

# Introduction to Phonetics & Phonology Ježek Session 1

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# Linguistics

- scientific study of language
- **DISCIPLINES:** phonetics, phonology, morphology, syntax, semantics, stylistics, sociolinguistics, pragmatics, lexicography, historical linguistics, comparative philology, language acquisition, philosophy of language, neurolinguistics, psycholinguistics, forensic linguistics and others...
- many inter-disciplinary fields, e.g. language variation and change

# Phonetics

- the science of human speech sounds with no specific reference to their function in a given sound-system
- highly autonomous within linguistics (true science: instruments, computers, scaled measurements, etc.)
- It studies 'the defining characteristics of *all* human vocal noise' (Crystal 1990: 167); => phonetic symbols (IPA).
- three interdependent viewpoints:
  - ❖ articulatory (speech production)
  - ❖ acoustic (transmission of sound)
  - ❖ auditory (perception of sound)

# Phonology

- Studies 'sounds and their contrasts within a specific sound-system' (Crystal 1990: 172).
- functional aspect of sounds
- PHONETIC STATEMENT: /b/ is a voiced bilabial plosive.
- PHONOLOGICAL STATEMENT: there are 6 short vowels in English.
- phonemics: 1/ synonym of phonology (sound-system of one language)  
2/ theoretical study of **phonemes**

# Phoneme & Allophone

- **Phonemes** are contrastive units of sound which can be used to change meaning (Collins & Mees 2003: 11).
- Phoneme is an abstract entity shared by a native community.
- **Allophones** are actual sounds uttered by speakers and interpreted as one phoneme despite possible phonetic differences.

# Phoneme & Allophone

- One cannot pronounce a phoneme, only an allophone; hence phoneme, being a feature of language structure, cannot be defined acoustically. In Saussurean terms, it is part of **langue**, not **parole**.
- **phonemic** /ki:p/ v. **phonetic** [k<sub>+</sub><sup>h</sup>i:p] **transcription**

# Phonemes-contrastive distribution

- Two phonemes (never allophones) appearing in the same environment and with a change in meaning:

*pit* and *bit* – **minimal pairs**

*pit, bit, kit, lit, sit ; beat, bean, beam, beef, bees* – **sets of minimal pairs**

## Allophonic variation—examples

- /k/ - advanced *keep* v. retracted *cool*—**accommodatory (intrinsic) alternation** (determined by the phonetic environment, i.e. the following vowel).
- /l/ - clear [l] *light* v. dark [ɫ] *till*— **non-accommodatory (extrinsic) alternation** (determined by the position within a word).



# Allophonic variation—examples

- /l/ - clear [l] *light* v. dark [ɫ] *till* – the two allophones are in **complementary distribution** (i.e. one or the other).
- Other examples of complementary distribution:
  - [p] in *spare, supper* (after a voiceless alveolar fricative and intervocallically preceding an unstressed vowel) v. [p<sup>h</sup>] in *pear* (syllable-initial preceding a vowel under stress).
  - also syllable-initial only [h] v. syllable-final only [ŋ]; but they are not considered allophones of one phoneme due to their lack of **phonetic similarity**.

# Allophonic variation—examples

- The varied quality of /r/, namely e.g. [ɹ] in RP *red*, [r] in Scottish *terrible*, [ʁ] in French *rouge* or in traditional Northumbrian accent. These allophones are in **free variation**.
- Other examples of free variation: /t/-glottaling in *right* [ɹaɪʔ]; Czech long /a/.
- Are there, however, any cases of really free variation in language?

# The phonemic principle

- Two or more sounds are realisations of the *same* phoneme if
  - (a) they are in complementary distribution and;
  - (b) they are phonetically similar.
- two or more sounds are realisations of *different* phonemes if
  - (a) they are in contrastive distribution;
  - (b) they serve to signal a semantic contrast.

(adopted from Carr 1999: 41)

# Phonemic neutralisation

- Two phonemes show overlap in phonetic realisation, i.e. 'a sound may appear to belong to either of two phonemes' (Cruttenden 2014: 47).
- Examples:
  - lenis (non-aspirated) realisation of plosives after s: /st/ *star*, /sp/ *spar*, and /sk/ *scar*—possible allophones of /d/, /b/, and /g/ respectively?  
cf. Welsh *sbectol* (spectacles) and *sgyrt* (skirt).  
(from Collins & Mees 2003: 70)
  - /m/ and /n/ in *infamous* and *emphatic* are both, in anticipation of the following labiodental fricative /f/, labiodental nasals [m̥]; which phoneme does this sound belong to?

# Phonemic neutralisation

- More examples:
  - in Czech *dip, tip* v. *pod, pot*.

Q: So, which phoneme does the plosive in *spin* belong to: /p/ or /b/?

# Archiphoneme

A: it belongs to an **archiphoneme** /P/ + /B/.

- It combines the characteristics of two normally distinct phonemes that cannot be differentiated in certain contexts.
- VIDEO: Prof. Jurgen Handke, Marburg University, Germany  
<https://www.youtube.com/watch?v=C1EhcdSMHGg>

# Phonemic merger

- Absolute phonemic neutralisation is also called a phonemic **merger**; i.e. two previously separate phonemes become one.
- Example:
  - US English LOT-THOUGHT merger.
  - Middle English meat-meet merger.

# One phoneme or two?

- affricates /tʃ/ and /dʒ/-how many phonemes?
- One phoneme: phonotactically (see the next slide) they function in a different way from other affricates (especially /ts/ and /dz/) in word-final positions as they do not typically contain a syllable boundary.
  - Cf. *patch, badge* v. *cats, dogs*. (even word-initial affricate in *tsar* is not pronounced as [ts], but [z]).
- Two phonemes: if /tʃ/ and /dʒ/ are just one phoneme, why not /tr/ and /dr/?
- Universal consent, native intuition...



# Phonotactics

- Refers to restrictions on the possible combinations of phonemes within a particular language (accent).
- CCCV- in English limited to /s/ + plosive + approximant /j/, /r/, /w/, /l/. Thus *stew*, *stream*, *spleen*, *square* are possible, but not *zdream*.
- /ŋ/ in word-final positions only
- /h/ never in word-final positions

# Phonemicisation- phonemic split

- Establishment of a new phoneme in a given language (accent).
- Also called a **phonemic split**
- Examples:
  - lowering of EModE *blood* [ʊ] => [ʌ]
  - loss of /g/ in -ing endings => new phoneme /ŋ/
  - TRAP and BATH split in southern varieties of BrE

# Phoneme- theoretical perspectives

- The notion of **phoneme** was known in the 19th century-but it referred to a phonetic unit (sound) in diachronic comparative philology.
- Phoneme as an abstract contrastive unit was, however, intuitively felt.
- Kazan School of Linguistics:
  - Jan Baudoin de Courtenay (d. 1929), Mikolaj Kruszewski (d. 1887)
  - physiophonetic v. psychophonetic alternations
- American anthropological linguistics
  - Edward Sapir (d. 1939)
  - anthropological focus on native American languages
  - important v. unimportant sound-units in language

# Phoneme- theoretical perspectives

- Ferdinand de Saussure (d. 1913) *Cours de linguistique générale* (phoneme implicitly present in the *langue* v. *parole* distinction).
- Phoneme first thoroughly described by the Prague Linguistic Circle in the 1920s and 30s (Nikolay Trubetzkoy, Roman Jakobson, Vilém Mathesius, Josef Vachek).
- Structuralists: focus on synchrony, on functional relationships between elements within language.

# Phonology - Prague Linguistic Circle

- Trubetzkoy's *Grundzüge der Phonologie* (posthumously 1939)
  - first explicit theoretical account of phoneme
  - clear separation of phonetics and phonology (with heavy focus on the latter)
  - system of phonological oppositions=>it is the difference between /t/ and /d/ in *tear* v. *dear* that is worth scientific interest, not the actual quality of the two sounds.
- Jakobson later spread the ideas of the PLC abroad: the **distinctive feature theory** (see below).

# Phonology - Prague Linguistic Circle

- PLC: centre v. periphery
  - level of integration into the phonemic system
  - high/low functional yield
  
- Case in point: /h/ phoneme

# Phoneme- theoretical perspectives

- The PLC: phoneme as a purely abstract, contrastive (functional) unit.
- Other approaches at that time:
  - phoneme as a class of sounds; thus /l/ phoneme consists of clear [l] and dark [ɫ].
  - phoneme as a class of features of sounds; /l/ phoneme consists of features like laterality, alveolarity, etc. (Leonard Bloomfield: *Language*, 1933).
- cf. rationalism v. nominalism in epistemology

# Roman Jakobson- distinctive feature theory

- After WWII in the USA, d. 1982.
- Continued with what Trubetzkoy did not manage to finish.
- Phonological oppositions: relative (not absolute) values that keep phonemes distinct, e.g. Aspiration.
- Next step: to establish a set of distinctive features to analyse phonological oppositions in a language.
- Ultimate aim: to establish a limited set of distinctive features to analyse any language.



# Jakobsonian set of distinctive features

- Universal binary (i.e. two mutually exclusive options) system of twelve distinctive features to describe all languages of the world.
- All contrasts must be stated in terms of these features.
- All restrictions on distribution must be stated in terms of these features.
- Distinctive features: e.g. +/- nasal, +/- consonantal, +/- vocalic
- Many later modifications: more features and different labels

# Distinctive feature theory

CSD 232 • Spring 2008 • Distinctive Features

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## Distinctive Features

/p / described as a bundle of features

- 
- |                 |                  |                  |
|-----------------|------------------|------------------|
| •[-Vocalic]     | •[- Low]         | •[- Continuants] |
| •[+Consonantal] | •[- Back]        | •[+Tense]        |
| •[-Sonorant]    | •[- Rounded]     | •[- Voiced]      |
| •[-Coronal]     | •[- Distributed] | •[-Strident]     |
| •[+Anterior]    | •[- Nasal]       |                  |
| •[-High]        | •[- Lateral]     |                  |
-

# Generative phonology

- Noam Chomsky and Morris Halle: *The Sound Pattern of English* (1968)
- It is a subdiscipline within generative grammar (particular focus on syntax).
- It is heavily based on Jakobson's distinctive feature theory.

# Generative phonology

- Aim: to create and analyse phonological rules that map an **underlying** (abstract) **representation** onto a **surface** (sound) **representation**.
- Examples:
- Context-free rule: in RP the underlying form of *get* is /get/, surface forms may be [t], [t<sup>h</sup>], [t<sup>s</sup>], or even [ʔ].
- Context-sensitive rule: in AmE *fat* /fat/ may surface as [t] or [ɾ].
- The surface representations are merely the tip of the iceberg; it is what lies beneath (the unconscious knowledge of language) that linguistics should focus on.
- Phonological rules delete, insert, modify sounds.

# Generative phonology

- input ...rule 1...rule 2...rule N...(correct/incorrect) output
- Example (correct v. incorrect rule ordering):

<b>Input</b>	<b>fə hɪz 'frɛndz</b>	
by Unstressed H Dropping	fə ɪz 'frɛndz	
by R Insertion	fər ɪz 'frɛndz	= correct output

<b>Input</b>	<b>fə hɪz 'frɛndz</b>	
by R Insertion	-	Rule cannot apply due to structural restrictions
by Unstressed H Dropping	fə ɪz 'frɛndz	= incorrect output

(Wells 1982: 67)

# Phonetic conditioning

- Refers to the way in which sounds are influenced by adjacent sounds=>phonemes vary in their realisations according to the phonetic context.
- Four main types:
  - allophonic variation (here dealt with elsewhere);
  - assimilation;
  - elision;
  - liaison.

# Assimilation

- A phoneme is replaced by another one due to the influence of yet another phoneme
  - Types of assimilation:
  - leading: *bad girl* in casual speech becomes [bæg gɜ:ɫ]; frequent in Italian (Latin *octo* => ModIt *otto*)
  - lagging: *on the site* [ɒn nə'saɪt]
- 
- place: *woodpecker* ['wʊbpekə]
  - manner: *till they see* [tɪɫ leɪ'si:]
  - energy: *I have to* [aɪ'haf tə]

# Elision

- Refers to the deletion of a phoneme.
- Examples:
  - *tasteless* ['teɪsləs];
  - historically, the silent letters in *write*, *knee*, *castle*, *cupboard*, *chalk*, *thumb*, etc.



# Liaison

- Refers to the insertion of a phoneme to enable easier articulation of the sequence.
- Example:
- intrusive /r/: *I saw it* [aɪ'sɔːr ɪt]; *the idea of, vodka on ice, etc.*

# Phoneme as a source of inspiration

- **prosodeme**: a phoneme stretching over more than one segment of sound; e.g. *yes* pronounced with different pitch patterns.
- **toneme** (=tonal phoneme): in tonal languages like Chinese, the only distinctive element is the different tone.
- morpheme, grapheme, behavioureme: e.g. gusteme, kineme, etc.

# References

- Collins, Beverley and Inger Mees. 2003. *Practical Phonetics and Phonology*. London: Routledge.
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- Wells, J C. 1982. *Accents of English*. Cambridge: CUP.