

fə'nɒlədʒi

- INTRODUCTION - Phonetics and Phonology
- PHONEMES AND ALLOPHONES
- NARROW AND BROAD TRANSCRIPTION
- DISTRIBUTION OF SEGMENTS
- SOUNDS IN CONTRAST
- MINIMAL PAIRS
- PHONEMIC PRINCIPLES and RULES

Lecture 4 1

Phonetics and phonology

- In our descriptions of sounds so far, we have mainly dealt with *phonetics*.
- We will now look at more detailed differences between sounds of English. This takes us to the area of *phonology*.

→ A more detailed description of English!
→ We'll also see that the "same" sound is not always pronounced in the same way...

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Phonology

- Phonology focuses on:
 - the way in which speech sounds are organized in individual languages
 - sounds as they are represented in the minds of a speaker (=what you take it to be)
 - the relationship between mental representations of sounds and the real-world sounds (=what you really say/hear)

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Mental representations???

- Remember *pit* and *spit* from Lecture 3? We said that *pit* has an "extra puff of air" which is not present in the /p/ in *spit*, and called this phenomenon aspiration
- Aspiration is transcribed with the IPA diacritic for aspiration: a superscripted ^h
 - [p^ht]
 - [spɪt]
- Given that these two sounds *sound* different, how can we still treat them as one and the same thing?

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More examples

- How do you pronounce /t/ in the following English words?

| | | |
|------------------|-----------------|-------------------|
| ■ <i>Tea</i> | aspirated | [t ^h] |
| ■ <i>Stem</i> | unaspirated | [t] |
| ■ <i>Atlas</i> | lateral release | [t ^l] |
| ■ <i>Not now</i> | nasal release | [t ⁿ] |
| ■ <i>Not yet</i> | palatalised | [tʲ] |
| ■ <i>Eighth</i> | dentalised | [t̪] |
| ■ <i>Hatpin</i> | unreleased | [t̚] |

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Phonemes and allophones

- Although in each case, we are really dealing with a different sound, we take them to represent one and the same phoneme (in English).
- Why?
- Because replacing one sound with another does not result in a meaning change: the meaning of the word *tea* does not change, even if we replace [t^h] with [tⁿ] or [t].

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Phonemes, phones and allophones

- A phoneme is a mental representation of a sound (=an abstraction)
- A phone and/or allophone is an actual phonetic segment produced by a speaker or heard by a listener (=sth concrete, an actual realisation of a phoneme, sth that you pronounce or hear)
- "A **phoneme** is manifested as one or more **phones** (phonetic sounds) in different environments. These phones are called **allophones**."

<http://www.sl.org/linguistics/GlossaryOfLinguisticTerms>

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Phonemes, phones and allophones

- Phonemes are **abstract** and cannot be pronounced or heard
- They set the **boundaries** for what actual sounds can be understood as the same / different
- Cf tree, forest, sofa...



http://fi.wikipedia.org/wiki/Tiedosto:Punkaharju_forest.JPG

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Levels of description

- Broad transcription (phonemes)
 - slashes / / around a sound symbol signify a phoneme transcription
 - /pɪt/ vs /spɪt/
- Narrow transcription (phones and allophones)
 - square brackets [] signify an allophone transcription
 - [p^hɪt] vs [spɪt]

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Levels of description

- Longman's dictionary mostly gives you the broad (phoneme) transcriptions, as the readers are expected to *know* what the most common allophones of each phoneme are, and where they occur.
- In this course, you should also give the broad (phoneme) transcriptions, *except when specifically instructed otherwise!*

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Phonemes or allophones?

- How do we know when two sounds are separate phonemes, or when they are just allophones of one and the same phoneme?
- Minimal pairs test:
 - If we replace [p^h] with [p] in *pit* (ie, otherwise the same sound except for aspiration), we still have the same word (but weird pronunciation...)
 - If we replace [p^h] with [b] in *pit* (ie, otherwise the same sound except for voicing), we have a different word

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Phonemes or allophones?

- The minimal pairs test is based on the idea that phonemes of a language are **contrastive**, while allophones are non-contrastive
- Contrastive = replacing one sound with another *in the same environment* results in a meaning change
- Non-contrastive = replacing one sound with another *in the same environment* does not result in a meaning change

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Minimal pairs test

- Pairs of words which differ with regard to one and only one **sound** (=forget spelling!!!):
 - *Pit* – *bit*, *hit*, *lit*, *sit*, ...
 - *Pit* – *pat*, *pet*, *put*, *pot*, ...
 - *pit* – *pick*, ...
- *Sip* – *lip*, *rip*, *ship*, *chip*, ...
- *Sell* – *sail*, ...

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Contrastive (parallel) distribution

- Sounds which occur in the same environment and cause a meaning change
 - [__ t]
 - [p^h __ t]
 - [p^hɪ __]
- All phonemes of a language are in contrastive distribution

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Complementary distribution

- Allophones of the same phoneme are in complementary distribution
 - They don't usually occur in the same environment
 - We can *predict* which allophone occurs in which environment (=the surrounding sounds – ie the context - control which allophones occur in where)
 - In *Not now* we get [tⁿ] because the following sound is a nasal, and in *Not yet* we get [tʲ], because it is a palatal.

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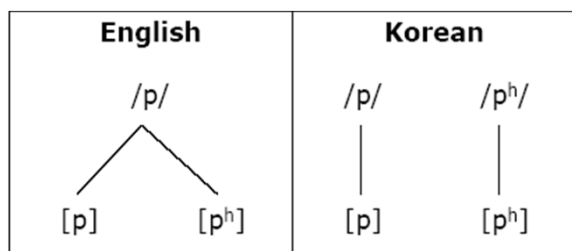
Languages are different!

- In English [p^h] and [p] are two allophones of the phoneme /p/
- This does not mean they are allophones of the same phoneme in all languages...
- Korean:
 - [p^hʊl] 'grass'
 - [pʊl] 'fire'
- two different phonemes in Korean! (Yavas, M 2006)



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Different phoneme groupings (Yavas, M.2006. p194)



Note again that phonemes are written within slashes (e.g. /p/) and allophones within square brackets (e.g. [p])

Languages are different

- In English, *aspiration* is not a phonemic distinction, but in Korean it is
- In Finnish, *voicing* is not always a phonemic distinction, but in English it is
 - [p] vs [b] - [__ ana:nɪ]
- In Swedish, even *tone* can be distinctive (in a limited number of examples):
 - Anden 'duck' vs anden 'spirit'
- And so on...

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The Phonemic Principle 1

- Two or more sounds are realisations of **the same phoneme** iff:
 - they are in complementary distribution
 - they are phonetically similar, like [p^h] with [p] in *pit* and *spit*

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The Phonemic Principle 2

- Two or more sounds are realisations of **different phonemes** iff:
 - They are in contrastive distribution
 - They serve to signal a semantic contrast (like [s] and [h] in *sit* and *hit*)

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Phonological rules

- As different allophones of the same phoneme are in complementary distribution, they are predictable from the context in which they occur
- This means that it is possible to give *rules* for their realisation

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Example 1

- BBC has two allophones of the phoneme /l/:
 - Clear [l] and dark [ɫ]
- Distribution:

| | | |
|---------|---------------------|-------|
| ■ Light | [laɪt] | clear |
| ■ Look | [lʊk] | clear |
| ■ Bold | [bəʊɫd] | dark |
| ■ Pull | [p ^h ʊɫ] | dark |
| ■ Bell | [beɫ] | dark |

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Example 1

- When you observe enough data, you will see that:
 - clear [l] is found before vowel sounds
 - dark [ɫ] is found before consonant sounds or before a pause (i.e. in word final positions)
- This allows you to write the following simple (!) rule:
 - /l/ → [ɫ] / V __ C/#
- (NB. The rule is actually more complex than this...)

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EEK!

- The rule /l/ → [ɫ] / V __ C/# reads as
"The phoneme /l/ is realised as [ɫ] in the environment where it is preceded by a vowel sound and followed by a consonant or pause"
- In general:
 - /input/ → [output] / in this environment

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Example 2

- Remember *tea* and *stem*?
 - Let's write a rule: /t/ → [t^h] / # __ V
- This rule states that /t/ is pronounced [t^h] in word-initial positions (actually, it's syllable-initially, but we'll just forget about that for the time being...), when it is followed by a vowel.
- (again, the rule is really more complex than this...)

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More data!

- Look at the following sets of data:
 - *Pit, tip, kip, ...*
 - *Bit, dip, get, ...*
 - *Spit, stick, ...*
 - *Pray, steam, skip, ...*
 - *Brown, green, ...*
- Notice anything?

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Generalised rules

- The examples we just looked at show that all voiceless plosives are aspirated in word-initial positions when they are followed by a vowel sound
- We can express this as a generalised rule:
 - Voiceless plosive → aspirated / # __ V

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Yet more examples

- In different accents of English, the same underlying phoneme can have different realisations.
- The intervocalic /t/ as in *better, witty* etc:
 - In BBC the /t/ is realised as [t^h]
 - In Cockney (and sometimes in fast speech in other accents) /t/ is realised as [ʔ]
 - In GA the /t/ is often realised as an alveolar flap or tap. We use the symbol [ɾ] in this course, but practices vary.

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Allophones and Allomorphs

- Allophones are different ways of pronouncing a single phoneme
- Allomorphs are different ways of pronouncing a single morpheme.
- **A morpheme**: the smallest meaning-bearing unit in language; it is realized by morphs, and it can have various allomorphs
 - Cat-s, dog-s, house-s, ...
 - Walk-ed, talk-ed, ...

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What???

- Morphemes (such as the inflectional ending *-s* and the inflectional ending *-ed* in English) can be pronounced in various ways, depending on the environment in which they occur
- Environment?
 - In this case the most relevant factor is the **sound** in which the stem of the word (i.e. the word minus the ending) ends.

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The inflectional ending *-s*

1. Pronounced **[ɪz]** when the stem of the word ends in /s, z, ʃ, ʒ, tʃ, dʒ /
 - *Max's, witches, pages, judges*
2. Pronounced **[s]** when the stem ends in an unvoiced consonant sound (except those listed in 1. /s, ʃ, tʃ/)
 - *Kate's, cats, laughs, hopes*
3. Pronounced **[z]** when the stem ends in a voiced sound (=any vowel or voiced consonant, except those listed in 1. /z, ʒ, dʒ /)
 - *Bob's, sees, loves*

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The inflectional ending *-ed*

1. Pronounced **[ɪd]** when the stem ends in /t, d/
 - *painted, tasted, fitted*
2. Pronounced **[t]** when the stem ends in an voiceless consonant (except /t/)
 - *pushed, watched, helped, laughed*
3. Pronounced **[d]** when the stem ends in a voiced sound (any vowel or voiced consonant, except /d/)
 - *closed, breathed, judged, purred*

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For next time:

- Workshop 3:
 - Re-read Roach Ch 5
 - Write down questions and comments, in you have any
 - Do the written and audio exercises as prescribed in the course compendium
 - Visit the suggested websites and do the web exercises
 - Have a look at the exercises in the Workshop 3 set but don't do them beforehand
- Lecture 5:
 - Read Roach Ch 8-11

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