Advanced Phonetics and Phonology

1302741

Lecture (6)

PHONOLOGICAL PROCESSES
There are several processes that affect the phonetic realizations of phonemes in different contexts.

In other words, there are several general processes which result in different phonetic realizations.
Process # 1 – Assimilation

A sound becomes more like a neighboring sound in articulatory terms

Voicing assimilation:

- English approximants are realized as voiceless after a voiceless consonant \([\text{pl̥ei}]\)

Vowel Nasalization:

- English vowels are nasalized when they are directly before a nasal consonant \([\text{măn}]\)
Process # 1 – Assimilation

- **Regressive Assimilation (leading)**
  - Assimilation in which a sound influences the preceding segment.
  - E.g. indefinite, impossible, incomplete

- **Progressive Assimilation (lagging)**
  - Assimilation in which a sound influences the following segment.
  - E.g. books, bags
### Process #1 – Assimilation

<table>
<thead>
<tr>
<th></th>
<th>Item</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bananas</td>
<td>1</td>
<td>[ -z ]</td>
</tr>
<tr>
<td>2</td>
<td>Grapes</td>
<td>2</td>
<td>[ -s ]</td>
</tr>
<tr>
<td>3</td>
<td>Lemons</td>
<td>3</td>
<td>[ -z ]</td>
</tr>
<tr>
<td>4</td>
<td>Cookies</td>
<td>4</td>
<td>[ -z ]</td>
</tr>
<tr>
<td>5</td>
<td>Cakes</td>
<td>5</td>
<td>[ -s ]</td>
</tr>
<tr>
<td>6</td>
<td>Tarts</td>
<td>6</td>
<td>[ -s ]</td>
</tr>
<tr>
<td>7</td>
<td>Potatoes</td>
<td>7</td>
<td>[ -z ]</td>
</tr>
<tr>
<td>8</td>
<td>Carrots</td>
<td>8</td>
<td>[ -s ]</td>
</tr>
</tbody>
</table>

[-z] or [-s]
Process # 1 – Assimilation

1. Studied
2. Kicked
3. Eliminated
4. Erased
5. Looked
6. Typed
7. Measured
8. Surrounded

[-d], [-t], or [-id]
Process # 2 – Dissimilation

A sound becomes less like a neighboring sound in articulatory terms

- Some dialects of English: break up word-final fricatives – fricative cluster realized as fricative-stop cluster
  
  *fifth* / fᵢfɵ / → [fɪtɵ]

- Greek: fricative cluster realized as fricative-stop cluster
  
  /asɵenis/ → [astenis]
Process # 3 – Insertion (Epenthesis)

Segment is inserted within an existing string of segments

- Turkish borrowed words:  
  [tiren] ‘train’
  [ku1Yp] ‘club’

- In English, a stop consonant is often added to break a nasal + fricative sequence
  - /striŋθ/ ‘strength’ → [striŋkθ]
  - /hæmstər/ ‘hamster’ → [hæmpstər]
  - /wɔrmθ/ ‘warmth’ → [wɔrmθ]
  - /fɛns/ ‘fence’ → [fɛnts]
Process # 3 – Insertion (Epenthesis)

Many speakers of other languages do not use combinations like the /lm/ or /lp/ of English and add an epenthetic vowel, for example

[filəm] for ‘film’
[heləp] for ‘help’
Process # 4 – Deletion (Elision)

Segment is deleted from existing string of segments

**French:** le air → l’air  je ai → j’ai

**English:** Fast speech examples

clothes /klɔðz/ → [klɔz]
Process # 4 – Deletion (Elision)

Deletion/Elision (sound loss) eliminates a sound. This applies more frequently to unstressed syllables and in casual speech.

Aphesis / aphaeresis: is the loss of one or more sounds from the beginning of a word, especially the loss of an unstressed vowel.

- *He handed her his hat*
  
  /hiˈhændid hɛr hɪz hæt/ → [hiˈhændid əɹ ɪz hæt]
# Process # 4 – Deletion (Elision)

<table>
<thead>
<tr>
<th>Word</th>
<th>Pronunciation</th>
<th>IPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christmas</td>
<td>/ˈkrɪstməs/</td>
<td>[ˈkrisməs]</td>
</tr>
<tr>
<td>sandwich</td>
<td>/ˈsændwɪtʃ/</td>
<td>[ˈsænwartʃ]</td>
</tr>
<tr>
<td>grandmother</td>
<td>/ˈɡrændməðər/</td>
<td>[ˈgrænməðər]</td>
</tr>
<tr>
<td>grandpa</td>
<td>/ˈɡrændpə:/</td>
<td>[ˈgrænpə:]</td>
</tr>
<tr>
<td>grandma</td>
<td>/ˈɡrændmə:/</td>
<td>[ˈgrænmə:]</td>
</tr>
<tr>
<td>grandson</td>
<td>/ˈɡrændson/</td>
<td>[ˈgrænsən]</td>
</tr>
<tr>
<td>grandparent</td>
<td>/ˈɡrændpɛərənt/</td>
<td>[ˈgrænpɛərənt]</td>
</tr>
<tr>
<td>mustn't</td>
<td>/ˈmʌstnt/</td>
<td>[ˈmʌsnt]</td>
</tr>
<tr>
<td>handsome</td>
<td>/ˈhændsəm/</td>
<td>[ˈhænsəm]</td>
</tr>
</tbody>
</table>
Process # 5 – Strengthening (Fortition)

A sound is realized as a stronger sound

(aspirated stop > stop > fricative > flap> approximant > vowel)

English: aspirated allophones of voiceless consonants word-initially; 
[θaim], [pʰæi.ti]
Process # 6 – Weakening (Lenition)

A sound is realized as a weaker sound

(aspirated stop > stop > fricative > flap > approximant > vowel)

**English:** allophones of /t/ and /d/ realized as flaps [ɾ] between a stressed and unstressed vowels
Process # 6 – Metathesis

- A process that reorders a sequence of segments
- For example, *Brid* (Old English) → *Bird* (Modern English)
  - Some other frequent English pronunciations that display metathesis are:
    - comfortable > comfterble /ˈkʌmftərbəl/
    - nuclear > nucular /ˈnjuːkjʊlər/ (re-analysed as nuke + -cular suffix in molecular, binocular)
    - prescription > perscription /pərˈskrɪpsən/
    - introduce > interduce /ɪntərˈd(j)uːs/
    - asterisk > asterix /ˈæstərɪks/
    - cavalry > calvary /ˈkælvəri/
    - foliage > foilage /ˈfɔɪlɪdʒ/[citation needed]
    - pretty > purty /ˈpɜːrti/
Metathesis is a sound change that alters the order of phonemes in a word.

The most common instance of metathesis is the reversal of the order of two adjacent phonemes, such as "foilage" for foliage. Many languages have words that show this phenomenon, and some use it as a regular part of their grammar.
A common example of metathesis in Egyptian Arabic is when the order of the word's root consonants has changed.

- Classical Arabic *zawg* → Egyptian Arabic *gōz* "husband"
- Classical Arabic *milʿaqah* → *maʿlaʿa* "spoon"
- Persian *zanjabil* → Egyptian Arabic *ganzabīl* ~ *zanzabīl* "ginger"
Process # 6 – Metathesis

- A spoonerism is an error in speech or deliberate play on words in which corresponding consonants, vowels, or morphemes are switched. It is named after the Reverend William Archibald Spooner (1844–1930), Warden of New College, Oxford, who was notoriously prone to this tendency.

- While spoonerisms are commonly heard as slips of the tongue resulting from unintentionally getting one's words in a tangle, they can also be used intentionally as a play on words.
Process # 6 – Metathesis

A spoonerism

- "Three cheers for our queer old dean!" (dear old queen, referring to Queen Victoria)
- "Is it kisstomary to cuss the bride?" (customary to kiss)
- "The Lord is a shoving leopard." (a loving shepherd)
- "A blushing crow." (crushing blow)
- "A well-boiled icicle" (well-oiled bicycle)
- "You were fighting a liar in the quadrangle." (lighting a fire)
- "Is the bean dizzy?" (dean busy)
- "Someone is occupewing my pie. Please sew me to another sheet." (occupying my pew...show me to another seat)
- "You have hissed all my mystery lectures. You have tasted a whole worm. Please leave Oxford on the next town drain." (missed...history, wasted...term, down train)
Process # 7 – Vowel Reduction

- The articulation of a vowel moves to a more central position when the vowel is unstressed.
- For example:
  - considerate vs. consideration
    - /kənˈsɪdərət/ → /kənsɪdəˈreɪʃ(ə)n/
**Process # 7 – Vowel Reduction**

vowel reduction is any of various changes in the acoustic quality of vowels, which are related to changes in stress, sonority, duration, loudness, articulation, or position in the word, and which are perceived as "weakening". It often makes the vowels shorter as well.

Schwa, [ə], is the most common reduced vowel in English; another reduced vowel is the unstressed front mid-close [ɪ].

- a in about, [əˈbaʊt]
- e in synthesis, ['sɪnθəsɪs]
- o in harmony, ['haːməni]
- u in medium, ['miːdɪəm]
- i in decimal, ['desɪml]
- y in syringe, [sɪˈrɪndʒ]
Other Phonological Processes
### Liaison (Linking)

It is a process by which groups of words are connected together within the same phrase or sentence in connected speech.

There are basically two types of linking:

- **Consonant ➔ vowel**  We link words *ending with a consonant sound* to words *beginning with a vowel sound*

- **vowel ➔ vowel**  We link words *ending with a vowel sound* to words *beginning with a vowel sound*
Liaison (Linking)

Linking Consonant to Vowel.
For example, in the phrase "turn off":
- turn off $\rightarrow$ tur-noff [tɜːr-noʊf]

Linking Vowel to Vowel
If our lips are round at the end of the first word, we insert a W sound
- too often $\rightarrow$ tooWoften [tu ˈw-əfən]
- who is $\rightarrow$ whoWis [huː w-ɪz]
- so I $\rightarrow$ soWI [səʊ w-əɪ]
- do all $\rightarrow$ doWall [do w-əl]
Liaison (Linking)

Linking Vowel to Vowel
If our lips are wide at the end of the first word, we insert a Y sound:

- Kay is → KayYis [keɪ j-ɪz]
- I am → Iyam [aɪ j-æm]
- the end → theYend [ði j-ɛnd]
- she asked → sheYasked [ʃi j-ɑːːskt]
Coalescence (Reciprocal Assimilation)

It is a phonological process by which two neighbouring sounds merge into a single sound that has properties of each of the two original sounds. Often, the resulting sound has the place of articulation of one of the source sounds and the manner of articulation of the other.

- Educate $\rightarrow$ /ˈɛduːkeɪt/ $\rightarrow$ /ˈɛdʒuːkeɪt/
- Graduate $\rightarrow$ /ˈɡrædjuːeɪt/ $\rightarrow$ /ˈɡrædʒuːeɪt/
Haplology

It is defined as the elimination of a syllable when two consecutive identical or similar syllables occur. Also, it is defined as the dropping of one of two similar or identical successive syllables or sounds in a word.

- Library (Amer. ˌlaɪˈbrəri) \rightarrow [ˌlaɪˈbəri ]
- Particularly \rightarrow Particuly [pəˈtɪkjʊli ]
- Probably \rightarrow Probly ['prɔbli ]
In phonetics, gemination happens when a spoken consonant is pronounced for an **audibly longer period of time** than a short consonant.

Gemination does occur across words when the last consonant in a given word and the first consonant in the following word are the same fricative, nasal or plosive.

- Calm man ➔ [kɑːˈmæn]
- This saddle ➔ [ðɪˈsædəl]
- Black coat ➔ [blæˈkəʊt]
- Back kick ➔ [ˈbækɪk]
- Orange juice ➔ [ˈɔrɪndʒ dʒuːs]
Paragoge [parəgəʤi]: the **addition** of a sound to the end of a word.

- *slack* and *slacken* (no change in meaning)
- *toward* - *towards*
- *anyway* - *anyways*
Syncope [ˈsɪŋkəpi]: is the loss of one or more sounds from the interior of a word; especially, the loss of an unstressed vowel.

- go[ing t]o → gonna
- wa[nt t]o → wanna
- did n[o]t → didn't
- do[n't k]no[w] → dunno
- I [woul]d [h]ave → I'd've
Apocope

Apocope [əˈpɒkəpi]: is the **loss** of one or more sounds from the end of a word, and especially the loss of an unstressed vowel.

- photograph → photo
- animation → (Japanese) anime-
- synchronization → sync
Apophony (also ablaut, gradation, alternation, internal modification, stem modification, stem alternation, replacive morphology, stem mutation, internal inflection) is the alternation of sounds within a word that indicates grammatical information (often inflectional).

Apophony is exemplified in English as the internal vowel alternations that produce such related words as

- sing, sang, sung, song
- rise, raise
- bind, bound
- goose, geese
Apophony

The difference in these vowels marks variously a difference in tense or aspect (e.g. *sing/sang/sung*), transitivity (*rise/raise*), part of speech (*sing/song, bind/bound*), or grammatical number (*goose/geese*).

Similarly, there are consonant alternations which are also used grammatically:

- belief, believe
- house (noun), house (verb)
  - [haus] (noun), [hauz] (verb)
in the pair *sing/sang*, the vowel alternation between *i* and *a* indicates a difference between present and past tense.

Here, the past tense is indicated by the vowel *a* just as the past tense is indicated on the verb *jump* with the past tense suffix *-ed*. Likewise, the plural suffix *-s* on the word *books* has the same grammatical function as the presence of the vowel *ee* in the word *geese* (where *ee* alternates with *oo* in the pair *goose/geese*).
Why do languages undergo phonological processes?

- a. coarticulatory purposes – assimilation (Palatalization)
- b. constraint on articulatory mechanism – voicing
- c. perceptual purposes – syncope/dissimilation
- d. relation between articulation/perception – syllable processes illustrate this
/ði end əv lektʃə sɪks/