [ɔ] thought | [j] <u>yes</u>     | [s] <u>so</u>    |
| [ow] goat   |                    | [z] <u>zoo</u>   |
| [ʊ] foot    |                    | [h] <u>hot</u>   |
| [u] goose   |                    | [m] <u>meet</u>  |
|             |                    | [n] <u>nice</u>  |
|             |                    | [l] <u>less</u>  |

# Practice: English to IPA

## Common IPA Symbols for English

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|                    |                    | [n] <u>nice</u>  |
|                    |                    | [l] <u>less</u>  |

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: IPA to English (Complex)

What **English words** do the following **phonetic transcriptions** represent?

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

## Common IPA Symbols for English

|                    |                    |                  |
|--------------------|--------------------|------------------|
| [i] <u>bee</u>     | [θ] <u>think</u>   | [p] <u>pay</u>   |
| [ɪ] <u>kit</u>     | [ð] <u>that</u>    | [t] <u>take</u>  |
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# Practice: IPA to English (Complex)

What **English words** do the following **phonetic transcriptions** represent?

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**

## Common IPA Symbols for English

|                    |                    |                  |
|--------------------|--------------------|------------------|
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# Practice: IPA to English (Complex)

What **English words** do the following **phonetic transcriptions** represent?

1. [bʌ.tər.flaj]

2. ['ʌŋ.kl]

3. ['rʌ.bər]

4. [rajt]

5. ['eə.pɔ:t]

6. ['o.gəst]

7. [gə.'rɪ.lə]

## Common IPA Symbols for English

|                    |                    |                  |
|--------------------|--------------------|------------------|
| [i] <u>bee</u>     | [θ] <u>think</u>   | [p] <u>pay</u>   |
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|                    |                    | [l] <u>less</u>  |

# Practice: IPA to English (Complex)

What **English words** do the following **phonetic transcriptions** represent?

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**

## Common IPA Symbols for English

|                    |                    |                  |
|--------------------|--------------------|------------------|
| [i] <u>bee</u>     | [θ] <u>think</u>   | [p] <u>pay</u>   |
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|                    |                    | [n] <u>nice</u>  |
|                    |                    | [l] <u>less</u>  |

## Common IPA Symbols for American English

Vowels

[i] bee

[ɪ] kit

[eɪ] face

[ɛ] pet

[æ] ash

[ʌ] cup

[ə] about

[ɑ] lot

[ɔ] thought

[oʊ] goat

[ʊ] foot

[u] goose

Glides &Diphthongs

[j] yes

[w] we

[aw] cow

[oj] boy

[aj] lie

Plosives &Flaps

[p] spin

[t] stay

[k] skip

[p<sup>h</sup>] pit[t<sup>h</sup>] tin[k<sup>h</sup>] cat

[b] about

[d] adore

[g] ago

[ɾ] butter

[?] button

Fricatives &Affricates

[f] few

[v] view

[θ] think

[ð] that

[s] sink

[z] zoo

[ʃ] ship

[ʒ] measure

[h] hit

[tʃ] chop

[dʒ] bridge

Nasals &Liquids

[m] my

[n] now

[ŋ] sing

[l] lot

[ɹ] ball

[r] red

Syllabicconsonants

[l] bottle

[n] button

[ɹ] better

**Homework VI** is due this Sunday (**Nov 9th**)

**NO** new homework next week, a new homework will be posted **end of next Sunday**

**reading materials:** continue reading

Phonetics 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**.