

# LING217: Phonetics and Phonology

## Preliminary Concepts:

### Phonetics and Phonology:

- Phonetics - study of the physical characteristics of speech: their production and perception
  - Study of the sounds (used by humans) that combine for meaning
  - An experimental science
- Phonology - study of the system and patterns of speech sounds in language and how speech is represented in the mind
- What is the relationship between Phonetics and Phonology?
  - Phonetics: is the acoustic and articulatory perspective to language
  - Phonology: is the neurological perspective of language

### Abstractions:

- How is it that *acts, axed, cats, stack, scat, tax* all arise from the same four sound units /æ/, /k/, /t/, /s/, yet each of these sounds is different in each of the words?
- Phonetics says they are different sounds, but Phonology says they are the same sound.

### Speech:

- Speech is the default communication modality in all human cultures
- Human languages >600 consonants and about 200 vowels
- We *don't know* exactly how language began because speech
- Sounds leave no trace (between 1.6mya – 100k ya)
- We *do know* that language in use continues to evolve and change. (see Australian Voices link), it can be seen by comparing different generations of individuals
- Only languages in use continue to change
- Language in use is highly variable:
  - Synchronic: variability happens in a community at a specific time
  - Diachronic: variability that happens over a period of time (e.g Shakespearean english VS english spoken today)

### Speech is highly variable

- Linguistic factors:
  - Sounds vary according to **linguistic characteristics** such as:
    - The position of the sound in a word or in a longer stretch of speech
    - The sounds that surround them in speech
    - The rhythm, stress and intonation of the spoken utterance
  - Listeners account for these effects when interpreting the speaker's intended meaning
- Non-linguistic factors:
  - Speech sounds convey so much more than a simple linguistic message
  - Speaker factors help us identify meanings, if we know the background (cultural, socioeconomic, etc) of the speaker we are able to identify the

meaning from what is said by them and account for their individual variabilities

#### *Information conveyed by speech:*

- Linguistic
  - **Message**
- Extralinguistic (personal style)
  - **Social:** group membership, identity, linguistic background
  - **Physical:** health, size, sex
- Paralinguistic
  - **Psychological** attitudinal, emotional

#### *Voice as a symbol:*

- The voice is the symbol representing the speaker
- It is present in all spoken utterances
- It is a potent symbol of identity
- Social interaction involves much more than just
- Sending and receiving linguistic messages

#### *How can we represent speech?:*

- We can't use orthographic symbols because there is a lack of one to one correspondence between sounds and letters
- Spelling often is very different from the sequence of speech sounds used. e.g. 'walk', 'enough', 'sheds'
- The discrepancy has its basis in language history

#### *English Orthography*

- The English alphabet has 26 letters but there are over 40 different speech sounds in some English dialects:
  - English has:
    - 5 vowel and 21 consonant **letters** of the alphabet.
  - Australian English has:
    - 19 contrastive vowel **sounds** and 24 contrastive consonant **sounds**

#### *Listening to speech sounds:*

- In phonetics we use a set of special symbols to represent speech sounds: The International Phonetic Alphabet (IPA).
- Attend to the speech sounds in a word rather than to its spelling. Identify the *sounds* in the word.
  - walk - /wɔː/
  - enough - /ənəf/
  - music - /mjuːzɪk/

#### *Assumptions about sounds:*

- Speech - a **continuous stream** of acoustic information - results from the flow of overlapping articulatory gestures
- We can conveniently **break this stream up** into speech sounds for descriptive purposes - an abstraction
- Each sound can be given a **name and articulatory description**

- Some aspects of speech are **linguistically relevant** (i.e. can change intended meaning, such as a change in vowel sounds – cat VS cut) and others such as individual voice quality do not change meaning



“The grass was mown”

#### Transcription:

- The IPA is the solution to the problem of how to represent speech sounds
- One sound = one symbol     /pətæɪtəʊ/ – [pət<sup>h</sup>æɪrəʊ] – ‘potato’

#### The international Phonetic Association:

- established in Paris in 1886
- originally designed for language teachers
- aim today is to promote the scientific study of phonetics
- provides and maintains the International Phonetic Alphabet (IPA)
- continually revised – most recently in 2005 with slight modifications in 2015
- In the IPA, each symbol embodies a set of phonetic features which describe the production of the sound.

#### Levels of analysis:

- We can look at speech on a number of different levels including the phonemic and the phonetic levels
  - **Phonemic:** represents the contrastive elements, the basic units
    - Can only use the symbols that are given to represent the sounds in that language
  - **Phonetic:** represents more detail of speech sound structure
    - Can be more creative and have access to the entire IPA

#### Phoneme:

- An abstract linguistic construct that exists in the mind of a speaker or listener
- An abstraction from a vast array of variation that has shared identity
- Encompasses all of the variants of a particular sound - it represents a category or class of sounds
  - e.g. /p/ sounds in the words *pan, nap, span, naps, napkin*

#### Broad (Phonemic) Transcription:

- Transcription of the phonemes is the representation of contrastive elements in the language and requires broad (phonemic) transcription
- i.e. the representation of the linguistically contrastive information in the language.
  - e.g. *pan* = /pæn/
  - Phonemes are the linguistically contrastive elements in a language. They serve to differentiate meaning
    - e.g. in *pat* vs. *pot*
  - The *vowel sounds* in these two words are linguistically contrastive because substituting one for the other changes the meaning of the word
  - We can test whether the difference between sounds is linguistically meaningful by looking for **minimal pairs**
- Use the slanted brackets / /