Phonetics & Phonology
Pronunciation

- Poor English pronunciation may confuse people even if you use advanced English grammar.
- We can use simple words and simple grammar structures that make people understand you but we cannot use "simple pronunciation".
- Good English pronunciation will make people understand you easily and be willing to listen to you!
- English teachers usually are the only source of L2 input for their students.
There are three levels of English pronunciation:

- **Level 1:** People often don't understand what you want to say. You use the wrong sounds in English words. (example)

- **Level 2:** People understand what you want to say, but it is unpleasant to listen to you. (example)

- **Level 3:** People understand you, and your English is pleasant to listen to. (example one, example two)

Level 3 will be called *good pronunciation*. Notice that *good pronunciation is not "perfect American or British accent"*. You don't have to sound like the Queen of England or the President of the United States of America!!!
Why do we need to know this?
LANGUAGE AND THE BRAIN

Mother language

Foreign language
So... what ARE the problems of learning L2 pronunciation?

- Written vs. spoken language; letters vs. sounds. (orthographic interference!)

- Hearing *what* is said vs. listening to *how* it's said. (we are very good at *decoding* meaning; bad at *listening*!)

- Learning new (complex) articulation patterns (new *gestures* are (mostly) easy; but NOT when communicating)
So... what ARE the problems of learning L2 pronunciation?

• Changing established (complex) articulation patterns. (new sounds that are near to L1 sounds are especially tricky)

• Making new and changed patterns automatic. (if you want to communicate, you can’t think of what your tongue and lips are doing ....)
Learning new (complex) articulation patterns

• The problem sounds that you identify have to be produced, articulated, pronounced!
• That means learning new motor patterns ..... ..... and most of your everyday motor patterns were established when you were between 6 months and 6 years old!
• A speech sound requires fine control of up to 50 muscles.
Making new and changed patterns automatic.

- **Auditory awareness + new articulatory gesture** is not the final answer!

- You speak to express your thoughts and feelings (just as you normally listen to understand someone else’s thoughts) ..... 
  
  ...... so you have no time to pay proper attention to your pronunciation.

- All articulatory gestures have to be „overlearned“; they have to be automatic (with a sub-conscious link between „the feel“ of the articulatory movements and the sound of the utterance)
To sum it all up ..... 

- Pronunciation is a difficult thing to get into, because
  - you have to *make conscious* something that you use sub-consciously,
  - something you *learned* to use sub-consciously *many years ago*.

- Pronunciation is difficult to change because
  - ANY established motor pattern is difficult to change
    (have you tried to change how you walk?)

- Pronunciation is difficult to learn, because
  - it has to be *"overlearned"* so that the new patterns can
    be used in communication just as the old ones are.
Anyone who knows a language knows the sounds in that language, how those sounds are strung together, and what these different sound sequences mean.
Phonology deals with the system and pattern of speech sounds in a language.

Phonology of a language is the system and pattern of speech sounds.
Phonology

- Phonological knowledge permits us to:
- produce sounds which form meaningful utterances,
- to recognize a “foreign” accent,
- to make up new words,
- To know what is or is not a sound in one’s language
- to know what different sound strings may represent
What is phonetics?

- Phonetics is the science of speech.
- We all speak.
- But how many of us know how we speak?
- Or what speech is like?
- Phonetics seeks to answer those questions.
**Phonetics vs Phonology**

Phonetics

The study of speech sounds.

Phonology

The study of the way speech sounds form patterns.
Segmental Units of Sound

- **Segment** is any discrete unit that can be identified, either physically or auditorily, in the stream of speech.
- In phonetics, the smallest perceptible segment is a *phone*.
- In phonology, smallest segment is *phonemes*.
Phones

- A speech segment that possesses distinct physical or perceptual properties
- A particular occurrence of a speech segment
- The basic unit revealed via phonetic speech analysis
Phonemes

- In human language, a phoneme is the smallest unit of speech that distinguishes meaning.
- Phonemes are not the physical segments themselves, but abstractions of them.
- The /t/ sound found in words like tip, stand, writer, and cat are examples of phonemes.
Phones vs Phonemes

- We use slashes / / for phonemes.
- We use brackets [ ] for phones.
- The vowel “phoneme” in the words *bead* and *bean* is represented as /i/.
- The “phone” is represented as [i].
Delete a word-final /b/ when it occurs after a /m/ as in:

bomb — bombard
crumb — crumble
lamb — limber
tomb — tumble

But not!
Sequences of Phonemes

```
    k             b             l             l
    b l i k       l b k l       i b k i
    k l i b       l l b k       i l b k
    b i l k       b k l l       i b l k
    k l l b
```

```
possible
impossible
```

•“I just bought a beautiful new *blick*” What is a blick?
•“I just bought a beautiful new *bkli*” WHAT!!
Sequences of Phonemes

Your knowledge of English “tells” you that certain strings of phonemes are permissible and others are not.

That’s why /bkli/ does not sound like an English word.

It violates the restrictions on the sequencing of phonemes; i.e. it violates the phonological rules of English.
Minimal Pair

Minimal pairs are pairs of words or phrases which differ in only one phonological element, such as a *phone* or a *phoneme*, and have a distinct meaning.

E.g. bit > pit, tip > dip, fan > van

They are used to demonstrate that two phones constitute two separate phonemes in the language.
Orthography and Sounds

- Alphabetic spelling represents the pronunciation of words.
- However, the sounds of the words in a language are unsystematically represented by *orthography*, i.e. Spelling.
Orthography and Sounds

The English language is not *phonetic*.

Words are not spelled as they are pronounced.

There is no one to one correspondence between the *letters* and the *sounds* or phonemes.
Did he believe that Caesar could see the people seize the seas.

The silly amoeba stole the key to the machine.
Mark Twain offered a phonetic alphabet for English.

- fish → ghoti
- the gh = f as in rough
- the o = i as in woman
- the ti = sh as in nation
Vowels and Consonants

Phonetically, it is easy to give definitions:

- A vowel is any sound with no audible noise produced by constriction in the vocal tract,

- And consonant is a sound with audible noise produced by a constriction.
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<td>door</td>
<td>20</td>
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</table>
Diphthongs

Front | Central | Back
--- | --- | ---
High |  | 
Mid |  |  
Low |  |  

Lax | Tense
---|---

au | cow
ai | high
ic | boy
Articulatory Phonetics

The production of any speech sound involves the movement of an air stream.

Most speech sounds are produced by pushing the air out of the lungs through the mouth (oral) and sometimes through the nose (nasal).

Articulatory Phonetics deals with how the sounds are produced.
Three Dimensions of Articulation

- Voicing
- Place of Articulation
- Manner of Articulation
Voiced and Voiceless Sounds

- The air stream from the lungs passes through an opening between the vocal cords, the *glottis*.
- If the vocal cords are apart and the airstream is not obstructed at the glottis, the sounds produced this way are *voiceless*.
- If the vocal cords are together and the airstream forces its way through, the vocal cords vibrate and the sounds produced this way are *voiced*. 
Voice Production

- Video 1
- Video 2
- Video 3
Voiced and Voiceless Sounds

- If you put a finger in each ear and say “zzzzz” you can feel the vibrations.
- If you put a finger in each ear and say “ssssss” you will not feel any vibration.
- When you whisper, you are actually making all the speech sounds voiceless.
Nasal and Oral Sounds

- When the soft palate or velum is raised to block the passage of air stream through the nose and forced through the mouth, sounds produced this way are called **oral**.

- If you force the air out of the nose by closing your lips or blocking the oral passage, sounds produced this way are called **nasal**.
Three Dimensions of Articulation

- Voicing
- Place of Articulation
- Manner of Articulation
Places of Articulation

- Labials (bilabials, labiodentals)
- Alveolars
- Velars
- Interdentals
- Palatals
- Glottals
Labials

[b], [p], [m], [f] and [v] are labials

- When we produce [b], [p], or [m], we articulate them by bringing together both lips. These speech sounds are called bilabials.
- When we produce [f] and [v], we articulate by touching the bottom lip to the upper teeth. These speech sounds are called labiodentals.
Alveolars

[\text{t}, \text{d}, \text{s}, \text{z}, \text{n}, \text{and} \text{~l~}] are alveolars.

When we produce these sounds we raise the tip of our tongue toward the hard palate and touch the alveolar ridge. These speech sounds are called alveolars.

When we produce [f] and [v], we articulate by touching the bottom lip to the upper teeth. These speech sounds are called labiodentals.
Velars

\[ [k], [g], [ŋ], [w] \text{ are velars.} \]

When we produce these sounds we raise the back of our tongue toward the soft palate or the velum. These speech sounds are called velars.
Interdentals

[θ] and [ð] are interdentals.

When we produce these sounds we insert the tip of our tongue between the upper and the lower teeth. These speech sounds are called interdentals.
Palatals

Press [ʃ] [ʒ] [ʧ] [ʤ] are palatals.

When we produce these sounds we raise the front part of our tongue to a point on the hard palate just behind the alveolar ridge. These speech sounds are called **palatals**.
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</table>
Three Dimensions of Articulation

- Voicing
- Place of Articulation
- Manner of Articulation
Manners of Articulation

- Stops
- Fricatives
- Affricates

- Nasals
- Liquids
- Glides

Obstruents
Sonorents
Obstruents

An obstruent is a consonant sound formed by obstructing the outward airflow, causing increased air pressure in the vocal tract.

Obstruents are those articulations in which there is a total closure or a stricture causing friction,

Obstruents are subdivided into **stops, fricatives, and affricates.**
Sonorants

Sonorants are those articulations in which there is only a partial closure or an unimpeded oral or nasal escape of air.

English has the following sonorant consonantal phonemes: /l/, /m/, /n/, /ŋ/, /ɹ/, /w/, /j/
Manners of Articulation

- Stops
- Fricatives
- Affricates

- Nasals
- Liquids
- Glides

Obstruents

Sonorents
Stops (plosives)

- When the air stream enters the oral cavity it may be stopped, obstructed, or flow freely.
- When the air is completely stopped for a brief period of time, these speech sounds are called **stops**.
- [\textit{b}, [p], [t], [d], [k] and [g] are **stops**.]
Fricatives

When the air is not stopped completely but is obstructed from flowing freely, these speech sounds are called **fricatives**.

[h], [f], [v], [θ], [ð], [s], [z], [ʃ] and [ʒ] are **fricatives**.
Some sounds are produced by a stop closure followed immediately a slow release of the closure as in a fricative. These speech sounds are called affricates.

[tf] and [dʒ] are affricates.
Nasals

A nasal consonant is produced with a lowered velum in the mouth, allowing air to escape freely through the nose.

The oral cavity still acts as a resonance chamber for the sound, but the air does not escape through the mouth as it is blocked by the tongue.

[m], [n] and [ŋ] are *nasals*. 
Liquids

When there is some obstruction of the air stream but not enough to cause friction, these speech sounds are called *liquids*.

[l] and [r] are *liquids*. 
Glides

When there is little or no obstruction of the air stream in the mouth, these speech sounds are called **glides or semi-vowels**

[j] and [w] are **glides**.
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Next Week

- **Midterm exam**
- **covering all we have studied so far**
Vowel sounds are classified in terms of:

- Tongue height
- Tongue backness
- Lip rounding
- Tenseness
Tongue Height

Vowels are classified in terms of how much space there is between the tongue and the roof of the mouth, which is determined by the height of the tongue.

There are three primary height distinctions among vowels: high, low, and mid.
Vowels
Tongue Height
Vowels are classified in terms of how far the raised body of the tongue is from the back of the mouth, which is called the backness of the tongue.

There are three primary height distinctions among vowels: front, back, and central.
Tongue backness
Another aspect of vowel classification is the presence or absence of lip rounding. Some vowels, such as the vowels /u/ and /o/ are formed with a high degree of lip rounding.

Such vowels are called rounded vowels. Some vowels, such as /i/ and /ɛ/ are formed without such rounding, and are called unrounded vowels.
Tenseness

Another aspect of vowel classification is commonly characterized in terms of the tenseness or laxness of the articulators.
Some vowels, such as the vowels /i/ and /e/, are formed with a high degree of tenseness. Such vowels are called tense vowels.

Some vowels, such as /i/ and /ɛ/, are formed without a high degree of tenseness, and are called lax vowels.
IPA Vowels

ipavowels.swf
Turkish Vowels

- i
- y
- u
- w
- o
- æ
- a
IPA

International Phonetic Alphabet

The INTERNATIONAL PHONETIC ASSOCIATION

International Phonetic Association
### Vowel Phonemes

| 01 | /ɪ/ | pit | 11 | /ɜ:/ | girl |
| 02 | /e/ | pet | 12 | /u:/ | too |
| 03 | /æ/ | pat | 13 | /ei/ | day |
| 04 | /ɔ/ | pot | 14 | /ɒ/ | sky |
| 05 | /ʌ/ | luck | 15 | /ɔɪ/ | boy |
| 06 | /ʊ/ | good | 16 | /ə/ | beer |
| 07 | /ə/ | ago | 17 | /ɛə/ | bear |
| 08 | /i:/ | meat | 18 | /uə/ | tour |
| 09 | /a:/ | car | 19 | /əʊ/ | go |
| 10 | /ɔː/ | door | 20 | /au/ | cow |

### Consonant Phonemes

| 21 | /p/ | pit | 33 | /m/ | man |
| 22 | /b/ | bit | 34 | /n/ | nice |
| 23 | /t/ | time | 35 | /ŋ/ | ring |
| 24 | /d/ | door | 36 | /l/ | leg |
| 25 | /k/ | cat | 37 | /r/ | rat |
| 26 | /ɡ/ | get | 38 | /w/ | wet |
| 27 | /f/ | fan | 39 | /h/ | hat |
| 28 | /v/ | van | 40 | /ʃ/ | shop |
| 29 | /θ/ | think | 41 | /ʃ/ | leisure |
| 30 | /ð/ | that | 42 | /z/ | chop |
| 31 | /s/ | send | 43 | /ts/ | jump |
| 32 | /z/ | zip | 44 | /dʒ/ | jump |
Minimal Pairs

In phonology, minimal pairs are pairs of words or phrases in a particular language, which differ in only one phonological element, such as a phoneme and have a distinct meaning.

eg: /pit/ and /bit/
## Minimal Pairs

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<th>word 2</th>
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<th>IPA 2</th>
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