

## L10A - Phonological Processes, Rules & Natural Classes

### Introduction

In the study of **secondary articulation** and the **principle of variation**, it was clear that the alternation/change in the phonetic realisation of segments in morphemes is for the most part not arbitrary. The same segment types turn up in similar processes found in diverse languages.

☞ The changes segments undergo are referred to as **phonological processes**

### Phonological Processes

In our study of secondary modification of segments we observed that phones can undergo the following processes when **they co-occur with other sounds**:

- a. Labialisation
- b. Palatalisation
- c. Nasalisation

☞ In these modifications, the modified sounds become more like the surrounding/conditioning sounds

☞ These processes are known as **assimilatory processes**

Besides those processes listed above, there are other changes sounds undergo when they combine with other sounds to form morphemes/words. Some of these processes are listed:

- a. **Place assimilation**: Consider the following data in English (RP): observe the changes [n] in the negation marker {ɪn} undergo:

SET I		SET II	
[ɪn + əbɪləti]	‘inability’	[ɪn + fɔ:məl]	‘informal’
[ɪm + pɒsəbəl]	‘impossible’	[ɪn + vɒləntəri]	‘involuntary’
[ɪm + bæləns]	‘imbalance’	[ɪn + səvɪləti]	‘incivility’
[ɪn + tɒlərənt]	‘intolerant’	[ɪn + hju:mən]	‘inhuman’
[ɪn + di:sənt]	‘indecent’		
[ɪŋ + keɪpəbəl]	‘incapable’		
[ɪŋ + greɪt]	‘ingrate’		

☞ Identify the sound which undergoes change in the data. Describe it phonetically.

☞ Identify the type of change the sound undergoes

☞ Identify the conditioning environment

☞ Give a statement which explains the change

☞ Provide phonemic representation of the set I data

- b. **Voicing assimilation:** Study the following data below (Kalenjin spoken in Kenya, Katamba, 1989: 89) : Data is phonetic

Set I		SET II	
kep	to notch	kebe:t	is notching
nap	to sew	nabe:t	is sewing
luk	to fight	luge:t	is fighting
ku:t	to blow	ku:te:t	is blowing

- ☞ Identify the sounds which undergo change in the data. Describe them phonetically and identify two phonetic features shared by the sounds
- ☞ Identify the type of change the sounds undergo
- ☞ Identify the conditioning environment
- ☞ Give a statement which explains the change
- ☞ Provide phonemic representation of the set II data

### **Natural Classes/Phonological Rules**

Phonologists have used the term **NATURALNESS** to refer to the fact that there is, for the most part, a phonetically well— motivated relationship not only between the allophones of a phoneme, but also between the various phonological manifestations of a morpheme (Katamba 1989: 98).

As discussed earlier on, we made the observation that when the plural marker {-s} and the past tense marker {-ed} in English are attached to the root morpheme, they take on the “voice” quality of the word-final sounds of the root morphemes.

You will note that the affecting sound change does not apply to the **final sound in a word** only, but to a **group of final sounds in words** of the English lexicon.

We also observed that native speakers of English are not conscious of this process, but they know it all the same. In other words, they know a general phonological principle.

The fact that they know this process suggests that they will intuitively apply this knowledge under conditions where they must pronounce either the plural form of a noun or past tense form of a verb.

- ☞ This intuition or generalization about acceptable pronunciations of plural nouns and past tense forms of verbs can be (in)formally expressed in a simple statement. This expression, in phonology is known as **phonological rule**.

For example, the **phonological rule** that captures a native speaker's intuition about the pronunciation patterns in **place assimilation** above can be expressed as follows:

**An alveolar nasal assimilates or acquires the place of articulation of the plosive that immediately follows it in the word**

Or

**An alveolar nasal takes on the place of articulation of a plosive that follows it in the same word**

☞ The group of sounds which undergo change or condition other sounds to undergo constitutes a **natural class**. For example, in English, voiceless plosives become aspirated when they appear at the beginning of a stressed syllable followed by a vowel.

The natural class here is the group of sounds called '**voiceless plosive**'

☞ Given the explanations so far, **natural class** can be defined as follows:

☞ **A group of sounds that share one or more phonetic features.**

### Exercise (adapted from Katamba 1989: 115)

All the segments except one in each set below form a natural class.

- Circle the odd one out
- state the phonetic property/ that makes it different from the rest
- State the phonetic property shared by the rest

p t x g k s f  
l r n ɲ d w j t  
f ʃ t p g b θ  
s z f v x ʃ t