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# UNIT 3 PHONETIC TRANSCRIPTION AND PHONOLOGY

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## Structure

- 3.0 Objectives
- 3.1 Phonetic Transcription
  - 3.1.1 Introduction
  - 3.1.2 International Phonetic Alphabet
- 3.2 The Phoneme
  - 3.2.1 Allophones
- 3.3 Phonetics and Phonology
  - 3.3.1 Study of the Phonemic System
  - 3.3.2 Phonemic Sequences and Syllable Structure
  - 3.3.3 Suprasegmental Phonology
- 3.4 Let Us Sum Up
- 3.5 Key Words
- 3.6 Exercises
- 3.7 Answers to Exercises

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## 3.0 OBJECTIVES

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In this unit

- We shall introduce you to the concept of the International Phonetic Alphabet which has been devised to represent in writing the sounds, words, phrases and sentences of any language of the world.
- We shall show you the difference between phonetic and phonemic transcription.
- The difference between a phoneme and allophone will also be described.
- We shall also help you understand how both Phonetics and Phonology need to be studied in order to understand the use of sounds in the spoken form of a particular language.
- Finally, we shall touch on suprasegmental features.

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## 3.1 PHONETIC TRANSCRIPTION

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### 3.1.1 Introduction

Before we proceed with the description of the consonants and vowels of English on the basis of the criteria we had in Unit 2, we need to consider how these sounds must be represented unambiguously.

One of the difficulties about English pronunciation is that there is no perfect correspondence between spelling and sound. Since we are used to a fair degree of correspondence between spelling and sound in Indian languages, we tend to pronounce English words as they are spelt. Very often this results in incorrect pronunciation. We therefore need to learn to make a distinction between letters and sounds.

A. Let us look at the following words while we listen to them on tape.

- |          |             |            |
|----------|-------------|------------|
| 1. Bough | 3. Dough    | 5. Through |
| 2. Cough | 4. Thorough | 6. Tough.  |

Notice that they all have the letters *ough*, but in each word the letters *ough* is pronounced differently, that is, the vowel sound in each of the words is different even though the spellings are the same.

Listen to the words again. Can you find out in which words the letters g and h are silent (not pronounced)? They are pronounced in only two of the words. Do you know what consonant sound /g/ and /h/ stand for? They stand for the sound /f/ in the word *fan*.

B. Now look at the following words and listen to each word carefully.

- |                 |                   |          |
|-----------------|-------------------|----------|
| 1. <u>field</u> | 4. machine        | 7. suite |
| 2. <u>greed</u> | 5. <u>people</u>  | 8. these |
| 3. <u>key</u>   | 6. <u>receive</u> | 9. treat |

What do you notice about the pronunciation of the letters that are underlined? The letters in each word, as you can see are different, that is, ie, ee, ey, i, ei, ui, e, ea, but they all represent only *one* vowel sound, the vowel sound in the word bee. The letters ui in *suite* are pronounced like the word we.

C. Now look at these pairs of words and then listen to them on tape:

- |    | a    | b     | a     | b          |
|----|------|-------|-------|------------|
| 1. | seen | scene | pain  | pane       |
| 2. | bad  | bade  | sew   | sow (verb) |
| 3. | boy  | buoy  | sight | site       |
| 4. | hear | here  | too   | two        |
| 5. | hair | hare  | would | wood       |

Did you notice anything about the pronunciation of each of these pairs of words?

Here, **though each word in every pair is spelt differently, it has the same pronunciation.** Can you think of other pairs of words that have different spelling but the same pronunciation?

D. Look at the some more words and listen to them on tape:

- |            |             |             |
|------------|-------------|-------------|
| 1. quality | 4. quench   | 7. square   |
| 2. quarter | 5. question | 8. squash   |
| 3. queen   | 6. quilt    | 9. squirrel |

Did you notice anything common to all these words?

They all have the letter **q** and this letter represents two consonant sounds, **not one**—the first sound in *cold* and the first sound in *watch*.

E. Let us now listen to another set of words and repeat them. What do you find common to all the words?

- |              |                |
|--------------|----------------|
| 1. excellent | 6. Exhibition. |
| 2. exclusive | 7. Exact       |
| 3. excursion | 8. Examine     |
| 4. excuse    | 9. Example     |
| 5. exercise  | 10. Exertion   |

All the words have the letter **x** in common. In words 1-6 **x** represents two sounds — the first sound in the word *cane* and the first sound in the word *sun*. In words 7-10, the letter **x** represents two sounds as well, but these sounds are different from the sounds in words 1-6. The sound in words 7-10 is like the first sound in the word *girl* and the second sound is like the first sound in *zero*.



It was felt that in order to overcome the problem of the lack of a one to one correspondence between spelling and sound, an alphabet had to be evolved. The **International Phonetic Alphabet (or IPA)** was one such alphabet. It was evolved by the **International Phonetic Association** and is used extensively by phoneticians all over the world. The Association evolved symbols, which they claimed could be used to describe the sounds of all the languages of the world. Most of the symbols are based on the letters of the Roman alphabet. Some symbols are modification of these letters, eg, **ʌ** and **ɔ** are formed by modification of the letters **v** and **e**. Other symbols are borrowed from Greek. For example, **θ** **ð** **σ** **β**. In some cases the small and capital letters of the Roman alphabet have been used to represent different sounds. For example, the small **r** stands for one sound and the capital **R** stands for another. On the chart, below the phonetic alphabet, is also a set of **diacritics** or **modifiers**, which are used to modify given sounds. For example, the diacritic **̄** is used for a dental sound. If **̄** is placed below the symbol for the alveolar consonant **/t/** then we get the symbol **/t̄/** which stands for a dental plosive as in the Hindi word **तन**. In addition other symbols used to indicate pitch, stress, intonation, etc. are also shown at the bottom of the chart

### 3.1.3 Phonetic Transcription

As we have seen the International Phonetic alphabet has been devised to represent in writing the sounds, words, phrases and sentences of any language of the world. Such representation is called **phonetic transcription**. For example, the English words **cell** and **call** are transcribed as **/sel/** and **/kɔ:l/**. Though the first letter is **c** in both the words yet it is clear from the transcription that it stands for two different sounds and is pronounced differently in the two words. On the other hand, words that are pronounced alike but have different spelling, are represented by the same phonetic symbol. For example, in the words **keep**, **pick**, **corn**, **character**, **quarter**, **account**, the **K** sound will be represented by the phonetic symbol **[k]**.

Phonetic transcription, as we have seen is based on the principle 'one symbol one sound', that is, a symbol represents one and only one sound.

It is this principle that makes it possible for dictionaries to indicate the pronunciation of a word in addition to its meaning. Pronouncing dictionaries of English or dictionaries of English which give pronunciation as well, will for instance at once show that the letter **b** is silent in the words **climb**, **thumb**, **comb**.

When we indicate the pronunciation of a word by using the symbols and diacritics provided by the IPA we do a phonetic transcription. Phonetic transcription enables language teachers to teach pronunciation or to remedy it, and helps linguists and phoneticians to compare the sound systems of different languages or different varieties of the same language.

Phonetic transcription is of many types. Of these, the two most widely used are phonemic or broad phonetic transcription and allophonic or narrow phonetic transcription. In phonemic transcription, only the distinctive sounds of a language or its phonemes are represented.

Sometimes, we use allophonic transcription when we wish to show those sound features which are not distinctive in a language. We shall examine the difference between a phoneme and an allophone in the next section.

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## 3.2 THE PHONEME

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As we have already seen the human speech mechanism is capable of producing an infinite number of speech sounds. The International Phonetic Alphabet provides us

with the symbols for the description of any language in the world. From the large number of speech sounds we are capable of producing, each language makes its own selection. The sounds selected by a particular language are those that are functional in that language, and are crucial for the purpose of communication. They are important for differences in the meanings of words. Let us take up the English words *late, gate, fate, rate, mate, bait, pate, wait*, for instance. Notice that all these words differ from each other in respect of one sound only - the initial sound, and a substitution of one sound for another brings about a change in the meaning of the word. For example, the substitution of g for l changes the meaning of the word in *gate* and *late*. Thus the difference between /l/ and /g/ is called contrastive, so is the difference between /f/ /t/ /m/ /b/ /p/ /w/. All these are **phonemes** in English.

Thus all these phonemes occur in the same 'environment' or position in a word and are contrastive. Let us take the English word *lake* for instance and substitute the vowels in *like, look, leak, lick, luck, lock, lurk*, for the vowel in the *lake*. We find that all these vowels are contrastive and are vowel phonemes of English. This process of substitution can by and large help us to establish the phonemes or linguistically significant sounds of a language. Every language has a limited number of phonemes in its sound system. For example, English has 44 phonemes in its sound system, Hindi has 46, Tamil has 41, and Kannada 47. Since these phonemes are contrastive units in the sound system of a language, they are valid only in relation to that language. Sounds that are phonemes in one language may be only positional variants, or allophones in another language. For example, the consonant sounds /p/ (p<sup>h</sup>) and /p̣/ (p<sup>l</sup>) which are different phonemes in Hindi as in the words *पल* and *पल* but are allophones of the same phoneme /p/ in English as in the English words *spot* [spot] and *pot* [p<sup>h</sup>ot], respectively.

### 3.2.1 Allophones

As we have said earlier, a phoneme in a particular language may be realised and produced slightly differently depending on the position it occupies in words in that language. For example, just as in the case of /p/, the phoneme /t/ in English can occur as [t<sup>h</sup>] only at the beginning of accented syllables, [t<sup>ʔ</sup>] at end of words and [t] can occur only after /s/. They are phonetically similar but one cannot be substituted for another. However, all these realisations are recognised as /t/ by English speakers, despite their differences. When we find this strict separation of places where particular realisations can occur, we say that the realisations are in **complementary distribution**. Such phonetically similar sounds in complementary distribution with one another, are called **positional variants** or **allophones**.

Usually we do not indicate different allophones when we write symbols to represent sounds. We normally just use symbols (phonemic symbols) to represent phonemes. When we write using phonemic symbols we say we are writing a **phonemic transcription**. For example, to write a phonemic transcription of the English word *bring* we would use the symbols — /brɪŋ/ and slanting lines on both sides of the word to indicate that these are phonemic symbols and not letters of the alphabet or even allophonic symbols, to indicate aspiration [t<sup>h</sup>], and inaudible release [t<sup>ʔ</sup>].

Thus, to indicate phonemic transcription we use slanting lines / / and to indicate allophonic symbols we use [ ].

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## 3.3 PHONETICS AND PHONOLOGY

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In Unit one we described the Speech Mechanism and the systems that constitute it. In Unit two we looked at the contribution the organs of speech comprising these systems make to the production of speech sounds. On the basis of their functions we set up the criteria for the description of vowels and consonants. When we describe the sound we use, with reference to these criteria we are concerning ourselves with matters of

**phonetics**. When we talk about how phonemes function in language, and in what ways they relate to each other in a language we are referring to the abstract side of the sounds of language. We are studying a related but different subject that we call **phonology**. Only by studying both the phonetics and the phonology of a language it is possible to acquire a full understanding of the use of sounds in the spoken form of that language. Let us look at the areas that come within the subject of phonology.

### 3.3.1 Study of the phonemic system

Each language has a fixed set of phonemes which can be distinguished from one another. There may be slightly different realizations of the various phonemes of a language, but it is important for us to make use of the full set of phonemes of a language, in order to communicate successfully.

### 3.3.2 Phonemic sequences and syllable structure

In every language there are restrictions on the sequences of phonemes that can occur on words. In other words, it is important for us to examine what the restrictions or the combinatorial possibilities are in a language. This can usually be done by studying the **syllables** of the language.

Let us take up a few examples of the restrictions on sequences of consonants in English words, for example. In English the sequences /sl-/, /kl-/, /pr-/, can occur at the beginning of words, such as *slate*, *clock*, and *pretty*. However, the sequences /sl/, /nr/, /tl/, cannot occur at the beginning of words. Similarly, while it is possible to have the combinations /-st/, /-kt/, /-nt/, /-rk/, in the final position in the English words *first*, *act*, *stunt*, *bank*; it is not possible for the combinations /-tk/, /-pg/, /-zt/ to occur in the final positions in English words. When we talk of sequence of consonants we refer to sequences within **one syllable**. We shall take up the syllable for study in the next unit.

### 3.3.3 Suprasegmental phonology

Another aspect of the study of phonology is features that go beyond the study of segments. Phonemic contrast alone cannot account for all the significant contrasts that there are in a language. Some contrasts in English, for example, are the result of stress. When some English words of two syllables are pronounced with the first syllable sounding stronger than the second, English speakers hear it as a noun / adjective, whereas when they are pronounced with the second syllable stronger than the first they are heard as verbs. For example, the words, *contact*, *present*, *produce*. Similarly, intonation can also bring about a contrast in the sentence type or intention of the speaker. If the word 'yes' is said with the pitch of the voice rising, it is likely to be heard as a question or as an invitation to a speaker to continue. The use of a falling pitch, on the other hand, is more likely to be heard as confirmation or agreement. Thus these contrasts that extend over several segments (phonemes) are called **suprasegmental**.

In the next unit we shall begin by studying the consonants and vowel phonemes of English and describe them using the phonetic criteria we looked at in Unit 2.

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## 3.4 LET US SUM UP

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In this Unit we have seen that the differences between the spoken word and the written word and consequently the lack of a one-to-one correspondence between spelling and sound makes it difficult for the learner of a language to learn the correct pronunciation of words. It was therefore necessary to evolve the International Phonetic Alphabet based on the principle 'one symbol-one sound'. It has been

devised to represent in writing the sounds, words, phrases and sentences of any language of the world. Such representation is called **phonetic transcription**. This system of symbols makes it possible for dictionaries to indicate the pronunciation of words. Whereas a **phonemic transcription** represents only the distinctive sounds or phonemes of a language, an **allophonic transcription** is used to show those features that are not distinctive in a language.

We have seen that whereas the phonemes of a particular language are minimal meaningful sound units of that language, its allophones are positional variants of a particular phoneme and are not distinctive in that language.

Both the Phonetics and phonology of a particular language have to be studied in order to understand the use of sounds in the spoken form of that language.

To study the phonology of a language the segments (phonemes) as well as the suprasegmental features have to be studied.

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### 3.5 KEY WORDS

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#### IPA – The International Phonetic Alphabet

an internationally agreed set of characters and diacritics for representing speech sounds. The **alphabet** was devised by the International Phonetic Association and is modified from time to time.

#### Phoneme

the basic sound unit found in a particular language. The number of phonemes varies from 10 in one **Brazilian** language to over 100 in one African language. English has about 40 phonemes

#### Allophone

any one of the phonetically different forms which can be assumed by a single **phoneme** in a language in different circumstances. For example, the English phoneme /t/ is realised as [t<sup>h</sup>] in *tin*, but as unaspirated [t=] in *stick*. It may also be nasally released as in *cotton*.

#### Phonetic transcription

a type of transcription which represents the phonetic characteristics of the speech sounds used. This sort of transcription represents a pronunciation in more detail than a phonemic transcription can provide. A **phonetic transcription is enclosed in square brackets** [t<sup>h</sup>in] – *tin*

#### Phonemic transcription

a transcription of words or of connected speech in a particular speech variety in terms of the **phonemes** which have been set up by the analyst for that variety. Such a transcription provides the minimum information necessary to construct a pronunciation. A **phonemic transcription is enclosed in slashes** /tin/ – *tin*

#### Phonetics

the study of speech sounds, conventionally divided into articulatory, acoustic and auditory phonetics. **Phonetics deals with the physical nature of speech sounds**, and not with their relations to other speech sounds in particular languages.

**Phonology**

the branch of linguistics dealing with the way speech sounds behave in a particular language. For examples, patterns of sounds, in terms of sequence of sounds that are permissible in a specific language.

**Suprasegmental**

a phonological feature which can be adequately described by referring to some unit higher than a single segment, such as a syllable or a word. The label is most often applied to **stress, tone, pitch**, etc.

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**3.6 EXERCISES**

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1. How many letters and how many sounds do the following words have? For example; the word **know** has 4 letters and 2 sounds.  
(a) plumbing, (b) thick, (c) window, (d) cunning, (e) watch, (f) cupboard, (g) palms, (h) physics, (i) receive, (j) exist.
2. Substitute the first sound in the following words with another sound so that you form new words which have a different meaning. For example,  
pit      bit      kit      sit      lit      writ      fit      knit  
(a)said      (b)cat      (c)mind      (d)bill      (e)pay
3. Substitute the second sound in the following words with another sound so that you form new words which have a different meaning. For example,  
fit,      fat,      feet,      foot,      fill,      pet,      bun,      bead,      lack.
4. Transcribe the following words using phonemic transcription as given in your dictionary – *exercise, solemn, receipt, singer, language, repetitive, character, subtle, confusion, adjective.*

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**3.7 ANSWERS TO EXERCISES**

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1.
  - (a) 8 letters; 6 sounds.
  - (b) 5 letters; 3 sounds.
  - (c) 6 letters; 5 sounds.
  - (d) 7 letters; 5 sounds.
  - (e) 5 letters; 3 sounds.
  - (f) 8 letters; 5 sounds.
  - (g) 5 letters; 4 sounds.
  - (h) 7 letters; 6 sounds.
  - (i) 7 letters; 5 sounds.
  - (j) 5 letters; 6 sounds.
2.
 

(a) said	(b) cat	(c) mind	(d) bill	(e) pay
head	bat	kind	hill	bay
bed	rat	find	kill	day
read/red	fat	rind	pill	gay
fed	mat	bind	gill	fay
shed	pat	hind	nil	they



lead(metal)  
dead  
wed

sat  
that  
vat  
hat  
chat

wind

fill  
sill  
mill  
chill

say  
hay  
ray  
may  
nay

Phonetic  
Transcription

3.

(a)

fill  
feel  
fell  
fall  
full  
fool  
fail  
foil  
file  
foul  
foal  
furl

(b)

pet  
pit  
pat  
part  
pot  
port  
put  
pont

(c)

bun  
bin  
bean  
ban  
barn  
born  
boon  
burn  
bane  
bone

(d)

bead  
bid  
bed  
bad  
bard  
bored  
bood  
bud  
bide  
bowed  
beard  
bared

(e)

lack  
lick  
leak  
lark  
lock  
look  
lurk  
luck  
lake