Ministry of Education and Science of Ukraine
Sumy State University

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**INTRODUCTION
TO THEORETICAL PHONETICS
OF ENGLISH**

Study guide

Recommended by the Academic Council of Sumy State University

Sumy
Sumy State University
2020

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Recommended for publication
by the Academic Council of Sumy State University
as a study guide
(minutes № 2 of 07.09.2020)

The study guide contains educational material on the main topics of the course of theoretical phonetics of English: the sound structure of the language and the ways of its description and analysis; features of the modern pronunciation norm of English as a polyethnic formation and its national and regional variants; sounds of English as articulatory and functional units; syllable as a phonetic and phonological unit, word emphasis; prosodic arrangement of English language. Questions and practical tasks for each unit provide an opportunity for self-study of educational material.
        Meant for students, graduate students, teachers, and all interested in learning English.

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UNIT 1. INTRODUCTION TO THE COURSE
OF THEORETICAL PHONETICS

1.1. Phonetics as a Branch of Linguistics

Language as an immanent reality of thought exists in two speech forms: oral and written. There is a division between language and speech. Language is a system, speech is the usage of this system, the process of communication by means of language. Both oral and written forms have a material substance. In **oral speech** the substance is **phonic**, in **written speech** the substance is **graphic**. The substance is not the language itself, but it is what forms patterns of language. The sound substance gives shape to a spoken message in communication, it forms units of the phonetics system of a concrete language.

Phonetics is the study of how speech sounds are made, transmitted, and received, i. e. it is the study of all possible speech sounds: the nature of these noises, their combinations, and their functions in relation to the meaning [Врабель 2009, p. 5]. The term phonetics comes from the Greek word φωνή (phõnē) meaning *sound*, *voice*. Thus, it is the science of speech sounds considered as elements of language. Phonetics is a basic branch of linguistics: neither linguistic theory nor linguistic practice can do without phonetics and no language description is complete without phonetics – the science concerned with the spoken medium of language.

The two basic tasks of phonetics are the **transcription** and the **classification** of sounds. Phonetics began to be developed as a science in the 19th century. The factors that stimulated its development were as follows:

• a more thorough acquaintance with the functioning of the human speaking apparatus;

• investigations of many linguists who studied languages that had no alphabets;

• compiling alphabets for such languages.

Phonetics is subdivided into practical and theoretical.

Theoretical phonetics applies the theories worked out by general phonetics to the language it analyses. It is mainly concerned with the functioning of phonetic units in the language as a system.

Practical or **normative** phonetics studies the substance, the material form of phonetic phenomena in relation to meaning. Practical phonetics (applied phonetics) deals with functioning of phonetic units in speech. It is connected with all the practical applications of phonetics, which are especially important when learning a certain language.

Theoretical phonetics is itself divided into two major components: **segmental** phonetics, which is concerned with individual sounds (i. e. "segments" of speech) and **suprasegmental** phonetics (supra − something above) whose domain is the larger units of connected speech: syllables, words, rhythmic units, phrases, intonation groups, and texts. Suprasegmental system always exists with the segmental system (see fig. 1.1).
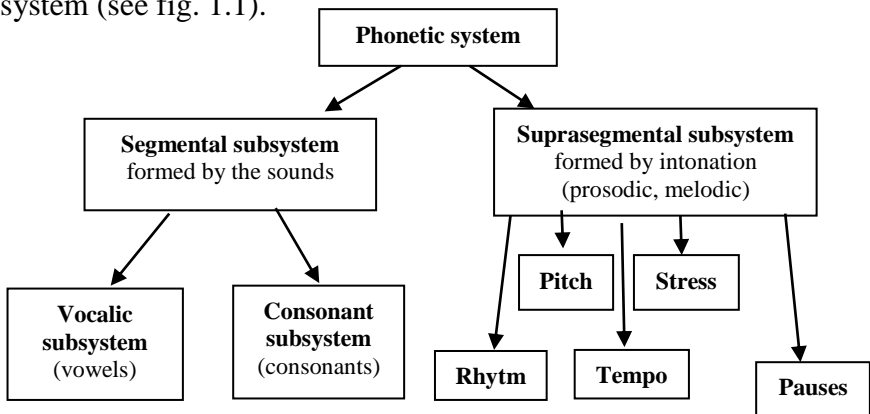
Figure 1.1 – Phonetic System

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The sound substance is a medium in which the whole system of the language is embodied. Segmental and prosodic units serve to form and differentiate units of other subsystems of language: lexical and grammatical. The modification of words and their combination into utterances are first of all sound phenomena. The grammatical form of a word can be changed only by changing the sounds which compose it (e. g. *cat – cats)*. By changing the prosodic structure one can change the meaning of the utterance (e. g. '*well /done? 'Well \done!*)

The way these elements of the phonetic structure of English function in the process of communication will be the main concern of this course.

1.2. Accents and Dialects

Languages have different **accents:** they are pronounced differently by people from different geographical places, from different social classes, of different ages and different educational backgrounds. The word *accent* is often confused with **dialect.** The word *dialect* refers to a variety of a language which is different from others not just in pronunciation but also in such matters as vocabulary, grammar and word order. Differences of accent, on the other hand, are pronunciation differences only [Roach 2009, p. 3]. The accent that we concentrate on and use as our model is the one that is most often recommended for foreign learners studying British English. It has for a long time been identified by the name Received Pronunciation.

Received Pronunciation (RP) is the accent of Standard English in the United Kingdom, with a relationship to regional accents. RP enjoys high social prestige in Britain. It has been seen as the accent of those with power, money, and influence. However, since the 1960s, a greater permissiveness towards regional English varieties has taken hold in education and mass

media. The introduction of the term "Received Pronunciation" is usually credited to **Daniel Jones**. In the first edition of the "English Pronouncing Dictionary" (1917), he named the accent "Public School Pronunciation", but for the second edition in 1926, he wrote, "In what follows I call it Received Pronunciation (RP)".

RP is an **accent**, not a **dialect**, since all RP speakers speak Standard English. In other words, they avoid non-standard grammatical constructions and localised vocabulary characteristic of regional dialects. RP is also regionally non-specific, that is it does not contain any clues about a speaker's geographic background. But it does reveal a great deal about their social and/or educational background.

We are to study the "norm" of English, as a whole, and the "norm" of English pronunciation in particular. There is no much agreement, however, as far as the term "norm" is concerned. This term is interpreted in different ways. Some scholars, for instance, associate "norm" with the so-called "neutral" style. According to this conception stylistically marked parameters do not belong to the norm. More suitable, however, seems to be the conception which looks upon the norm as a complex of all functional styles. It is clearly not possible to look upon the pronunciation norm as something ideal which does not, in fact, exist in objective speech. We shall look upon the norm as a complex unity of phonetic styles realized in the process of communication in accordance with varying extralinguistic and social factors.

In talking about accents of English, the foreigner should be careful about the difference between **England** and **Britain;** there are many different accents in England, but the range becomes very much wider if the accents of Scotland, Wales and Northern Ireland are taken into account (Scotland and Wales are included in Britain, and together with Northern Ireland form the **United Kingdom**). Within the accents of

England, the distinction that is most frequently made by the majority of English people is between **northern** and **southern.** This is a very rough division, and there can be endless argument over where the boundaries lie, but most people on hearing a pronunciation typical of someone from Lancashire, Yorkshire or other counties further north would identify it as "Northern" [Roach 2009, p. 4]. This course deals almost entirely with RP (or BBC pronunciation). There is no implication that other accents are inferior or less pleasant-sounding; the reason is simply that BBC is the accent that has usually been chosen by British teachers to teach to foreign learners, it is the accent that has been most fully described, and it has been used as the basis for textbooks and pronunciation dictionaries.

A term which is widely found nowadays is **Estuary English,** and many people have been given the impression that this is a new (or newly-discovered) accent of English. In reality there is no such accent, and the term should be used with care. The idea originates from the sociolinguistic observation that some people in public life who would previously have been expected to speak with a BBC (or RP) accent now find it acceptable to speak with some characteristics of the accents of the London area (the estuary referred to is the Thames estuary), such as glottal stops, which would in earlier times have caused comment or disapproval. If you are a native speaker of English and your accent is different from BBC you should try, as you work through the course, to note what your main differences are for purposes of comparison. If you are a learner of English you are recommended to concentrate on BBC pronunciation initially, though as you work through the course and become familiar with this you will probably find it an interesting exercise to listen analytically to other accents of English, to see if you can identify the ways in which they differ from BBC and even to learn to pronounce some different accents yourself.

1.3. Branches of Phonetics and its Connection with Social Sciences

From the point of view of the specification of the object of the study phonetics can be divided into **special and general**. The former is concerned with the study of the phonetic system of a concrete language. General phonetics is concerned with the study of man's speech sounds on the whole. It establishes types of speech sounds, which exist in different languages, the ways they are produced and the role they play when forming and expressing thoughts. The result of such study is a number of theories concerning human languages as an abstraction, e. g. *phoneme theory.*

From the point of view of the time concerned in the phonetic study phonetics may be **descriptive and historical**. Descriptive phonetics studies the phonetic system in a stative form at a particular period of time, it studies the phonetic system synchronically. Historical phonetics studies the system in it's historical development, diochronically. It analyses written documents and compares the spelling and pronunciation of one and the same word in different periods of the language development.

From the point of view of correlation between different languages, there is one more important part of phonetics called **comparative phonetics**. It compares phonetic systems of two or more languages and not only kindred ones.

Nowadays a big amount of phonetic research is experimental, aimed at the development and scientific testing of hypotheses. This sub-field of phonetics which uses controlled experiments is known as **experimental phonetics**. Experimental research is carried out in all areas of phonetics.

If controlled phonetic experiments employ the use of measuring devices and instrumental techniques, this sub-field of phonetics is called **instrumental phonetics**. Its primary

objective is the analysis of speech by means of instruments.

Many different instruments have been devised for the study of speech sounds. The technique for acoustic analysis is known as **spectrography**, in which a computer produces "pictures" of speech sounds. Articulatory activity is analysed with the help of such instrumental techniques as **radiography** (X-rays) – examining activity inside the vocal tract, **laryngoscopy** – inspecting the inside of the larynx, **palatography** – recording patterns of contact between the tongue and the palate, **glottography** – studying the vibrations of the vocal cords, and many others.

Investigations show that there are **4 aspects of a speech sound**:

- **articulatory aspect;**
- **auditory aspect;**
- **acoustic aspect;**
- **functional aspect (linguistic, social).**

From the point of view of the aspects of speech, four traditional branches of theoretical phonetics are generally recognized:

Articulatory phonetics (артикуляторна фонетика) is the study of the way speech sounds are made ('articulated') by the vocal organs, i.e. it studies the way in which the air is set in motion, the movements of the speech organs and the coordination of these movements in the production of single sounds and trains of sounds. These refer to the human **vocal tract** (or to the speech organs) and are used to describe and classify sounds. This branch of phonetics refers to **speech production**, giving the basic understanding of speech anatomy. Articulatory phonetics employs experimental methods.

Auditory phonetics (аудитивна фонетика) studies the perceptual response to speech sounds, as mediated by ear, auditory nerve and brain, i.e. its interests lie more in the

sensation of hearing, which is brain activity, than in the psychological working of the ear or the nervous activity between the ear and the brain. The means by which we discriminate sounds – quality, sensations of pitch, loudness, length, are relevant here. This branch of phonetics refers to **speech perception**. Auditory phonetics also employs experimental methods.

Articulatory and auditory phonetics are sometimes combined into one branch called ***physiological phonetics***. The reason lies in the fact that sound production and sound perception are physiological processes.

Acoustic phonetics (акустична фонетика) studies the physical properties of speech sound, as transmitted between the speaker's mouth and the listener's ear with the help of spectrograms (quality, length, intensity, pitch, and others). This branch of phonetics refers to **speech physics**, it is interdisciplinary. It also employs experimental methods.

Functional phonetics (функціональна фонетика) – is concerned with the range and function of sounds in specific languages. It is a purely linguistic branch, typically referred to as **phonology.** The human vocal apparatus can produce a wide range of sounds; but only a small number of them are used in a language to construct all of its words and utterances. **Phonology** is the study of those **segmental** (speech sound types) and **prosodic** (intonation) features which have a differential value in the language. This branch of phonetics studies the units serving people for communicative purposes. It studies the way in which speakers systematically use a selection of units – **phonemes** or **intonemes** – in order to express meaning. It investigates the phonetic phenomena from the point of view of their use.

The primary aim of phonology is to discover the principles that govern the way that sounds are organized in languages, to determine which phonemes are used and how they pattern – the

phonological structure of a language. The properties of different sound systems are then compared, and hypotheses developed about the rules underlying the use of sounds in particular groups of languages, and in all the languages – *phonological universals.*

Phonology also solves:

1) the problem of the identification of the phonemes of a language;

2) the problem of the identification of the phoneme in a particular word, utterance. It establishes the system of phonemes and determines the frequency of occurrence in syllables, words, utterances. The distribution and grouping of phonemes and syllables in words are dealt with an area of phonology which is called **phonotactics.** People engaged in the study of phonetics are known as *phoneticians* (фонетисти). People engaged in the study of phonology are known as *phonologists* (фонологи) [Врабель 2009, p. 6].

Phonology was originated in the 30s of the 20th century by a group of linguists belonging to the Prague school of linguistics – Vilem Matesius, Nickolai Trubetskoy, Roman Jakobson. The theoretical background of phonology is the phoneme theory whose foundations were first laid down by I. O. Baudouin de Courtenay (1845–1929) in the last quarter of the 19th century (between the years of 1868–1881) [Врабель 2009, p. 5]. The theory was developed by his pupils, such as L. V. Sherba, M. S. Grushevskiy, and some others.

The most important work in phonology is *"The groundwork of phonology"* [1939] by Nickolai Trubetskoy. He claimed that phonology should be separated from phonetics as it studies the functional aspect of phonic components of language. According to him, phonetics is a biological science which is concerned with physical and physiological characteristics of speech sounds, while phonology is a linguistic science and it is concerned with the social function of phonetic phenomena.

Nevertheless, contemporary phoneticians hold the view that form and function cannot be separated and treat phonology as a linguistic branch of phonetics. All the above branches of phonetics are closely connected since the object of their study, that is speech sounds, is the close unity of acoustic, articulatory, auditory, and linguistic aspects [Паращук 2009, p. 18].

All the branches of phonetics are closely connected with each other as well as with some other branches of linguistics such as lexicology, grammar, and stylistics.

The connection of phonetics with **lexicology** lies in the fact that distinction of words is realized by the variety of their appearances. The phonetic course of a given language determines the sound composition of words. For example, Turkish languages do not admit two or more consonants at the beginning of words while in some Slavonic languages such a phenomenon is widely spread (вкрасти, спритний). Only due to the presence of stress in the right place certain nouns can be distinguished from verbs. (e. g. *'object – to ob'ject)* Homographs can be differentiated only due to pronunciation, because they are identical in spelling (e. g. *lead* [lɪːd], [led], *wind* [wɪnd], [waɪnd]*).*

Sound interchange is a very vivid manifestation of a close connection of phonetics with **morphology and grammar**. It can be observed in the category of number (*man – men; goose – geese; foot – feet*). Sound interchange also helps to distinguish basic forms of irregular verbs (*sing-sang-sung*), adjectives and nouns (*strong-strength*), verbs and nouns (*to extend-extent*). Through the system of reading rules phonetics helps to pronounce correctly singular and plural forms of nouns, the past tense forms and past participle of English regular verbs. (e. g. *begged* [d]*, stopped* [t]*, wanted* [id]). The connection is also seen through intonation. Sometimes intonation alone serves to single out the communicative centre

of the sentence (e. g. *He came home)*. In affirmative sentences, the rising nuclear tone may show that this is a question.

Phonetics is closely connected with **syntax**. Any partition of a sentence is realized with the help of pauses, sentence stresses, melody. Changes in pausation can alter the meaning of an utterance. For example: *One of the travelers / said Mr. Parker / was likeable* (direct speech). If the pause is after "said", then we have another meaning of this sentence: *One of the travelers said / Mr. Parker was likeable.* The rising/falling nuclear tone determines the communicative type of the sentence: *You know him – statement / You know him? – general question.*

Phonetics is also connected with **stylistics** through repetition of sounds, words and phrases. Repetition of this kind creates the basis of rhythm, rhyme and alliteration (sound repetition). Repetition of consonants, which is alliteration, together with the words to which the repeated sounds belong, helps to create a melodic effect and to express particular emotions. It is mostly used in poems, e. g.:

There are twelve months in all the year…
As I hear many men say…
But the merriest month in all the year…
Is the merry month of May.

The repetition of sound [m] creates the effect of merriment. It should be noted that rhythm may be used as a special device not only in poetry but in prose as well.

Investigations in **historical aspects of languages** and the field of **dialectology** would be impossible without an understanding of phonetics. The practical aspect of phonetics is no less important. Teaching of reading and writing is possible only when one clearly understands the difference between the sounds and written forms of the language and the connection between them. Phonetics is also widely used in teaching **correct pronunciation** and **allocution** of actors, singers, TV announcers on the basis of established orthoepical norms.

Orthoepy is a correct pronunciation of the words of a language. Phonetics is important for eliminating dialectical features from the pronunciation of dialect speakers; in logopedics (in curing various speech defects); in surdopedagogics (in teaching normal aural speech to deaf and dumb people). Acoustic phonetics and phonology are of great use in technical acoustics or sound technology that is the branch of science and technology which is concerned with the study and design of techniques for the recording, transmission, reproduction, analysis and synthesis of sound by means of various devices such as microphone, loud-speaker, radio and television sets, speech synthesizers etc.

Phonetics is also connected with non-linguistic sciences: **acoustics, biophysics, physiology, psychology, cybernetics, etc.**

Nowadays we can also see the development of quite distinct interdisciplinary subjects, such as sociolinguistics (sociophonetics), psycholinguistics, phonostylistics, mathematical linguistics, and others.

Sociolinguistics (sociophonetics) studies the ways in which pronunciation interacts with society. It is the study of the way in which phonetic structures change in response to different social functions and the deviations of what these functions are. Society here is used in its broadest sense, to cover a spectrum of phenomena to do with nationality, more restricted regional and social groups, and the specific interactions of individuals within them. Here there are innumerable facts to be discovered, even about a language as well investigated as English, concerning, for instance, the nature of the different kinds of English pronunciation we use in different situations – when we are talking to equals, superiors or subordinates; when we are "on the job", when we are old or young; male or female; when we are trying to persuade, inform, agree or disagree and so on. We may hope that very soon sociophonetics may supply

elementary information about: "who can say, what, how, using what phonetic means, to whom, when, and why?" In teaching phonetics, we would consider the study of sociolinguistics to be an essential part of the explanation in the functional area of phonetic units.

Psycholinguistics as a distinct area of interest developed in the early sixties, and in its early form covered the psychological implications of an extremely broad area, from acoustic phonetics to language pathology. Nowadays no one would want to deny the existence of strong mutual bonds of interest operating between linguistics, phonetics in our case and psychology. The acquisition of language by children, the extent to which language mediates or structures thinking; the extent to which language is influenced and itself influences such things as memory, attention, recall and constraints on perception; and the extent to which language has a certain role to play in the understanding of human development; the problems of speech production are broad illustrations of such bounds.

Phonostylistics studies the way phonetic means are used in this or that particular situation. The aim of phonostylistics is to analyse all possible kinds of spoken utterances with the purpose of identifying the phonetic features, both segmental and suprasegmental, which are restricted to certain kinds of contexts, to explain why such features have been used and to classify them according to their function.

Mathematical linguistics is a field of scientific linguistic inquiry applying mathematical methods and concepts to linguistic systems, to phenomena observed in natural languages, or to the metatheory of models of grammars.

Foreign language teaching. A study of phonetics has educational value for almost everyone realizing the importance of language in human communication. The study of the complex of various communication techniques is definitely

relevant to teaching a foreign language. Pronunciation in the past occupied a central position in theories of oral language proficiency. But it was largely identified with accurate pronunciation of isolated sounds or words. The most neglected aspect of the teaching of pronunciation was the relationship between phoneme articulation and other features of connected speech. Traditional classroom techniques included the use of a phonetic alphabet (transcription), transcription practice, recognition/discrimination tasks, focused production tasks, tongue twisters, games, and the like.

When **the Communicative Approach** to language teaching began to take over in the mid- late 1970s, most of the above-mentioned techniques and materials for teaching pronunciation at the segmental level were rejected on the grounds as being incompatible with teaching language as communication. Pronunciation has come to be regarded as of limited importance in a communicatively-oriented curriculum. Most of the efforts were directed to teaching supra-segmental features of the language – rhythm, stress and intonation, because they have the greatest impact on the comprehensibility of the learner's English [Celce-Murcia et al 1996, p. 10]. Later pronunciation instruction moved away from the segmental/supra-segmental debate and toward a more balanced view [Morley 1994]. This view recognizes that both an inability to distinguish sounds that carry a high functional load (e. g. *list – least*) and an inability to distinguish supra-segmental features (such as intonation and stress differences) can have a negative impact on the oral communication and the listening comprehension abilities of normative speakers of English. Pronunciation curriculum should identify the most important aspects of both the segmentals and supra-segmentals, and integrate them appropriately in the teaching process that meets the needs of any given group of learners [Паращук 2009, p. 19].

The ability to produce English with an English-like pattern of stress and rhythm involves stress-timing (the placement of stress on selected syllables), which in turn requires speakers to take short cuts in how they pronounce words. Natural-sounding pronunciation in conversational English is achieved through blends and omissions of sounds to accommodate its stress-timed rhythmic pattern. Syllables or words which are articulated precisely are those high in information content, while those which are weakened, shortened, or dropped are predictable and can be guessed from context. In sum, the acquisition of pronunciation of a foreign language involves learning how to produce a wide range of complex and subtle distinctions which relate sound to meaning at several different levels. Articulatory, interactional, and cognitive processes are equally involved.

The field of phonetics is thus becoming wider and tending to extend over the limits originally set by its purely linguistic applications. On the other hand, the growing interest in phonetics is doubtless partly due to increasing recognition of the central position of language in every line of social activity. It is important, however, that the phonetician should remain a linguist and look upon his/her science as a study of the spoken form of language. It is its application to linguistic phenomena that makes phonetics a social science in the proper sense of the word, notwithstanding its increasing need of technical methods, and in spite of its practical applications.

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QUESTIONS

1. What is phonetics?
2. Name two basic tasks of phonetics.
3. What are major components of theoretical phonetics?
4. What is the difference between an accent and a dialect?
5. What is Received Pronunciation?
6. Who introduced the term "Received Pronunciation"?
7. What is Estuary English?
8. Enumerate the branches of phonetics.
9. Which traditional branches of theoretical phonetics are generally recognized from the point of view of the aspects of speech?
10. When was phonology originated?
11. Who was the author of the phoneme theory?
12. Who was the author of the work "The Groundwork of Phonology"?
13. Which branches of linguistics are closely connected with phonetics?

PRACTICAL TASK

1. Make a glossary of the main notions and give their definitions.
2. Give three different names that have been used for the accent usually used for teaching the pronunciation of British English.

UNIT 2. THE PHONIC STRUCTURE OF A LANGUAGE AND ITS SPEECH ORGANS

2.1. The Components of the Phonic Structure of a Language

Language is shaped into a spoken message by means of its **phonic structure** which is traditionally treated as a combination of four components:
- **segmental/phonemic component;**
- **syllabic structure;**
- **accentual structure/word stress/lexical stress;**
- **intonation.**

The accentual structure and *intonation* can be treated together under the heading **suprasegmental** or **prosodic component** because these effects are superimposed on the segmental chain of sounds and carry the information which the sounds do not contain [Паращук 2009, p. 11].

1. **The segmental/phonemic component.** First of all, a spoken message/an utterance can be thought as a succession of the smallest, further indivisible **segments** which are easily singled out in the flow of speech as separate discrete elements. They are called **sounds of a language** or **speech sounds.** Definite sequences of speech sounds constitute the material forms of morphemes, words and utterances.

Sounds function as **phonemes,** i.e. linguistically distinctive, relevant units capable of differentiating the meanings of morphemes, words, sentences. Phonemes are abstract representations of those speech sounds which can differentiate the meaning – i. e. *'sounds in the mind'* (the term suggested by Peter Roach). Each language has its own set of phonemes – the ABC (alphabet) of speech sounds. Realizations of a definite phoneme in definite positions in words are called

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allophones/variants, i. e. *'sounds in the mouth'* (the term suggested by Peter Roach).

The segmental/phonemic component is manifested in the following ways:

a) it can be reflected in various classifications of its phonemes which are divided first into two fundamental sound types – **vowels** (V) and **consonants** (C) with further subdivision of each type;

b) each segmental phoneme of a language has a definite number of **allophones** which occur in definite positions in words. The occurrence of the allophones of a phoneme in different positions in a word is called their *distribution.* Typical combinations or sequences of sounds are governed by certain regulations and occur in definite positions;

c) the articulations of allophones within words and at the junctions of the words in the flow of speech merge and interpenetrate each other. Thus there are specific rules for joining the sounds together in every language. These rules affect articulatory V+C, C+C, and V+V transitions.

Thus, the segmental component of a language phonic structure can be studied and described as: a system of phonemes; certain patterns of allophones and their distribution; a set of methods of joining speech sounds/allophones together in words and at their junctions – coarticulatory/adjustment phenomena [Паращук 2009, p. 11–12].

2. **The syllabic structure.** A unit of spoken message larger than a single sound and smaller than a word is a **syllable.**

Articulatorily a word may be pronounced "syllable at a time", e.g. *un-der-'stand*; so the syllable is the smallest further indivisible unit of speech production.

Auditorily the syllable is the smallest unit of perception: the listener identifies the whole of the syllable and only after that the sounds contained. The notion of syllable is very real to

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native speakers, and is used in everyday conversation, e. g. *Shall I put it in words in one syllable?*

Thus, the second component of the phonic structure of a language is the syllabic structure of its words both in citation forms and in utterances. The syllabic structure of words has two inseparable aspects:

a) syllable formation (складоутворення);

b) syllable division/separation (складоподіл).

Both aspects are sometimes covered by the term **syllabification.** The study and description of how syllables are formed and separated is part of the description of phonic substance of a language [Паращук 2009, p. 12].

3. **Word/lexical stress.** The amount of effort or energy expended in producing a syllable is called **stress**. For the hearer, stress is manifested as perceptual prominence, or strength. In other words, a stressed syllable seems more prominent or stronger than the other syllables in a word: it stands out [Pennington 1996, p. 129].

Stress is a cover term for three main features, any of which may result when extra effort is expended in producing a syllable and any of which may give an impression of perceptual prominence. These are: **duration,** or length; **intensity,** or loudness; and **pitch,** or fundamental frequency. The English stressed syllable – especially its vocalic nucleus – tends to have a greater degree of length, loudness and pitch associated with it than the unstressed syllable.

The problem of word stress has three aspects:

– the physical nature of word stress;

– the position of word stress in disyllabic and polysyllabic words;

– the degrees of word stress.

Languages differ in all these aspects of **word/lexical stress** [Паращук 2009, p. 13].

4. **Supra-segmental/prosodic features/intonation.** Words in speech are not used in isolation but in phrases and sentences where they are organized according to grammar rules, get different degrees of **prominence,** each syllable of a word is pronounced with a different degree of **pitch** and **loudness** of the voice, and **tempo/speed** of utterance. Variations in pitch, prominence/stress, and tempo are considered to be **supra-segmental** or **prosodic.** They are traditionally termed **intonation.**

The most important intonation/supra-segmental effects in a language are provided by:

a) the linguistic use of pitch, or **speech melody** (мелодика мовлення). Different levels of pitch **(tones)** are used in particular sequences **(contours)** to express a wide range of meanings. For example, all languages seem to differentiate between a falling and a rising pitch pattern. This distinction is used to express a contrast between *'stating'* and *'questioning'*;

b) the linguistic use of **utterance-level/sentence stress** (фразовий наголос). It is the amount of perceptual prominence given to particular words or syllables in an utterance because of the particular meaning the speaker wishes to convey in a particular situation. That perceptual prominence is principally achieved by pitch change accompanied by greater loudness, duration and more clearly defined vowel qualities. It is also termed **accent** by some phoneticians;

c) the linguistic use of **speech tempo** (темп мовлення). It is possible to speed up or slow down the **rate** with which syllables, words, and sentences are produced to convey several kinds of meaning. In many languages, a sentence spoken with extra speed conveys urgency. Rapidly pronounced, clipped syllables may convey irritation; slowly uttered ones – greater personal involvement, etc. [Паращук 2009, p. 13–14].

Pitch, loudness and tempo together create the **rhythm** of a language; loudness is the basis of rhythmical effects in English

(as shown by the way it is possible to tap out a sentence in a *'te-tum, te-tum'* way [Crystal 1997]. In other languages, such as oriental ones, pitch height (high vs low) is a central feature of rhythm.

Languages also vary in the way in which rhythmical contrasts are made. **English rhythm** is believed to preserve roughly equal intervals of time between stressed syllables irrespective of the number of unstressed syllables that come between them [Roach 2000, p. 41]. This is defined as a **'stress-timed/based'** (or **isochronous)** rhythm [Crystal 1997]. According to Peter Roach [Roach 2000], if the following sentence is said with isochronous stresses, the four syllables *Both of them are* would take the same amount of time as *new* and *here: Both of them are new here*. However, experimental research suggests that isochrony (i.e. the property of being equally spaced in time) is rarely found in natural speech. Still traditionally regarded as stress-timed language, English reveals an important feature: there is a tendency for unstressed syllables to become weak, and to contain short, centralized/reduced vowels.

In this respect, it differs from Ukrainian as well as other languages (Russian, Spanish, French, and Japanese, etc.) which are described as **'syllable-timed'.** Such languages depend on the principle that all syllables are of equal values and they follow each other in a steady flow without a strong contrast of stress (a *'machine-run'* effect). Unstressed vowels tend to retain the quality and quantity found in their stressed counterparts. The above mentioned distinctions of the nature of English rhythm should be taken into account by EFL learners [Паращук 2009, p. 13–14].

2.2. Speech Organs or Articulators

Brain is mostly involved in cognitive working, bringing the origin of language in an abstract form. This abstract form is then brought forward in concrete form through different body organs which receive messages from the brain. These body organs give rise to spoken language which was once in form of neurons or signals in mind. Such organs are known as speech organs which form an **articulatory system**. We have a large and complex set of muscles that can produce changes in the shape of the vocal tract, and in order to learn how the sounds of speech are produced it is necessary to become familiar with the different parts of the vocal tract. These different parts are called **articulators,** and the study of them is called **articulatory phonetics** [Roach 2009, p. 8].

All of the sounds we produce are because of muscle contraction or expansion. The muscles in the chest that we use for breathing produce the flow of air that is needed for almost all speech sounds; muscles in the larynx produce many different modifications in the flow of air from the chest to the mouth [ibid]. It should be mentioned that the human being does not possess the organs which are exclusively used for producing speech sounds. All the organs involved in pronunciation of speech sounds, and human speech in general, primarily fulfill other functions – the functions of swallowing and digesting food, respiratory functions, etc. Teachers need to understand how the articulatory system works so they can help students learn how to produce sounds accurately (see fig. 2.1).
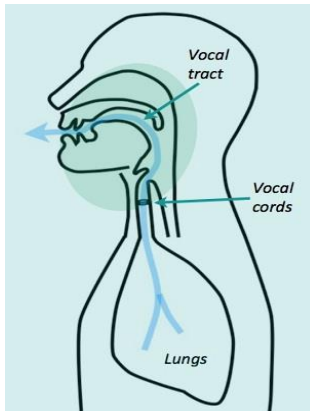
Figure 2.1 – Sounds Production

Speech organs or articulators produce the sounds of a language. Organs used for speech include the lips, teeth, alveolar ridge, hard palate, velum (soft palate), uvula, pharynx, larynx, vocal cords, epiglottis, oesophagus, trachea and various parts of the tongue. The most important active articulator is the tongue as it is involved in the production of the majority of sounds. The lower lip is another active articulator. But glottis is not an active articulator because it is only a space between vocal folds.

In accordance with their linguistic function the organs of speech may be grouped as follows (see fig. 2.2):
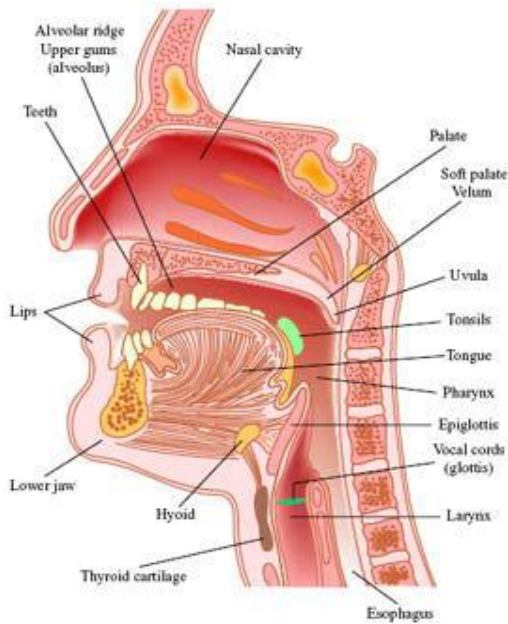
Figure 2.2 – The Organs of Speech

Figure 2.2 is a diagram that is used frequently in the study of phonetics. It represents the human head, seen from the side, displayed as though it had been cut in half. You will need to look at it carefully as the articulators are described, and you will find it useful to have a mirror and a good light placed so that you can look at the inside of your mouth.

The respiratory or power mechanism furnishes the flow of air which is the first requisite for the production of speech sounds. This mechanism is formed by the lungs, the wind-pipe and the bronchi.

The Lungs. The airflow is by far the most vital requirement for producing speech sound, since all speech sounds are made with some movement of air. The lungs provide the energy source for the airflow. The lungs are the spongy respiratory

organs situated inside the rib cage. They expand and contract as we breathe in and out air. The amount of air accumulated inside our lungs controls the pressure of the airflow. Thus, the air-stream expelled from the lungs provides the most usual source of energy which is regulated by the power mechanism. Regulating the force of the air-wave, the lungs produce variations in the intensity of speech sounds. Syllabic pulses and dynamic stress, both typical of English, are directly related to the behaviour of the muscles which activate this mechanism. It is necessary that in order to produce a speech, the outward moving airstream must be modified by manipulation of the larynx and articulators in the oral and nasal cavities (see fig. 2.3):
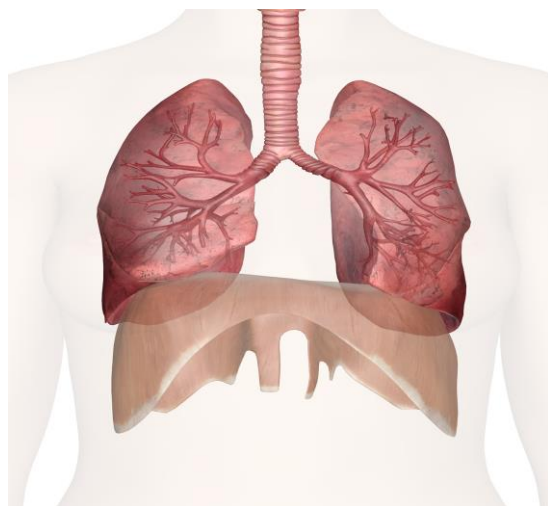
Figure 2.3 – The Lungs

From the lungs through the wind-pipe the air-stream passes to the upper stages of the vocal tract. First of all, it passes to the **larynx** containing the **vocal cords (folds).**

The Larynx. The larynx is colloquially known as the **voice box**. It is a box-like small structure situated in the front of the

throat where there is a protuberance. For this reason, the larynx is popularly called **Adam's apple**. This casing is formed of cartilages and muscles. It protects as well as houses the **trachea** (also known as *windpipe*, *oesophagus*, *esophagus*) and the vocal folds (formerly they were called *vocal cords*). Over the larynx is a flap called the **epiglottis** that closes off the trachea when we swallow. When the epiglottis is folded back out of the way, the parts of the larynx that are involved in speech production can be seen (see fig. 2.4):
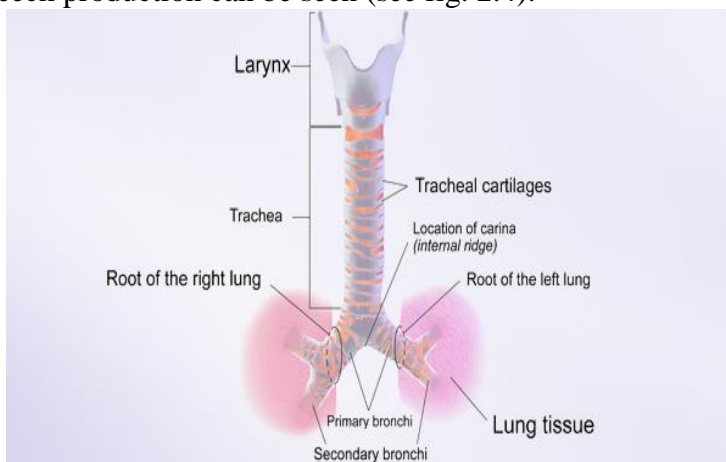
Figure 2.4 – The Larynx

The Vocal Folds. They are two thin sheets of tissue that stretch in a V-shaped fashion like a pair of lips placed horizontally from front to back. They are joined in the front but can be separated at the back. When the vocal cords are stretched tight and close together, they vibrate rapidly – more than 100 times per second – and the sound that comes out is louder. When the vocal cords are more relaxed, the sound that comes out is quieter, like a whisper. The vocal cords also affect the pitch of the sounds we produce. **Pitch** is a measure of how

high or low the voice is at a particular point in time; that is, high or low in the sense that a musical note is high or low; it doesn't mean a high or low volume or loudness. When the vocal cords are stretched out longer, the sound has a lower pitch; when they are shorter, the sound has a higher pitch. The opening between the vocal cords is known as the **glottis**. The glottis is considered to be in open state when the folds are apart, and when the folds are pressed together the glottis is considered to be in close state.

The function of the vocal folds consists in their role as a **vibrator** set in motion by the air-stream sent by the lungs. When the glottis is tightly closed and the air is sent up below it the so-called glottal stop is produced. It often occurs in English when it reinforces or even replaces [p], [t], or [k] or even when it precedes the energetic articulation of vowel sounds. The most important speech function of the vocal folds is their role in the production of **voice.** The effect of voice is achieved when the vocal cords are brought together and vibrate when subjected to the pressure of air passing from the lungs. This vibration is caused by compressed air forcing an opening of the glottis and the following reduced air-pressure permitting the vocal cords to come together again.

The height of the speaking voice depends on the frequency of the vibrations. The more frequently the vocal cords vibrate the higher the pitch is. The typical speaking voice of a woman is higher than that of a man because the vocal cords of a woman vibrate more frequently. We are able to vary the rate of the vibration thus producing modifications of the pitch component of intonation. More than that, we are able to modify the size of the puff of air which escapes at each vibration of the vocal cords, that is we can alter the **amplitude** of the vibration which causes changes of the loudness of the sound heard by the listener (see fig. 2.5):
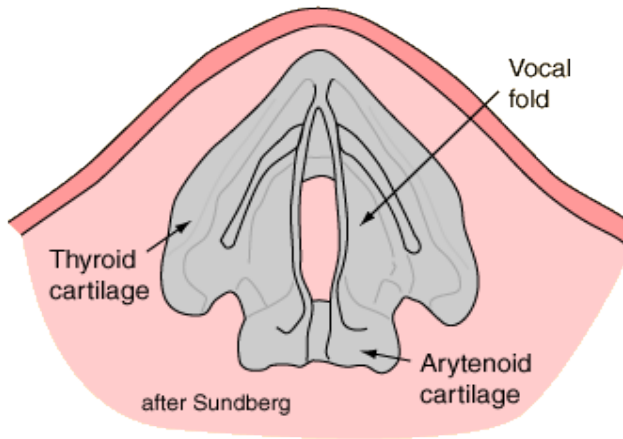
Figure 2.5 – The Vocal Folds

Above the vocal cords, in the vocal tract itself, are several parts that move in various ways to change the size and shape of the open part of the vocal tract and produce all the sounds of English, or any other language. These are called the **articulators**.

From the larynx the air-stream passes to **supraglottal cavities,** that is to the **pharynx,** the **mouth** and the **nasal** cavities. The shapes of these cavities modify the note produced in the larynx thus giving rise to particular speech sounds.

The Pharynx. It lies between the mouth and the food passage, that is, just above the larynx. It is just about 7cm long in the case of women and 8cm long in the case of men.

The Roof of the Mouth. It is considered as a major speech organ. It is divided into three parts:

a) the alveolar ridge/teeth ridge. The alveolar ridge is the slightly rough area just behind the top teeth (after the upper front teeth). It can also be called the tooth ridge or the gum ridge. The tongue touches or almost touches the alveolar ridge when we say the sounds [t], [d], [s], [z], [l], and [n]. The

sounds which are produced touching this convex part are called **alveolar sounds**.

b) the hard palate. It is the concave part of the roof of the mouth and is situated on the middle part of the roof, beginning just behind the alveolar ridge. It can also be called the roof of the mouth. When you close your mouth, your tongue is probably flat against your hard palate. The tongue touches or almost touches the hard palate when we say the sounds [ʃ], [ʒ], [ʧ], [ʤ], and [y].

c) the velum or soft palate. The soft palate is the softer part of the roof of the mouth, farther back than the hard palate. It is also called the velum. If you touch the roof of your mouth with your tongue and then keep moving your tongue farther back, you'll find that softer area. It could be lowered or raised. When it is lowered, the air stream from the lungs has access to the nasal cavity. When it is raised the passage to the nasal cavity is blocked. The sounds which are produced touching this area with the back of the tongue are called **velar sounds**. The back of the tongue touches the soft palate when we say the sounds [k], [g], and [ŋ] (see fig. 2.6):

Alveolar Ridge/Teeth Ridge
Hard Palate
Soft Palate/Velum
Uvalva
Pharynx
Epiglottis
Nasal Cavity/Nasal Tract
Lips
Tongu
Jaw

1. Tip of the Tongue
2. Blade of the Tongue
3. Front of the Tongue
4. Back of the Tongue
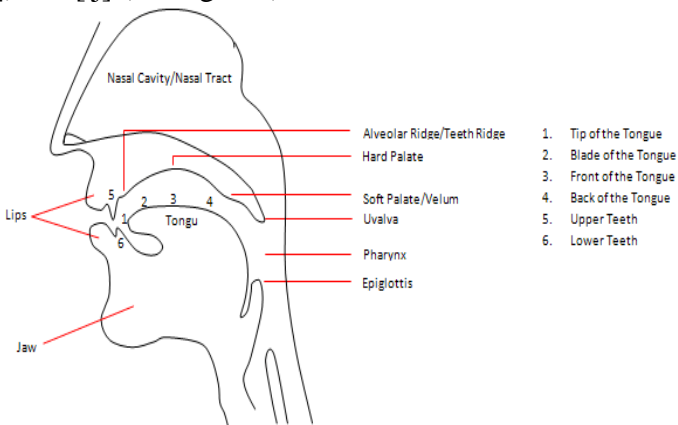5. Upper Teeth
6. Lower Teeth

Figure 2.6 – The Roof of the Mouth

The Lips also play an important role in the matter of articulation, producing several consonant sounds: [p], [b], [m], [w], [f], and [v]. The way we move our lips – making them rounded, unrounded, or stretched a bit wide – also affects the sounds of vowels. Lips can be pressed together or brought into contact with the teeth. The consonant sounds which are articulated by touching two lips each other are called bilabial sounds, for example, [p] and [b]. Whereas, the sounds which are produced with lip to teeth contact are called labiodental sounds. In English there are two labiodental sounds: [f] and [v].

Another important thing about the lips is that they can take different shapes and positions. Therefore, lip-rounding is considered as a major criterion for describing vowel sounds. The lips may have the following positions:

a) rounded: when we pronounce a vowel, our lips can be rounded, a position where the corners of the lips are brought towards each other and the lips are pushed forwards. And the resulting vowel from this position is a **rounded** one. For example, /ə ʊ/;

b) spread: the lips can be spread. In this position the lips are moved away from each other (i. e. when we smile). The vowel that we articulate from this position is an **unrounded** one. For example, in English [i:] is a long vowel with slightly spread lips;

c) neutral: again, the lips can be neutral, a position where the lips are not noticeably rounded or spread. And the articulated vowel from this position is referred to as **unrounded vowel**. For example, in English [ɑ:] is a long vowel with neutral lips.

The Tongue is responsible for the production of many speech sounds, since it can move very fast to different places and is also capable of assuming different shapes. The tongue is involved in producing both consonants and vowels. The shape

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and the position of the tongue are especially crucial for the production of vowel sounds.

The tongue is divided into four parts:

a) the tip: it is the extreme end of the tongue;

b) the blade: it lies opposite to the alveolar ridge;

c) the front: it lies opposite to the hard palate;

d) the back: it lies opposite to the soft palate or velum.

Thus, when we describe the vowel sounds in the context of the function of the tongue, we generally consider the following criteria:

Tongue Height. It is concerned with the vertical distance between the upper surface of the tongue and the hard palate. From this perspective the vowels can be described as **close** and **open**. For instance, because of the different distance between the surface of the tongue and the roof of the mouth, the vowel [i:] has to be described as a relatively **close** vowel, whereas [æ] has to be described as a relatively **open** vowel.

Tongue Frontness/Backness. It is concerned with the part of tongue between the front and the back, which is raised high. From this point of view, the vowel sounds can be classified as **front vowels** and **back vowels**. By changing the shape of the tongue we can produce vowels in which a different part of the tongue is the highest point. That means, a vowel having the back of the tongue as the highest point is a back vowel, whereas the one having the front of the tongue as the highest point is called a front vowel. For example: during the articulation of the vowel [u:] the back of the tongue is raised high, so it's a **back** vowel. On the other hand, during the articulation of the vowel [æ] the front of the tongue is raised high, therefore, it's a **front** vowel (see fig. 2.7):
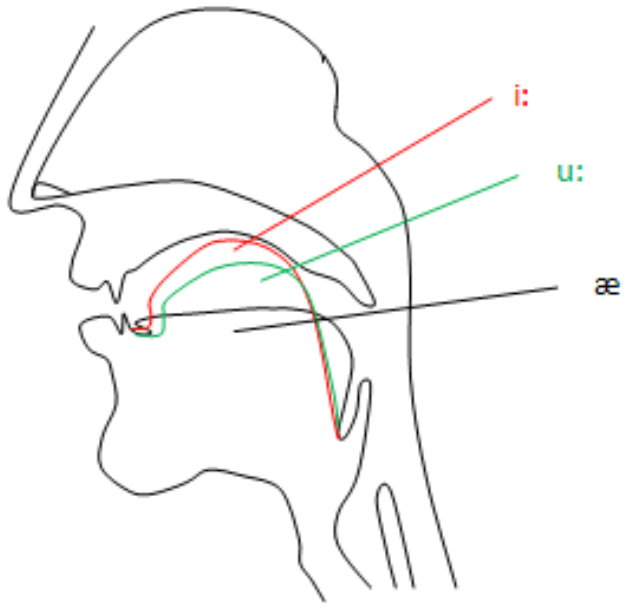
Figure 2.7 – Back and Front Vowels

The Jaws. Some phoneticians consider the jaws as articulators, since we move the lower jaw a lot at the time of speaking. But it should be noted that the jaws are not articulators in the same way as the others. The main reason is that they are incapable of making contact with other articulators by themselves. The lower jaw moves up and down to allow the mouth to open and close. Its movement also helps the tongue move to higher or lower positions, and to makes the space inside the mouth bigger or smaller. All of these movements have a great influence on the sounds we produce.

The Nose and the Nasal Cavity may also be considered as speech organs. It is the space inside the nose where air passes in and out when we breathe through our nose. It can also be called the nasal passage. The sounds which are produced with the nose are called **nasal** sounds.

In nasal sounds, the velum is lowered to allow airflow through the nasal cavity. In English, nasal consonants are accompanied by the blocking of airflow through the oral cavity. This area is important in producing the nasal sounds [m], [n], and [ŋ]. For these sounds, the air stream moves up and out through the nose instead of the mouth.

The Teeth are also very much helpful in producing various speech sounds. The teeth are used when we say the consonant sounds [f] and [v], with the upper teeth touching the lower lip, and also [θ] and [ð], with the tip of the tongue touching the upper teeth. The sounds which are made with the tongue touching the teeth are called **dental** sounds.

Uvula. It functions in tandem with the back of the throat, the palate, and air coming up from the lungs to create a number of guttural and other sounds. In many languages, it closes to prevent air escaping through the nose when making some sounds.

The Hard Palate is composed of the two maxillary and two palatine bones. The integrity of the hard palate is important for resonance and as a point of attachment for muscle tissue. The front section of the hard palate is called alveolar ridge. Numerous consonants are formed using the alveolar, post alveolar, and palatal area as a placement. Example: [j].
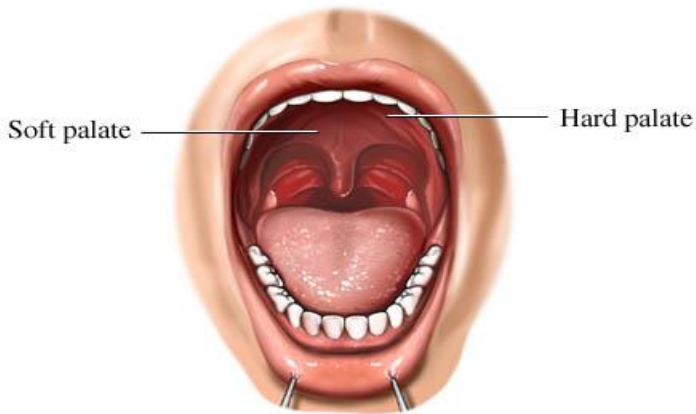
Figure 2.8 – The Hard and Soft Palates

The Soft Palate is located directly behind the hard palate and is comprised of muscle tissue with a membranous covering. The movement of the soft palate allows for velopharyngeal closure. The velar consonants are formed by the role of the velum in articulation. Examples: [k], [g], [ŋ].

Now think for a minute about how people produce sounds. Say a few words and concentrate on what's happening inside your mouth. The movements of your tongue, lips, and jaw are incredibly quick, delicate, and complex – just as complex as the movements of an Olympic gymnast or a surgeon's hands. When you think about it and analyze the information given above, you understand this miracle of talking.

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QUESTIONS

1. What are the components of the phonic structure of a language?

2. Describe the segmental/phonemic component.

3. What is the syllabic structure of a language?

4. What is intonation?

5. How is English rhythm called?

6. What is the difference between 'stress-timed' and 'syllable-timed' rhythm?

7. Describe the function of lungs in producing speech sounds.

8. What is the role of larynx?

9. Denote the speech function of the vocal folds.

10. Describe the roof of the mouth.

11. What is the role of lips in the matter of articulation?

12. How is the tongue involved in producing consonants and vowels?

13. Can the jaws be considered as articulators?

14. Which sounds do the nose and the nasal cavity produce?

15. Which sounds do the teeth produce?

16. What is the role of the hard and soft palates in the matter of articulation?

PRACTICAL TASK
THE EXERCISES FOR LIPS AND TONGUE

The purpose of articulation gymnastics is to develop full-fledged movements and certain positions of the organs of the articulatory apparatus necessary for the correct pronunciation of sounds. Purposeful exercises help prepare the articulatory apparatus of a student to correctly pronounce the necessary sounds.

Articulation gymnastics should always begin with working out the basic movements and positions of the lips and the tongue necessary for a clear, correct pronunciation of all sounds.

Exercises for Lips

1. Opening and closing the mouth.

Open your mouth wide, your lower jaw as low as possible. Shut your mouth.

2. Exposure of teeth – "grin".

Lips with close jaws open up and down slightly exposing both rows of teeth and then closing up. Lips keep slightly stretched position, without bulging. The distance between the jaws is equal to the thickness of the tongue. The lower incisors are directly below the upper ones.

3. "Grin" with the opening and closing of the mouth.

Open the lips, lower and raise the lower jaw with exposed teeth.

4. Lowering and raising the lower lip.

Slightly raise the upper lip, expose the edge of the upper teeth, press to them lower lip. Having exposed the lower teeth, lower the lower lip. Repeat it movement without dropping jaws. Upper lip is immobile.

5. Flat rounding.

Opening his mouth with a "grin", slowly round his lips, leaving them pressed to teeth, and gradually reduce the hole. The lips remain flat and do not bulge. The lower jaw is lowered and immobile.

Exercises for the Tongue

1. Sticking tongue out – «hovel».

Having exposed the teeth, give the tongue a flat wide shape so that the edges around the semicircle touched the upper teeth. Then tongue slightly stretch between the teeth. The teeth of the upper jaw slightly scrape the back of the tongue. Blow air through the gap between the teeth and tongue. Sticking out the tongue, do not bend it down and do not apply to the lips.

2. Pointing out the pointed tongue – "sting".

Expose the teeth, sticking out the pointed tongue, do not touch it with your teeth. The tip is directed forward and upward. Avoid involuntary bending.

3. Feeling the line of the transverse incision of the oral cavity with the tip of the tongue.

Attach the tip of the tongue to the edge of the upper teeth. Feel the gap between the upper incisors on the back surface, go to the gums and alveoli, moving the tip of the tongue back, go through the alveolar bulge and feel the hard sky.

4. The alternation of the dorsal and apical order.

Attach the tip of the tongue to the lower teeth of the inner gums, arching middle part of the language. Then lift and move the tip of the tongue to the convex part of the alveoli, translating the language into an apical (upper) position. At repetitive movement of the tip of the tongue is bent up and down in turn.

5. Pulling the tongue back.

Open your mouth wide, pull the entire tongue back. Back of the tongue rises to the soft sky. Lower the tongue and push it forward, tip the tongue touches the lower teeth. Do not close your mouth.

UNIT 3. THE SYSTEM OF ENGLISH PHONEMES

3.1. General Characteristics of Phonemes

In any language we can identify a small number of regularly used sounds (vowels and consonants) that we call phonemes; for example, the vowels in the words 'pin' and 'pen' are different phonemes, and so are the consonants at the beginning of the words 'pet' and 'bet'. Because of the notoriously confusing nature of English spelling, it is particularly important to learn to think of English pronunciation in terms of phonemes rather than letters of the alphabet; one must be aware, for example, that the word 'enough' begins with the same vowel phoneme as that at the beginning of 'inept' and ends with the same consonant as 'stuff'. We often use special symbols to represent speech sounds; with the symbols chosen for this course, the word 'enough' would be written (transcribed) as 'inʌf' [Roach 2009, p. 2].

When we talk about the sounds of a language, the term "sound" can be interpreted in two rather different ways. A linguist uses two separate terms: **"phoneme"** is used to mean "sound" in its contrastive sense, e. g.: *tie – die, seat – seed* and **"allophone"** is used for sounds which are variants of a phoneme [Vrabel 2009, p. 25]. It means that there is more than one way to pronounce a phoneme, and these different pronunciations are called allophones. They are not phonemes, because they do not change the meaning of the word.

The **phoneme** (from Ancient Greek φώνημα phōnēma, "sound made, utterance, thing spoken, speech, language") is a minimal abstract linguistic unit realized in speech in the form of speech sounds opposable to other phonemes of the same language to distinguish the meaning of morphemes and words [Авраменко 2019, p. 17]. The physical view of the phoneme was originated by prof. **Daniel Jones** (1881–1967), the founder

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of London phonetic school. He defined the phoneme as a family of sounds, i.e. a sum of its actual realizations. But as the concept 'house' can not be defined as the sum total to all the houses existing in the world, so the phoneme can not be defined as the sum total of all its realizations [Паращук 2009, p. 132].

Thus, a phoneme is a single "unit" of sound that has meaning in any language. There are 44 phonemes in English (in the standard British model), each one representing a different sound a person can make. Since there are only 26 letters in the alphabet, sometimes letter combinations need to be used to make a phoneme. A letter can also represent different phonemes. Here is a good example:

- chef = [ʃef];
- choir = [kwaɪə];
- cheese = [tʃiːz].

Allophones are usually relatively similar sounds which are in **mutually exclusive or complementary distribution (CD)**. The CD of two phones means that the two phones can never be found in the same environment (ie. the same environment in the senses of position in the word and the identity of adjacent phonemes). If two sounds are phonetically similar and they are in complementary distribution, then they can be assumed to be allophones of the same phoneme. The term "allophone" was coined by **Benjamin Lee Whorf** in the 1940s. In doing so, he placed a cornerstone in consolidating early phoneme theory. The difference between a phoneme and an allophone is described in figure 3.1:
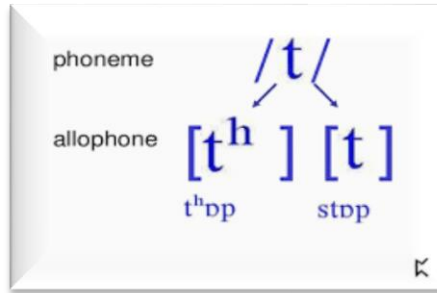
Figure 3.1 – A Phoneme and an Allophone

The phoneme is a **functional unit.** Function is usually understood to mean discriminatory function, that is, the role of the various components of the phonetic system of the language in distinguishing one morpheme from another, one word from another or also one utterance from another.

The opposition of phonemes in the same phonetic environment differentiates the meaning of morphemes and words, e. g. *said − says, sleeper –sleepy, bath − path, light–like.* Sometimes the opposition of phonemes serves to distinguish the meaning of the whole phrases, e. g. *He was heard badly − He was hurt badly.* Thus we may say that the phoneme can fulfil the **distinctive** function.

The phoneme is **material, real** and **objective.** That means that it is realized in speech of all English-speaking people in the form of speech sounds, its allophones. The sets of speech sounds, that is the allophones belonging to the same phoneme are not identical in their articulatory content though there remains some phonetic similarity between them [Vrabel 2009, p. 26].

As a first example, let us consider the English phoneme [d], which when not affected by the articulation of the preceding or following sounds is a plosive, fore-lingual apical, alveolar, lenis stop. This is how it sounds in isolation or in such words as *door, darn, down,* etc., when it retains its typical articulatory

characteristics. In this case the consonant [d] is called the **principal** allophone. Principal or typical allophones do not undergo any distinguishable changes in the chain of speech.

At the same time there are quite predictable changes in the articulation of allophones that occur under the influence of the neighbouring sounds in different phonetic situations. Such allophones are called **subsidiary.** For example:

[d] is slightly palatalized before front vowels and the sonorant [j], e. g. *deal, day, did, did you.*

[d] is pronounced without any plosion before another stop, e. g. *bedtime, bad pain, good dog;* it is pronounced with the nasal plosion before the nasal sonorants [n] and [m], e.g. *sudden, admit, could not, could meet;* the plosion is lateral before the lateral sonorant [l], e.g. *middle, badly, bad light.*

Followed by [r] the consonant [d] becomes post-alveolar, e. g. *dry, dream;* followed by the interdental [θ], [ð] it becomes dental, e.g. *breadth, lead the way, good thing.*

When [d] is followed by the labial [w] it becomes labialized, e.g. *dweller.*

Allophones of each phoneme possess a bundle of distinctive features that make this phoneme functionally different from all other phonemes of the language concerned. This functionally relevant bundle of articulatory features is called the **invariant** of the phoneme. The articulatory features which form the invariant of the phoneme are called **distinctive** or **relevant.** To extract a relevant feature of the phoneme we have to oppose it to some other phoneme in the same phonetic context. If the opposed sounds differ in one articulatory feature and this difference brings about changes in the meaning of the words, the contrasting features are called relevant. For example, the words *port* and *court* differ in one consonant only, that is the word *port* has the initial consonant [p], and the word *court* begins with [k]. Both sounds are occlusive and fortis, the only difference being that [p] is labial and [k] is backlingual.

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Therefore, it is possible to say that labial and backlingual articulations are relevant in the system of English consonants.

The articulatory features which do not serve to distinguish meaning are called **nondistinctive, irrelevant** or **redundant;** for instance, it is impossible in English to oppose an aspirated [p] to a non-aspirated one in the same phonetic context to distinguish meanings. That is why aspiration is a non-distinctive feature of English consonants.

If an allophone of some phoneme is replaced by an allophone of a different phoneme the mistake is called **phonological**, because the meaning of the word is inevitably affected, e. g.: *beat – bit.*

If an allophone of the phoneme is replaced by another allophone of the same phoneme the mistake is called **phonetic**. It happens when the invariant of the phoneme is not modified and consequently the meaning of the word is not affected [Vrabel 2009, p. 27].

Allophones often show up when people have different accents. One good example is the word "butter". Some native speakers will say [bʌɾə]. Others will say [bʌtə]. You can see here that [t] and [ɾ] are allophones of the same phoneme. Whatever way you say it, the meaning of the word does not change. It's still the yellow stuff made from milk that you put on bread.

Thus, allophones are the linguistically non-significant variants of each phoneme. In other words, a phoneme may be realised by more than one speech sound and the selection of each variant is usually conditioned by the phonetic environment of the phoneme. Occasionally allophone selection is not conditioned but may vary from person to person and occasion to occasion (ie. **free variation**).

3.2. Notation

The abstractional and material aspects of the phoneme have given rise to the appearance of transcription. **Transcription** is a set of symbols representing speech sounds. The symbolization of sounds naturally differs according to whether the aim is to indicate the phoneme, i. e. a functional unit as a whole, or to reflect the modifications of its allophones as well. The International Phonetic Association (IPA) has given accepted values to an inventory of symbols, mainly alphabetic but with additions. The first type of notation, the **broad** or **phonemic** transcription, provides special symbols for all the phonemes of a language. The second type, the **narrow** or **allophonic** transcription, suggests special symbols including some information about articulatory activity of particular allophonic features [Vrabel 2009, p. 27].

The broad transcription is mainly used for practical expedience; the narrow type serves the purposes of research work. The first type was introduced by Daniel Jones. He realised the difference in quality as well as in quantity between the vowel sounds in the words *sit* and *seat, pot* and *port, pull* and *pool.* According to Daniel Jones' notation, English vowels are denoted like this: [i] − [iː], [e] − [æ], [ʌ] − [aː], [ɔ] − [ɔː], [u] − [uː], [ə] − [ɜː]. This way of notation disguises the qualitative difference between the vowels [i] and [iː], [ɔ] and [ɔː], [u] and [uː], [ə] and [ɜː] though nowadays most phoneticians agree that vowel length is not a distinctive feature of the vowel, but is rather dependent upon the phonetic context, that is it is definitely redundant. For example, in such word pairs as *hit – heat, cock – cork, pull – pool* the opposed vowels are approximately of the same length, the only difference between them lies in their quality which is therefore relevant [ibid].

The other type of broad transcription causes no phonological misunderstanding providing special symbols for all vowel

phonemes: [i], [iː], [e], [æ], [aː], [ʌ], [ɒ], [ɔː], [u], [uː], [ə], [ɜː]. The narrow or phonetic transcription incorporates as much more phonetic information as the phonetician desires, or as he can distinguish. It provides special symbols to denote not only the phoneme as a language unit but also its allophonic modifications. The symbol [h], for instance, indicates aspirated articulation: [kheit] – [skeit]. The following symbols of phonemes are used in the modern transcription:

1   *Symbols for phonemes*

ɪ   as in 'pit' pɪt

e   as in 'pet' pet

æ   as in 'pat' pæt

ʌ   as in 'putt' pʌt

ɒ   as in 'pot' pɒt

ʊ   as in 'put' pʊt

ə   as in 'about', upper'
      əbaʊt, ʌpə

iː   as in 'key' kiː

ɑː   as in 'car' kɑː

ɔː   as in 'core' kɔː

uː   as in 'coo' kuː

ɜː   as in 'cur' kɜː

eɪ   as in 'bay' beɪ

aɪ   as in 'buy' baɪ

ɔɪ   as in 'boy' bɔɪ

ɪə   as in 'peer' pɪə

eə   as in 'pear' peə

ʊə   as in 'poor' pʊə

əʊ as in 'go' gəʊ

aʊ as in 'cow' kaʊ

p	as in 'pea' piː	b	as in 'bee' biː
t	as in 'toe' təʊ	d	as in 'doe' dəʊ
k	as in 'cap' kæp	g	as in 'gap' gæp
f	as in 'fat' fæt	v	as in 'vat' væt
θ	as in 'thing' θɪŋ	ð	as in 'this' ðɪs
s	as in 'sip' sɪp	z	as in 'zip' zɪp
ʃ	as in 'ship' ʃɪp	ʒ	as in 'measure' meʒə
h	as in 'hat' hæt		
m	as in 'map' mæp	l	as in 'led' led
n	as in 'nap' næp	r	as in 'red' red
ŋ	as in 'hang' hæŋ	j	as in 'yet' jet
		w	as in 'wet' wet
tʃ	as in 'chin' tʃɪn	dʒ	as in 'gin' dʒɪn

3.3. Methods of Phonological Analysis

The aim of the phonological analysis is, firstly, to determine which differences of sounds are phonemic (i.e. relevant for the differentiation of the phonemes) and which are non-phonemic and, secondly, to find the inventory of the phonemes of this or that language.

A number of principles have been established for ascertaining the phonemic structure of a language. For an unknown language the procedure of identifying the phonemes of a language as the smallest language units has several stages. The first step is to determine the minimum recurrent segments (segmentation of speech continuum) and to record them graphically by means of allophonic transcription. To do this an analyst gathers a number of sound sequences with different meanings and compares them. For example, the comparison of [stik] and [stæk] reveals the segments (sounds) [i] and [æ], comparison of [stik] and [spik] reveals the segments [st] and [sp] and the further comparison of these two with [tik] and [tæk], [sik] and [sæk] splits these segments into smaller segments [s], [t], [p]. If we try to divide them further there is no

comparison that allows us to divide [s] or [t] or [p] into two, and we have therefore arrived at the minimal segments. From what we have shown it follows that it is possible to single out the minimal segments opposing them to one another in the same phonetic context or, in other words, in sequences which differ in one element only [Vrabel 2009, p. 29].

The next step in the procedure is the arranging of sounds into functionally similar groups. We do not know yet what sounds are contrastive in this language and what sounds are merely allophones of one and the same phoneme. There are two most widely

used methods of finding it out. They are the distributional method and the semantic method.

The distributional method is mainly used by phoneticians of "structuralist" persuasions. These phoneticians consider it to group all the sounds pronounced by native speakers into phonemes according to the two laws of phonemic and allophonic distribution. These laws were discovered long ago and are as follows:

1) allophones of different phonemes occur in the same phonetic context;

2) allophones of the same phoneme never occur in the same phonetic context.

The fact is that the sounds of a language combine according to a certain pattern characteristic of this language. Phonemic opposability depends on the way the phonemes are distributed in their occurrence. That means that in any language certain sounds do not occur in certain positions. If more or less different sounds occur in the same phonetic context they should be allophones of different phonemes. In this case their distribution is **contrastive** [ibid.]

If more or less similar speech sounds occur in different positions and never occur in the same phonetic context they are allophones of one and the same phoneme. In this case their

distribution is **complementary.** Still there are cases when two sounds are in complementary distribution but are not referred to the same phoneme. This is the case with the English [h] and [ŋ]. [h] occurs only initially or before a vowel while [ŋ] occurs only medially or finally after a vowel and never occurs initially. In such case the method of distribution is modified by addition of the criterion of phonetic similarity/dissimilarity. The decisions are not made purely on distributional grounds.

Articulatory features are taken into account as well. So far we have considered cases when the distribution of sounds was either contrastive or complementary. There is, however, a third possibility, namely, that the sounds both occur in a language but the speakers are inconsistent in the way they use them. In such cases we must take them as free **variants** of a single phoneme. We could explain it on the basis of "dialect" or on the basis of sociolinguistics. It could be that one variant is a "prestige" form which the speaker uses when he is constantly "monitoring" what he says while the other variant of pronunciation is found in casual or less formal speech [ibid].

The semantic method. It is applied for phonological analysis of both unknown languages and languages already described. In case of the latter it is used to determine the phonemic status of sounds which are not easily identified from phonological point of view. The method is based on a phonemic rule that phonemes can distinguish words and morphemes when opposed to one another. The semantic method of identifying the phonemes of a language attaches great significance to meaning. It consists in systematic

substitution of the sound for another in order to ascertain in which cases where the phonetic context remains the same such substitution leads to a change of meaning. It is with the help of an informant that the change of meaning is stated. This procedure is called the **commutation test.** It consists in finding **minimal pairs** of words and their grammatical forms [ibid].

For example, an analyst arrives at the sequence [pin]. He substitutes the sound [p] for the sound [b] or [s], [d], [w]. The substitution leads to the change of meaning, cf.: *pin, bin, sin, din, win.* This would be a strong evidence that [p], [b], [s], [d], [w] can be regarded as allophones of different phonemes.

3.4. Vowels and Consonants

If speech sounds are studied from the point of view of their production by man's organs of speech, it is the differences and similarities of their articulation that are in the focus of attention. A speech sound is produced as a result of definite coordinated movements and positions of speech organs, so the articulation of a sound consists of a set of articulatory features.

The words 'vowel' and 'consonant' are very familiar ones, but when we study the sounds of speech scientifically we find that it is not easy to define exactly what they mean. In general, a **vowel** is a speech sound produced by comparatively open configuration of the vocal tract, with the vibration of the vocal cords but without audible friction. A **consonant** is a basic speech sound in which the breath is at least partly obstructed.

Thus, the most common view is that vowels are sounds in which there is no obstruction to the flow of air as it passes from the larynx to the lips. A doctor who wants to look at the back of a patient's mouth often asks them to say "ah"; making this vowel sound is the best way of presenting an unobstructed view. But if we make a sound like [s], [d] it can be clearly felt that we are making it difficult or impossible for the air to pass through the mouth. Most people would have no doubt that sounds like [s], [d] should be called consonants. However, there are many cases where the decision is not so easy to make. One problem is that some English sounds that we think of as consonants, such as the sounds at the beginning of the words *'hay'* and *'way'*, do not really obstruct the flow of air more than

some vowels do. Another problem is that different languages have different ways of dividing their sounds into vowels and consonants; for example, the usual sound produced at the beginning of the word *'red'* is felt to be a consonant by most English speakers, but in some other languages (e. g. Mandarin Chinese) the same sound is treated as one of the vowels [Roach 2009, p. 10].

If we say that the difference between vowels and consonants is a difference in the way that they are produced, there will inevitably be some cases of uncertainty or disagreement; this is a problem that cannot be avoided. It is possible to establish two distinct groups of sounds (vowels and consonants) in another way. Consider English words beginning with the sound [h]; what sounds can come next after this [h]? We find that most of the sounds we normally think of as vowels can follow it (e. g. e) in the word *'hen'*), but practically none of the sounds we class as consonants, with the possible exception of [j] in a word such as 'huge'. Now think of English words beginning with the two sounds [bi]; we find many cases where a consonant can follow (e. g. [d] in the word *'bid'*, or [1] in the word *'bill'*), but practically no cases where a vowel may follow. What we are doing here is looking at the different contexts and positions in which particular sounds can occur; this is the study of the **distribution** of the sounds, and is of great importance in phonology. Study of the sounds found at the beginning and end of English words has shown that two groups of sounds with quite different patterns of distribution can be identified, and these two groups are those of vowel and consonant. If we look at the vowel-consonant distinction in this way, we must say that the most important difference between vowel and consonant is not the way that they are made, but their different distributions. It is important to remember that the distribution of vowels and consonants is different for each language [ibid., p. 10–11].

Basically, there are **1) articulatory, 2) acoustic** and **3) unctional** differences between vowels (V) and consonants (C).

1. The most substantial **articulatory** difference between vowels and consonants is that in the articulation of V the air passes freely through the mouth cavity, while in making C an obstruction is formed in the mouth cavity and the airflow exhaled from the lungs meets a narrowing or a complete obstruction formed by the speech organs. For example, in the case of [t] (Fig. 1), there is direct contact between the tip of the tongue (active articulator) and the alveolar ridge (passive articulator), so that the airflow coming from the lungs can leave the mouth cavity only when the obstruction is removed (fig. 3.2):
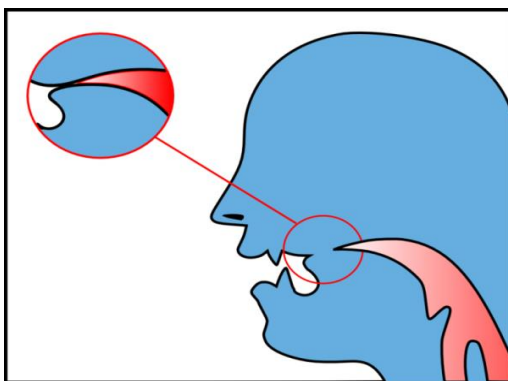
Figure 3.2 – Consonant [t]

In the case of [i:] (fig. 3.3), there is a gap within the mouth that is determined by the position of the tongue, and the airflow can escape relatively freely:
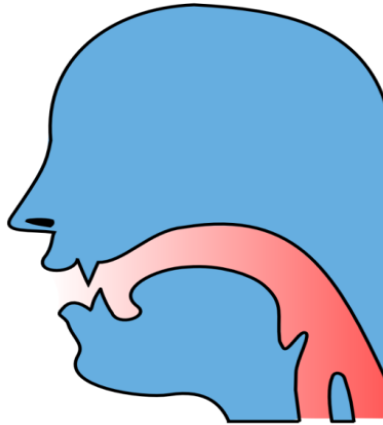
Figure 3.3 – Vowel [i:]

Another difference between consonants and vowels is that vowels are generally voiced, i.e. the vocal cords are set vibrating by the outgoing airflow. Consonants, by contrast, can be voiced or voiceless: The vocal cords are either far apart and do not vibrate, as in *fan*, or they are relatively closed and vibrate as in *van* (fig. 3.4).
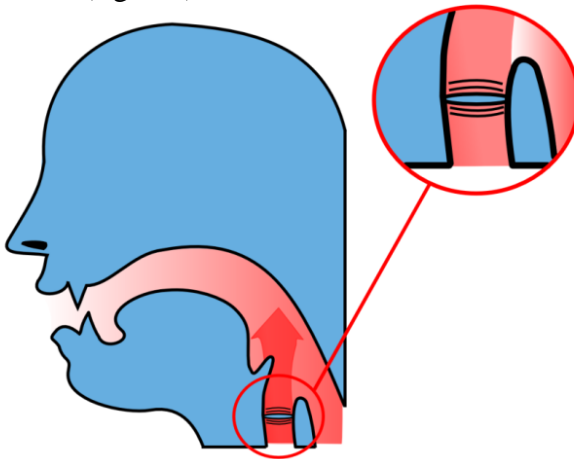
Figure 3.4 – Voiceless and Voiced Sounds

The particular quality of Vs depends on the volume and shape of the mouth resonator, as well as on the shape and the size of the resonator opening. The mouth resonator is changed by the movements of the tongue and the lips. The particular quality of Cs depends on the kind of noise that results when the tongue or the lips obstruct the air passage. The kind of noise produced depends in its turn on the type of obstruction, on the shape and the type of the narrowing. The vocal cords also determine the quality of consonants.

2. From the **acoustic** point of view, vowels are called the sounds of voice, they have high acoustic energy, consonants are the sounds of noise which have low acoustic energy.

3. **Functional** differences between Vs and Cs are defined by their role in syllable formation: Vs are syllable forming elements, Cs are units which function at the margins of syllables, either singly or in clusters.

These differences make it logical to consider each class of sounds independently. Figure 3.5 illustrates the system of English sounds:
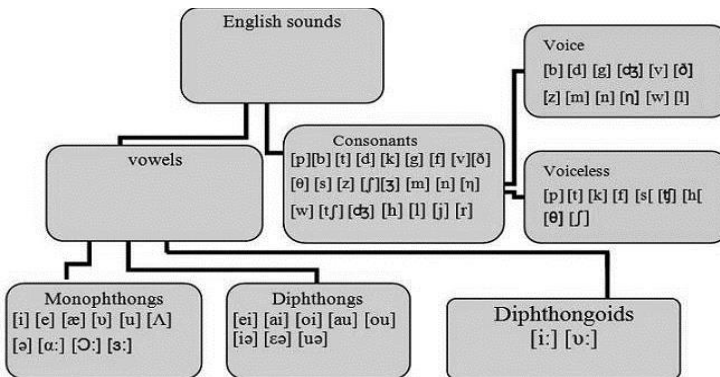
Figure 3.5 – The system of English Sounds

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QUESTIONS

1. Define the term 'phoneme'.
2. Who originated the physical view of the phoneme?
3. How many phonemes are there in English language?
4. Define the term 'allaphone'.
5. Who coined the term 'allophone'?
6. Which allophones are called principal?
7. Which allophones are called subsidiary?
8. What is the difference between phonological and phonetic mistakes?
9. What is transcription?
10. Describe the methods of phonological analysis.
11. Which major subtypes are all the sounds subdivided into?
12. What is a vowel?
13. What is a consonant?
14. Describe articulatory difference between vowels and consonants.
15. Describe acoustic difference between vowels and consonants.
16. What is the functional difference between vowels and consonants?

PRACTICAL TASK

1. How many phonemes do you think there are in the following words?

a) love   b) half   c) wrist   d) shrink
e) ought

2. State what type of distribution is illustrated by the following examples: a) shoe, pool, food, boot; b) foot – fit, book – back, book – bark; c) deciduous [dɪ'sɪdjʊəs] – [dɪ'sɪdʒʊəs]

UNIT 4. GENERAL CHARACTERISTICS
OF CONSONANTS

4.1. English Plosives

Factors relevant for the classification of consonants include the **manner of articulation**, the **place of articulation**, and **voicing**.

With regard to the manner of articulation, English consonants can be classified into **plosives**, **fricatives**, **affricates**, **nasals**, and **approximants** (**liquids** and **semi-vowels**).

A **plosive** is a consonant articulation with the following characteristics:

a) one articulator is moved against another, or two articulators are moved against each other, so as to form a stricture that allows no air to escape from the vocal tract. The stricture is, then, total;

b) after this stricture has been formed and air has been compressed behind it, it is **released** – that is, air is allowed to escape.

c) if the air behind the stricture is still under pressure when the plosive is released, it is probable that the escape of air will produce noise loud enough to be heard. This noise is called **plosion;**

d) there may be voicing during part or all of the plosive articulation;

To give a complete description of a plosive consonant we must describe what happens at each of the following four phases in its production:

1) the first phase is when the articulator or articulators move to form the stricture for the plosive. We call this the **closing phase**;

2) the second phase is when the compressed air is stopped from escaping. We call this the **compression phase**;

3) the third phase is when the articulators used to form the stricture are moved so as to allow air to escape. This is the **release phase**;

4) the fourth phase is what happens immediately after (3), so we will call it the **post-release phase.**

There are **six** plosives in English: **bilabial** [p] and [b], **alveolar** [t] and [d], and **velar** [k] and [g].

Bilabial plosives [p] and [b] are produced with both lips pressed together. The active articulator is the lower lip; the passive articulator is the upper lip. The soft palate is raised and the air coming into the mouth stops for some time and then breaks the obstruction with a slight explosion. In the case of [b], the vocal cords are vibrating (fig. 4.1):
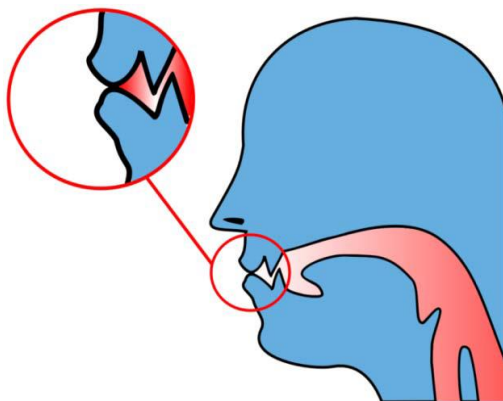
Figure 4.1 – Bilabial Plosives [p] and [b]

Alveolar plosives [t] and [d] are produced with the tip of the tongue firmly pressed against the (middle part of the) alveolar ridge. The active articulator is the tip of the tongue; the passive articulator is the alveolar ridge. The tip of the tongue makes firm contact with the alveolar ridge. The air is

trapped for a short time and then breaks the obstruction with a slight explosion. In the case of [d], the vocal cords are vibrating (fig. 4.2):
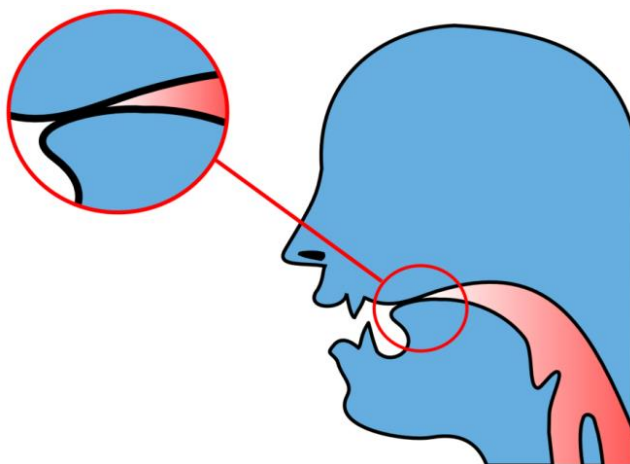
Figure 4.2 – Alveolar Plosives [t] and [d]

Velar plosives [k] and [g] are articulated with the back of the tongue against the soft palate. The active articulator is the back of the tongue; the passive articulator is the soft palate. The back of the tongue makes firm contact with the soft palate. The air is trapped for a short time and then breaks the obstruction with a slight explosion. In the case of [g], the vocal cords are vibrating (fig. 4.3):
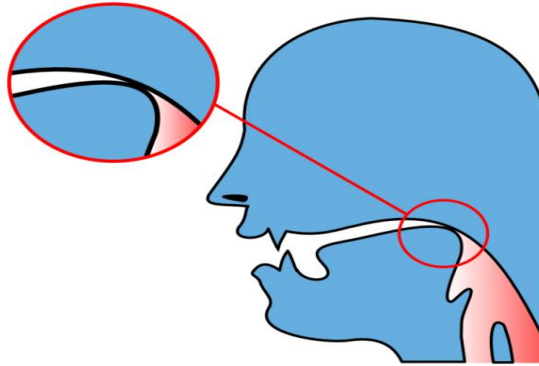
**Figure 4.3 – Velar Plosives [k] and [g]**

The plosives [p], [t], [k] are always voiceless; [b], [d], [g] are sometimes fully voiced, sometimes partly voiced and sometimes voiceless. All six plosives can occur at the beginning of a word **(initial position),** between other sounds **(medial position)** and at the end of a word **(final position).** To begin with we will look at plosives preceding vowels (which can be abbreviated as CV, where C stands for a consonant and V stands for a vowel), between vowels (VCV) and following vowels (VC).

1. Initial position (CV): the closing phase for [p], [t], [k] and [b], [d], [g] takes place silently. During the compression phase there is no voicing in [p], [t], [k]; in [b], [d], [g] there is normally very little voicing – it begins only just before the release. If the speaker pronounces an initial [b], [d], [g] very slowly and carefully there may be voicing during the entire compression phase (the plosive is then fully voiced), while in rapid speech there may be no voicing at all.

The release of [p], [t], [k] is followed by audible plosion – that is, a burst of noise. There is then, in the post-release phase, a period during which air escapes through the vocal folds,

making a sound like h. This is called **aspiration.** Then the vocal folds come together and voicing begins. The release of [b], [d], [g] is followed by weak plosion, and this happens at about the same time as, or shortly after, the beginning of voicing. The most noticeable and important difference, then, between initial [p], [t], [k] and [b], [d], [g] is the aspiration of the voiceless plosives [p], [t], [k]. The different phases of the plosive all happen very rapidly, but the ear distinguishes clearly between [p], [t], [k] and [b], [d], [g]. If English speakers hear a fully voiced initial plosive, they will hear it as one of [b], [d], [g] but will notice that it does not sound quite natural. If they hear a voiceless unaspirated plosive they will also hear that as one of [b], [d], [g], because it is aspiration, not voicing which distinguishes initial [p], [t], [k] from [b], [d], [g]. Only when they hear a voiceless aspirated plosive will they hear it as one of [p], [t], [k]; experiments have shown that we perceive aspiration when there is a delay between the sound of plosion and the beginning (or onset) of voicing.

In initial position, [b], [d], [g] cannot be preceded by any consonant, but [p], [t], [k] may be preceded by [s]. When one of [p], [t], [k] is preceded by [s] it is unaspirated. From what was said above it should be clear that the unaspirated [p], [t], [k] of the initial combinations [sp], [st], [sk] have the sound quality that makes English speakers perceive a plosive as one of [b], [d], [g]; if a recording of a word beginning with one of [sp], [st], [sk] is heard with the [s] removed, an initial [b], [d] or [g] is perceived by English speakers.

2. Medial position (VCV): the pronunciation of [p], [t], [k] and [b], [d], [g] in medial position depends to some extent on whether the syllables preceding and following the plosive are stressed. In general, we can say that a medial plosive may have the characteristics either of final or of initial plosives.

3. Final position (VC): final [b], [d], [g] normally have little voicing; if there is voicing, it is at the beginning of the

compression phase; [p], [t], [k] are always voiceless. The plosion following the release of [p], [t], [k] and [b], [d], [g] is very weak and often not audible. The difference between [p], [t], [k] and [b], [d], [g] is primarily the fact that vowels preceding [p], [t], [k] are much shorter. The shortening effect of [p], [t], [k] is most noticeable when the vowel is one of the long vowels or diphthongs. This effect is sometimes known as pre-fortis clipping [Roach 2009, p. 27–28].

The description of [b], [d], [g] as voiced plosives makes it clear that it is not very accurate to call them "voiced"; in initial and final position they are scarcely voiced at all, and any voicing they may have seems to have no perceptual importance. Some phoneticians say that [p], [t], [k] are produced with more force than [b], [d], [g], and that it would therefore be better to give the two sets of plosives (and some other consonants) names that indicate that fact; so the voiceless plosives [p], [t], [k] are sometimes called fortis (meaning 'strong') and [b], [d], [g] are then called lenis (meaning 'weak'). It may well be true that [p], [t], [k] are produced with more force, though nobody has really proved it – force of articulation is very difficult to define and measure.

4.2. English Fricatives

Fricatives are consonants that are produced by impeding, but not completely blocking the airflow, i. e., there is a narrow gap between the active and the passive articulator along which the airflow can leave the oral cavity. There are **nine** fricatives in English: **labio-dental** [f] and [v], **dental** [θ] and [ð], **alveolar** [s] and [z], **post-alveolar** [ʃ] and [ʒ], and **glottal** [h].
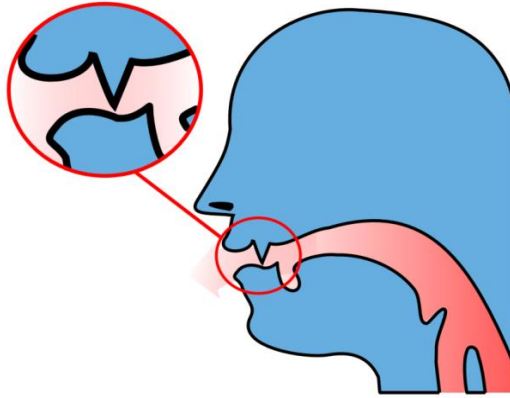
Figure 4.4 – Labio-Dental Fricatives [f] and [v]

The lower lip is very close to the edge of the upper front teeth, thus forming an incomplete obstruction. When the air goes through the narrowing it causes slight friction (hence the term *fricative*). For [f] the vocal cords do not vibrate; there may be some vibration accompanying [v] when it occurs in word initial position as in *vast* or between vowels as in *never*. The fricative noise is never very strong and is scarcely audible in the case of [v]. Example words: *'fan', 'van'; 'safer', 'saver'; 'half', 'halve'*.
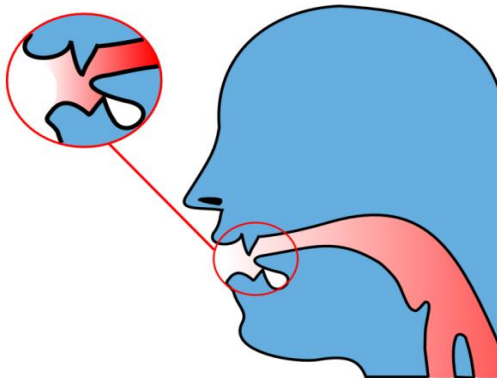
Figure 4.5 – Dental Fricatives [θ] and [ð]

The tip of the tongue is either close to the edge of the upper teeth or slightly projected between the teeth. For [θ] the friction is as strong as for [f], for [ð] it is gentler. For [θ] the vocal cords do not vibrate; they vibrate for [ð] when it occurs in word initial position, before a vowel or in intervocalic positions (*th*at, *rathe*r). Example words: *'thumb', 'thus'; 'ether', 'father'; 'breath', 'breathe'*.

The dental fricatives are sometimes described as if the tongue were placed between the front teeth, and it is common for teachers to make their students do this when they are trying to teach them to make this sound. In fact, however, the tongue is normally placed *behind* the teeth, with the tip touching the inner side of the lower teeth. The air escapes through the gaps between the tongue and the teeth. As with [f], [v], the fricative noise is weak.

Other fricatives are produced with different places of articulation: for the alveolar fricatives [s] and [z], the tip of the tongue is close to the alveolar ridge with the same place of articulation as [t], [d]. The teeth are very close together. The friction for [s] is strong, even stronger than for [θ]. For [s] the vocal cords do not vibrate; they vibrate for [z] when it occurs before vowels or in intervocalic positions (*zone*, *easy*). Example words: *'sip', 'zip'; 'facing', 'phasing'; 'rice', 'rise'*.
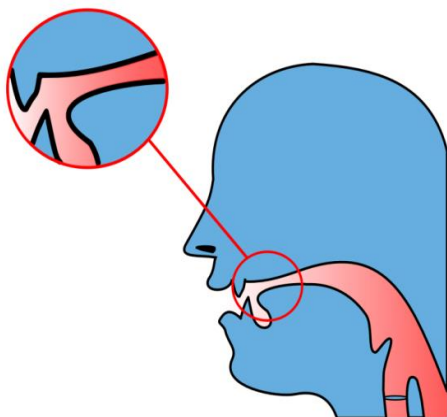
Figure 4.6 – Alveolar and Post-Alveolar Fricatives [s], [z], [ʃ] and [ʒ]

For [ʃ] and [ʒ], the tip of the tongue is close to the back part of the alveolar ridge forming a flat narrowing. The front part of the tongue is raised towards the hard palate forming the front secondary focus. The friction for [ʃ] is strong, stronger than for [f] and [θ]. For [ʃ] the vocal cords do not vibrate; they vibrate for [ʒ] when it occurs before vowels (*plea**su**re*). Example words: *'ship'* (initial [ʒ] is very rare in English); *'Russia'*, *'measure'*; *'Irish', 'garage'*).

These fricatives are called post-alveolar, which can be taken to mean that the tongue is in contact with an area slightly further back than that for [s], [z]. If you make [s], then [ʃ], you should be able to feel your tongue move backwards.

The air escapes through a passage along the centre of the tongue, as in [s], [z], but the passage is a little wider. Most BBC speakers have rounded lips for [ʃ] and [ʒ], and this is an important difference between these consonants and [s], [z]. The fricative [ʃ] is a common and widely distributed phoneme, but [ʒ] is not. All the other fricatives described so far [f], [v], [θ],

[ð], [s], [z], [ʃ], [ʒ] can be found in initial, medial and final positions, as shown in the example words. In the case of [ʒ], however, the distribution is much more limited. Very few English words begin with [ʒ] (most of them have come into the language comparatively recently from French) and not many end with this consonant. Only medially, in words such as *'measure', 'usual'* is it found at all commonly [Roach 2009, p. 42].
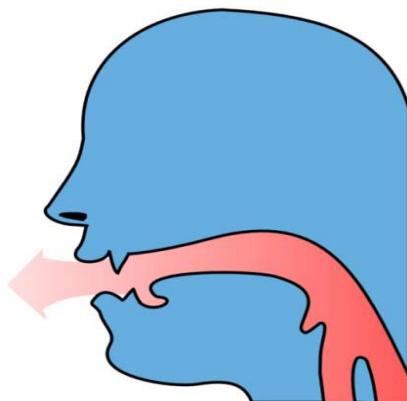
Figure 4.7 – Glottal Fricative [h]

It is produced with the voiceless expulsion of air from the lungs with the mouth and tongue already in position for the following vowel. The place of articulation of this consonant is glottal**.** This means that the narrowing that produces the friction noise is between the vocal folds. If you breathe out silently, then produce [h], you are moving your vocal folds from wide apart to close together. However, this is not producing speech. When we produce [h] in speaking English, many different things happen in different contexts. In the word *'hat'*, the [h] is followed by an [æ] vowel. The tongue, jaw and lip positions for the vowel are all produced simultaneously with the [h] consonant, so that the glottal fricative has an [æ] quality. The

same is found for all vowels following [h]; the consonant always has the quality of the vowel it precedes, so that in theory if you could listen to a recording of h-sounds cut off from the beginnings of different vowels in words like *'hit', 'hat', 'hot', 'hut'*, etc., you should be able to identify which vowel would have followed the [h]. One way of stating the above facts is to say that phonetically [h] is a voiceless vowel with the quality of the voiced vowel that follows it.

Phonologically, [h] is a consonant. It is usually found before vowels. As well as being found in initial position it is found medially in words such as *'ahead'*, *'greenhouse'*, *'boathook'*. It is noticeable that when [h] occurs between voiced sounds (as in the words *'ahead', 'greenhouse'*), it is pronounced with voicing – not the normal voicing of vowels but a weak, slightly fricative sound called **breathy voice.** It is not necessary for foreign learners to attempt to copy this voicing, although it is important to pronounce [h] where it should occur in BBC pronunciation. Many English speakers are surprisingly sensitive about this consonant; they tend to judge as sub-standard a pronunciation in which [h] is missing. In reality, however, practically all English speakers, however carefully they speak, omit the [h] in non-initial unstressed pronunciations of the words *'her', 'he', 'him', 'his'* and the auxiliary *'have', 'has', 'had'*, although few are aware that they do this.

There are two rather uncommon sounds that need to be introduced; since they are said to have some association with [h], they will be mentioned here. The first is the sound produced by some speakers in words which begin orthographically (i.e. in their spelling form) with *'wh'*; most BBC speakers pronounce the initial sound in such words (e. g. *'which', 'why', 'whip', 'whale'*) as [w], but there are some (particularly when they are speaking clearly or emphatically) who pronounce the sound used by most American and Scottish

speakers, a *voiceless* fricative with the same lip, tongue and jaw position as [w]. The phonetic symbol for this voiceless fricative is [ʍ]. We can find pairs of words showing the difference between this sound and the voiced sound [ʍ]:

'witch' [witʃ]	'which' [ʍitʃ]
'wail' [weil]	'whale' [ʍeil]
'wear' [weə]	'where' [ʍeə]

The obvious conclusion to draw from this is that, since substituting one sound for the other causes a difference in meaning, the two sounds must be two different phonemes. It is therefore rather surprising to find that practically all writers on the subject of the phonemes of English decide that this answer is not correct, and that the sound [ʍ] in *'which', 'why'*, etc., is *not* a phoneme of English but is a realisation of a sequence of two phonemes, [h] and [w]. We do not need to worry much about this problem in describing the BBC accent. However, it should be noted that in the analysis of the many accents of English that do have a "voiceless [w]" there is not much more theoretical justification for treating the sound as [h] plus [w] than there is for treating [p] as [h] plus [b]. Whether the question of this sound is approached phonetically or phonologically, there is no [h] sound in the "voiceless [w]" [Roach 2009, p. 43].

A very similar case is the sound found at the beginning of words such as *'huge', 'human', 'hue'*. Phonetically this sound is a voiceless palatal fricative (for which the phonetic symbol is [ç]); there is no glottal fricative at the beginning of *'huge'*, etc. However, it is usual to treat this sound as [h] plus [j]. Again we can see that a phonemic analysis does not necessarily have to be exactly in line with phonetic facts. If we were to say that these two sounds [ʍ], [ç] were phonemes of English, we would have two extra phonemes that do not occur very frequently. We will follow the usual practice of transcribing the sound at the

beginning of *'huge'*, etc., as [hj] just because it is convenient and common practice.

English fricatives can be seen in the table below (tab. 4.1):

Table 4.1 – English Fricatives

	Place of articulation				
	Labio-dental	**Dental**	**Alveolar**	**Post-alveolar**	**Glottal**
Fortis "voiceless"	**[f]**	**[θ]**	**[s]**	**[ʃ]**	**[h]**
Lenis "voiced"	**[v]**	**[ð]**	**[z]**	**[ʒ]**	

With the exception of glottal, each place of articulation has a pair of phonemes, one fortis and one lenis. This is similar to what was seen with the plosives. The fortis fricatives are said to be articulated with greater force than the lenis, and their friction noise is louder. The lenis fricatives have very little or no voicing in initial and final positions, but may be voiced when they occur between voiced sounds. The fortis fricatives have the effect of shortening a preceding vowel in the same way as fortis plosives do. Thus in a pair of words like *'ice'* [ais] and *'eyes'* [aiz], the [ai] diphthong in the first word is considerably shorter than [ai] in the second. Since there is only one fricative with glottal place of articulation, it would be rather misleading to call it fortis or lenis (which is why it is placed in the middle).

4.3. English Affricates and Nasals

Affricates are sounds that are similar to both plosives and fricatives: the tip of the tongue touches the back part of the teeth ridge, the front part of the tongue is raised towards the hard palate. The air is trapped for a short time because of a complete obstruction between the tip of the tongue and the teeth ridge, then the obstruction is released slowly and the friction is heard. The voiceless affricate is [tʃ] as in *chain*, whereas [dʒ], as in *jelly*, is voiced.

As with the plosives and most of the fricatives, we have a fortis/lenis pair, and the voicing characteristics are the same as for these other consonants, [tʃ] is slightly aspirated in the positions where [p], [t], [k] are aspirated, but not strongly enough for it to be necessary for foreign learners to give much attention to it. The place of articulation is the same as for [ʃ], [ʒ] – that is, it is post-alveolar. This means that the [t] component of [tʃ] has a place of articulation rather further back in the mouth than the [t] plosive usually has. When [tʃ] is final in the syllable, it has the effect of shortening a preceding vowel, as do other fortis consonants. [tʃ], [dʒ] often have rounded lips.

So far we have studied two major groups of consonants – the plosives and fricatives – and also the affricates; this gives a total of seventeen. There remain the nasal consonants and four others – *1, r, w, j*; these four are not easy to fit into groups. All of these seven consonants are continuants and usually have no friction noise, but in other ways they are very different from each other.

There are **three nasal** consonants in English: bilabial [m], alveolar [n], and velar [ŋ]. Nasals are consonants which, like plosives, are produced by completely blocking the airstream. But there is an important difference: the airflow escapes through the nasal cavity (hence the term *nasals*). For this to

happen, the soft palate must be lowered; in the case of all the other consonants and vowels of English, the soft palate is raised and air cannot pass through the nose. In nasal consonants, however, air does not pass through the mouth; it is prevented by a complete closure in the mouth at some point. If you produce a long sequence *dndndndndn* without moving your tongue from the position for alveolar closure, you will feel your soft palate moving up and down. The three types of closure are: bilabial (lips), alveolar (tongue blade against alveolar ridge) and velar (back of tongue against the palate). This set of places produces nasal consonants which correspond to the three places of articulation for the pairs of plosives [p] [b], [t] [d], [k] [g].
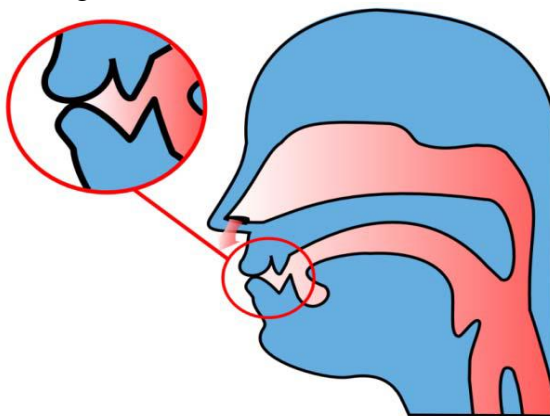
Figure 4.8 – Bilabial Nasal [m]

The lips are firmly kept together forming the complete obstruction. The active articulator is the lower lip; the passive articulator is the upper lip. The soft palate is lowered and the air escapes through the nasal cavity. The vocal cords are vibrating.
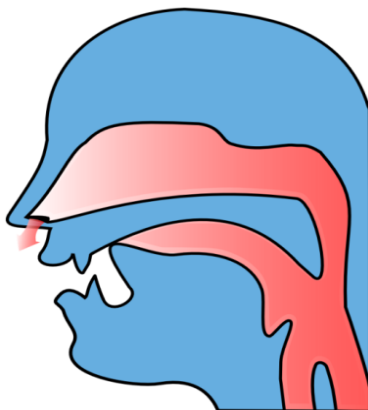
Figure 4.9 – Alveolar Nasal [n]

The tip of the tongue is pressed against the alveolar ridge forming the complete obstruction. The active articulator is the tip of the tongue, and the passive articulator is the alveolar ridge. The soft palate is lowered and the air escapes through the nasal cavity. The vocal cords are vibrating.
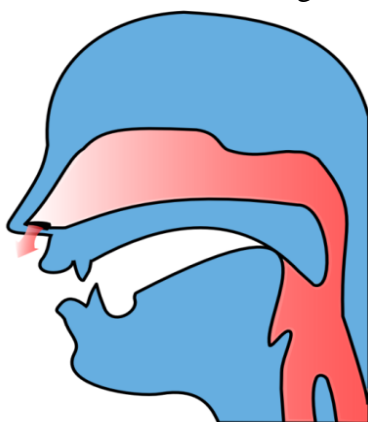
Figure 4.10 – Velar Nasal [ŋ]

The back of the tongue is pressed to the soft palate forming the complete obstruction. The active articulator is the back of the tongue, and the passive articulator is the soft palate. The soft palate is lowered and the air escapes through the nasal cavity. The vocal cords are vibrating.

Thus, the consonants [m], [n] are simple and straightforward with distributions quite similar to those of the plosives. There is in fact little to describe. However, [ŋ] is a different matter. It is a sound that gives considerable problems to foreign learners, and one that is so unusual in its phonological aspect that some people argue that it is not one of the phonemes of English at all. The place of articulation of [ŋ] is the same as that of [k], [g]; it is a useful exercise to practise making a continuous [ŋ] sound. If you do this, it is very important not to produce a [k] or [g] at the end – pronounce the [ŋ] like [m] or [n].

We will now look at some ways in which the distribution of [ŋ] is unusual.

1. In initial position we find [m], [n] occurring freely, but [ŋ] never occurs in this position. With the possible exception of [ʒ], this makes [ŋ] the only English consonant that does not occur initially.

2. Medially, [ŋ] occurs quite frequently, but there is in the BBC accent a rather complex and quite interesting rule concerning the question of when [ŋ] may be pronounced without a following plosive. When we find the letters [nk] in the middle of a word in its orthographic form, [k] will always be pronounced; however, some words with orthographic [ng] in the middle will have a pronunciation containing [ŋg] and others will have [ŋ] without [g]. For example, in BBC pronunciation we find the following:

A	B
finger [fiŋgə]	*singer* [siŋə]
anger [æŋgə]	*hanger* [hæŋə]

In the words of column **A** the [ŋ] is followed by [g], while the words of column **B** have no [g]. What is the difference between A and B? The important difference is in the way the words are constructed – their **morphology.** The words of column **B** can be divided into two grammatical pieces: 'sing' + '-er', 'hang' + '-er'. These pieces are called **morphemes,** and we say that column **B** words are morphologically different from column **A** words, since these *cannot* be divided into two morphemes. *'Finger'* and *'anger'* consist of just one morpheme each.

We can summarise the position so far by saying that (within a word containing the letters *'ng'* in the spelling) [ŋ] occurs without a following [g] if it occurs at the end of a morpheme; if it occurs in the middle of a morpheme it has a following [g].

Let us now look at the ends of words ending orthographically with [ng]. We find that these always end with [ŋ], and this [ŋ] is never followed by a [g]. Thus we find that the words *'sing'* and *'hang'* are pronounced as [siŋ] and [hæŋ]; to give a few more examples, '*song*' is [sɒŋ], '*bang*' is [bæŋ] and '*long*' is [lɒŋ]. We do not need a separate explanation for this: the rule given above, that no [g] is pronounced after [ŋ] at the end of a morpheme, works in these cases too, since the end of a word must also be the end of a morpheme. If this point seems difficult, think of the comparable case of sentences and words: a sound or letter that comes at the end of a sentence must necessarily also come at the end of a word, so that the final [k] of the sentence *'This is a book'* is also the final [k] of the word '*book*'.

Unfortunately, rules often have exceptions. The main exception to the above morpheme-based rule concerns the comparative and superlative suffixes '-er' and '-est'. According to the rule given above, the adjective '*long*' will be pronounced [lɒŋ], which is correct. It would also predict correctly that if we add another morpheme to '*long*', such as the suffix '-ish', the

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pronunciation of [ŋ] would again be without a following [g]. However, it would additionally predict that the comparative and superlative forms *'longer'* and *'longest'* would be pronounced with no [g] following the [ŋ], while in fact the correct pronunciation of the words is:

'longer' [lɒŋə]   'longest' [lɒŋəst]

As a result of this, the rule must be modified: it must state that comparative and superlative forms of adjectives are to be treated as single-morpheme words for the purposes of this rule. It is important to remember that English speakers in general (apart from those trained in phonetics) are quite ignorant of this rule, and yet if a foreigner uses the wrong pronunciation (i.e. pronounces [ŋg] where [ŋ] should occur, or [ŋ] where [ŋg] should be used), they notice that a mispronunciation has occurred.

3) A third way in which the distribution of [ŋ] is unusual is the small number of vowels it is found to follow. It rarely occurs after a diphthong or long vowel, so only the short vowels [i], [e], [æ], [ʌ], [ɒ], [ʊ], [ə] are regularly found preceding this consonant.

The velar nasal consonant [ŋ] is, in summary, phonetically simple (it is no more difficult to produce than [m] or [n]) but phonologically complex (it is, as we have seen, not easy to describe the contexts in which it occurs) [Roach 2009, p. 48].

4.4. English Approximants (Liquids and Glides)

The [1] phoneme (as in *'long'* [lɒŋ], *'hill'* [hil]) is a **lateral approximant.** Some phoneticians call it a **"liquid"**. This is a consonant in which the passage of air through the mouth does not go in the usual way along the centre of the tongue; instead, there is complete closure between the centre of the tongue and the part of the roof of the mouth where contact is to be made

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(the alveolar ridge in the case of [1]). Because of this complete closure along the centre, the only way for the air to escape is along the sides of the tongue. The lateral approximant is therefore somewhat different from other approximants, in which there is usually much less contact between the articulators (fig. 4.11).
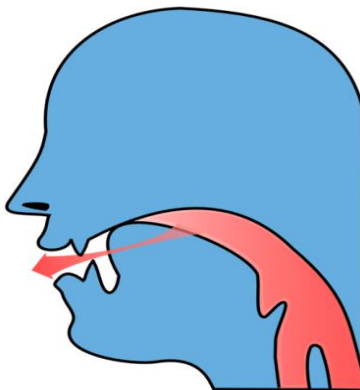
Figure 4.11 – Lateral approximant [l]

The tip of the tongue is in firm contact with the alveolar ridge forming the complete obstruction. The active articulator is the tip of the tongue, and the passive articulator is the alveolar ridge. The sides of the tongue are lowered and the air can pass between them. The vocal cords are brought together and are vibrating.

If you make a long [1] sound you may be able to feel that the sides of your tongue are pulled in and down while the centre is raised, but it is not easy to become consciously aware of this; what is more revealing (if you can do it) is to produce a long sequence of alternations between d and 1 without any intervening vowel. If you produce *dldldldldl* without moving the middle of the tongue, you will be able to feel the movement of the sides of the tongue that is necessary for the production of a lateral. It is also possible to see this movement in a mirror if

you open your lips wide as you produce it. Finally, it is also helpful to see if you can feel the movement of air past the sides of the tongue; this is not really possible in a voiced sound (the obstruction caused by the vibrating vocal folds reduces the airflow), but if you try to make a very loud whispered [1], you should be able to feel the air rushing along the sides of your tongue.

We find [1] initially, medially and finally, and its distribution is therefore not particularly limited. In BBC pronunciation, the consonant has one unusual characteristic: the realisation of [1] found before vowels sounds is quite different from that found in other contexts. For example, the realisation of [1] in the word '*lea*' [li:] is quite different from that in '*eel*' [i:l]. The sound in '*eel*' is what we call a "dark [1]"; it has a quality rather similar to an [u] vowel, with the back of the tongue raised. The phonetic symbol for this sound is [ɫ]. The sound in '*lea*' is what is called a "clear [1]"; it resembles an [i] vowel, with the front of the tongue raised (we do not normally use a special phonetic symbol, different from [1], to indicate this sound). The "dark [1]" is also found when it precedes a consonant, as in '*eels*' [i:lz].

We can therefore predict which realisation of [1] (clear or dark) will occur in a particular context: clear [1] will never occur before consonants or before a pause, but only before vowels; dark [1] never occurs before vowels. We can say that clear [1] and dark [1] are allophones of the phoneme [1] in complementary distribution. Most English speakers do not consciously know about the difference between clear and dark [1], yet they are quick to detect the difference when they hear English speakers with different accents, or when they hear foreign learners who have not learned the correct pronunciation. You might be able to observe that most American and lowland Scottish speakers use a "dark [1]" in all positions, and don't have a "clear [1]" in their pronunciation,

while most Welsh and Irish speakers have "clear [1]" in all positions.

Another allophone of [1] is found when it follows [p], [k] at the beginning of a stressed syllable. The [1] is then devoiced (i. e. produced without the voicing found in most realisations of this phoneme) and pronounced as a fricative. The situation is similar to the aspiration found when a vowel follows [p], [t], [k] in a stressed syllable: the first part of the vowel is devoiced.

The **approximant (liquid)** consonant [r] is important in that considerable differences in its articulation and its distribution are found in different accents of English. As far as the articulation of the sound is concerned, there is really only one pronunciation that can be recommended to the foreign learner, and that is what is called a post-alveolar approximant (fig. 4.12).
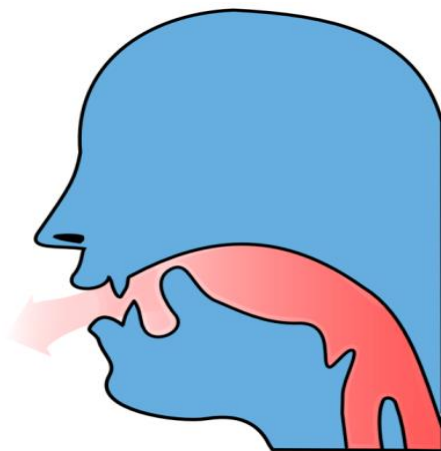
Figure 4.12 – Post-Alveolar [r]

The tip of the tongue is held in a position near to but not touching the back part of the alveolar ridge. The soft palate is

raised and the air flows quietly between the tip of the tongue and the hard palate. The front part of the tongue is low and the back is rather high so that the tongue has a curved shape. The vocal cords are vibrating.

An **approximant,** as a type of consonant, is rather difficult to describe; informally, we can say that it is an articulation in which the articulators approach each other but do not get sufficiently close to each other to produce a "complete" consonant such as a plosive, nasal or fricative. The difficulty with this explanation is that articulators are always in some positional relationship with each other, and any vowel articulation could also be classed as an approximant – but the term "approximant" is usually used only for consonants.

The important thing about the articulation of [r] is that the tip of the tongue approaches the alveolar area in approximately the way it would for a [t] or [d], but never actually makes contact with any part of the roof of the mouth. You should be able to make a long [r] sound and feel that no part of the tongue is in contact with the roof of the mouth at any time. This is, of course, very different from the "r-sounds" of many other languages where some kind of tongue-palate contact is made. The tongue is in fact usually slightly curled backwards with the tip raised; consonants with this tongue shape are usually called **retroflex.** If you pronounce an alternating sequence of [d] and [r] (*drdrdrdrdr*) while looking in a mirror you should be able to see more of the underside of the tongue in the [r] than in the [d], where the tongue tip is not raised and the tongue is not curled back. The "curlingback" process usually carries the tip of the tongue to a position slightly further back in the mouth than that for alveolar consonants such as [t], [d], which is why this approximant is called "post-alveolar". A rather different [r] sound is found at the beginning of a syllable if it is preceded by [p], [t], [k]: it is then voiceless and fricative. This pronunciation is found in words such as '*press*', '*tress*', '*cress*'.

One final characteristic of the articulation of [r] is that it is usual for the lips to be slightly rounded; learners should do this but should be careful not to exaggerate it. If the lip-rounding is too strong the consonant will sound too much like [w], which is the sound that most English children produce until they have learned to pronounce [r] in the adult way.

The distributional peculiarity of [r] in the BBC accent is very easy to state: this phoneme only occurs before vowels. No one has any difficulty in remembering this rule, but foreign learners (most of whom, quite reasonably, expect that if there is a letter 'r' in the spelling then [r] should be pronounced) find it difficult to apply the rule to their own pronunciation. There is no problem with words like the following:

1) *'red'* **[red]**   *'arrive'* **[əraiv]**   *'hearing'* **[hiəriŋ]**

In these words [r] is followed by a vowel. But in the following words there is no [r] in the pronunciation:

2) *'car'* **[ka:]**   *'ever'* **[evə]**   *'here'* **[hiə]**
3) *'hard'* **[ha:d]**   *'verse'* **[vɜ:s]**   *'cares'* **[keəz]**

Many accents of English do pronounce [r] in words like those of (2) and (3) (e. g. most American, Scots and West of England accents). Those accents which have [r] in final position (before a pause) and before a consonant are called **rhotic** accents, while accents in which [r] only occurs before vowels (such as BBC) are called **non-rhotic.**

Approximants or glides include bilabial [w] and palatal [j]: [w], as in *why*, starts out with the lips firmly rounded, these articulators then moving away (= gliding) from the narrowing in the mouth. When articulating [j], as in *you*, the front part of the tongue is first raised towards the hard palate, then the soft

palate is raised and the air goes along the central part of the tongue. The vocal cords are kept together and are vibrating.

The most important thing to remember about these phonemes is that they are phonetically like vowels but phonologically like consonants (in earlier works on phonology they were known as "semivowels"). From the phonetic point of view, the articulation of [j] is practically the same as that of a front close vowel such as [i], but is very short. In the same way [w] is closely similar to [u]. If you make the initial sound of '*yet*' or '*wet*' very long, you will be able to hear this.

The reason why these sounds are called semi-vowels is thus their manner of articulation: like true vowels, semi-vowels are produced without a major obstruction, i.e., there is a wide gap between the active and the passive articulator, so that the airflow can escape relatively freely from the mouth. However, unlike true vowels, semi-vowels never form the nucleus of a syllable (e. g., *week*, *yellow*) and are therefore usually considered consonants.

Besides, they only occur before vowel phonemes; this is a typically consonantal distribution. We can show that a word beginning with [w] or [j] is treated as beginning with a consonant in the following way: the indefinite article is 'a' before a consonant (as in *'a cat'*, *'a dog'*), and 'an' before a vowel (as in *'an apple'*, *'an orange'*). If a word beginning with [w] or [j] is preceded by the indefinite article, it is the 'a' form that is found (as in *'a way'*, *'a year'*). Another example is that of the definite article. Here the rule is that 'the' is pronounced as [ðə] before consonants (as in *'the dog'* [ðə dɒg], *'the cat'* [ðə kæt]) and as [ði] before vowels (as in *'the apple'* [ði æpl'], *'the orange'* [ði ɒrɪndʒ]). This evidence illustrates why it is said that [j], [w] are phonologically consonants. However, it is important to remember that to pronounce them as fricatives (as many foreign learners do), or as affricates, is a mispronunciation. Only in special contexts do we hear friction

noise in [j] or [w]; this is when they are preceded by [p], [t], [k] at the beginning of a syllable, as in these words:

'pure'   **[pjʊə]**   **(no English words begin with [pw])**

'tune'   **[tju:n]** *'twin'* **[twin]**

'queue'   **[kju:]** *'quit'* **[kwit]**

When [p], [t], [k] come at the beginning of a syllable and are followed by a vowel, they are aspirated. This means that the beginning of a vowel is voiceless in this context. However, when [p], [t], [k] are followed not by a vowel but by one of [1], [r], [j], [w], these voiced continuant consonants undergo a similar process, as has been mentioned earlier: they lose their voicing and become fricative. So, words like *'play'* [plei], *'tray'* [trei], *'quick'* [kwik], *'cue'* [kju:] contain devoiced and fricative [1], [r], [w], [j] whereas *'lay', 'ray', 'wick', 'you'* contain voiced [1], [r], [w], [j]. Consequently, if, for example, *'tray'* were to be pronounced without devoicing of the [r] (i.e. with fully voiced [r]) English speakers would be likely to hear the word *'dray'*.

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QUESTIONS

1. What are the factors relevant for the classification of consonants?
2. Classify English RP consonants.
3. Define a plosive consonant.
4. What is aspiration?
5. How many plosives are there in the English language?
6. Define a fricative consonant.

7. How many fricatives are there in the English language?
8. Describe affricates and nasals of the English language.
9. Describe approximants (liquids) of the English language.
10. Define English approximants (glides).
11. Why are glides called semi-vowels?

PRACTICAL TASK

1. Transcribe the following words:
   a) bake;   b) bought;   c) bored;
   d) goat ;   e) tick;   f) guard;
   g) doubt;   h) bough;   i) pea.

2. When the vocal tract is in its resting position for normal breathing, the soft palate is usually lowered. Describe what movements are carried out by the soft palate in the pronunciation of the following words:
   a) banner;   b) mid;   c) angle.

UNIT 5. GENERAL CHARACTERISTICS
OF ENGLISH VOWELS

5.1. Cardinal vowels

We need to know in what ways vowels differ from each other. The first matter to consider is the shape and position of the tongue. It is usual to simplify the very complex possibilities by describing just two things: firstly, the vertical distance between the upper surface of the tongue and the palate and, secondly, the part of the tongue, between front and back, which is raised highest. For example:

Make a vowel like the [i:] in the English word *'see'* and look in a mirror; if you tilt your head back slightly you will be able to see that the tongue is held up close to the roof of the mouth. Now make an [æ] vowel (as in the word *'cat'*) and notice how the distance between the surface of the tongue and the roof of the mouth is now much greater. The difference between [i:] and [æ] is a difference of tongue height, and we would describe [i:] as a relatively **close** vowel and [æ] as a relatively **open** vowel. Tongue height can be changed by moving the tongue up or down, or moving the lower jaw up or down. Usually we use some combination of the two sorts of movement, but when drawing side-of-the-head diagrams it is usually found simpler to illustrate tongue shapes for vowels as if tongue height were altered by tongue movement alone, without any accompanying jaw movement. So we would illustrate the tongue height difference between [i:] and [æ] as in figure 5.1.
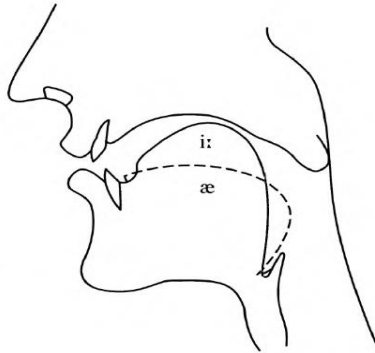
Figure 5.1 – Tongue positions for [i:] and [æ]

In making the two vowels described above, it is the front part of the tongue that is raised. We could therefore describe [i:] and [æ] as comparatively **front** vowels. By changing the shape of the tongue we can produce vowels in which a different part of the tongue is the highest point. A vowel in which the back of the tongue is the highest point is called a **back** vowel. If you make the vowel in the word *'calm'*, which we write phonetically as [ɒ:], you can see that the back of the tongue is raised. Compare this with [æ] in front of a mirror; [æ] is a front vowel and [ɒ:] is a back vowel. The vowel in *'too'* [u:] is also a comparatively back vowel, but compared with [ɒ:] it is close. So now we have seen how four vowels differ from each other; we can show this in a simple diagram.

Phoneticians need a very accurate way of classifying vowels, and have developed a set of vowels which are arranged in a close-open, front-back diagram. These **cardinal vowels** are a standard reference system, and people being trained in phonetics at an advanced level have to learn to make them accurately and recognise them correctly. If you learn the cardinal vowels, you are not learning to make English sounds, but you are learning about the range of vowels that the human

vocal apparatus can make, and also learning a useful way of describing, classifying and comparing vowels.

The first linguist who tried to describe and classify vowels for all languages was D. Jones. He devised the system of 8 Cardinal Vowels. It has become traditional to locate cardinal vowels on a four-sided figure (a quadrilateral of the shape seen in figure 5.2 – the design used here is the one recommended by the **International Phonetic Association).** The exact shape is not really important – a square would do quite well – but we will use the traditional shape. The vowels in figure 5.2 are the so called **primary** cardinal vowels; these are the vowels that are most familiar to the speakers of most European languages, and there are other cardinal vowels **(secondary** cardinal vowels) that sound less familiar.
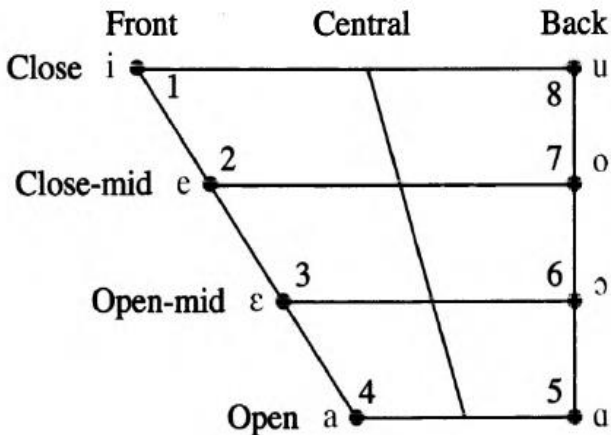
Figure 5.2 – Primary cardinal vowels

Cardinal vowel No. 1 is defined as the vowel which is as close and as front as it is possible to make a vowel without obstructing the flow of air enough to produce friction noise; friction noise is the hissing sound that one hears in consonants like [s] or [f]. Cardinal vowel No. 5 is defined as the most open

and back vowel that it is possible to make. Cardinal vowel No. 8 is fully close and back and No. 4 is fully open and front. After establishing these extreme points, it is possible to put in intermediate points (vowels No. 2, 3, 6 and 7). The IPA symbols (International Phonetic Alphabet) for the 8 Cardinal Vowels are: 1 – i, 2 – e, 3 – ə, 4 – a, 5 – ɒ, 6 – ɔ, 7 – o, 8 – u.

These positions for Cardinal vowels were copied from X-ray photographs. The tongue positions between these points were X-rayed and the equidistant points for No. 2, 3, 6, 7 were found. Many students when they hear these vowels find that they sound strange and exaggerated; you must remember that they are *extremes* of vowel quality. It is useful to think of the cardinal vowel framework like a map of an area or country that you are interested in. If the map is to be useful to you it must cover all the area; but if it covers the whole area of interest it must inevitably go a little way beyond that and include some places that you might never want to go to.

The system of Cardinal Vowels is an international standard. In spite of the theoretical significance of the Cardinal Vowel system its practical application is limited.

5.2. Vowels classification

The quality of a vowel is known to be determined by the size, volume, and shape of the mouth resonator, which are modified by the movement of active speech organs, that is the tongue and the lips. Besides, the particular quality of a vowel can depend on a lot of other articulatory characteristics, such as the relative stability of the tongue, the position of the lips, physical duration of the segment, the force of articulation, and the degree of tenseness of speech organs. So vowel quality could be thought of as a bundle of definite articulatory characteristics which are sometimes intricately interconnected and interdependent. For example, the back position of the tongue causes the lip rounding, the front position of the tongue

makes it rise higher in the mouth cavity, and the lengthening of a vowel makes the organs of speech tenser at the moment of production and so on.

The analysis of the articulatory constituents of the quality of vowels allowed phoneticians to suggest the criteria which are conceived to be of great importance in classificatory description. First to be concerned here are the following criteria termed:

1) **length;**
2) **stability of articulation;**
3) **tongue position;**
4) **tenseness;**
5) **lip position.**

1. Vowels do not only differ qualitatively, but also **quantitatively** (as indicated by the colon as the **diacritic** for length). Thus, the English vowels are traditionally divided into two varieties according to their length: a) short vowels; b) long vowels.

Short vowels are only *relatively* short; vowels can have quite different lengths in different contexts. Each vowel is described in relation to the cardinal vowels.
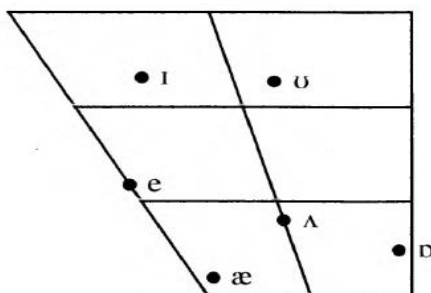
Figure 5.3 – English short vowels

There are **seven** short vowels in English:

[ɪ] as in *quick* and *bit.* The diagram shows that, though this vowel is in the close front area, compared with cardinal vowel No. 1 [i] it is more open, and nearer in to the centre. The lips are slightly spread.

[e] as in *friend* and *said.* This is a front vowel between cardinal vowel No. 2 [e] and No. 3 [ə]. The lips are slightly spread.

[æ] as in *gas* and *mat.* This vowel is front, but not quite as open as cardinal vowel No. 4 [a]. The lips are slightly spread.

[ʌ] as in *drunk* and *tough.* This is a central vowel, and the diagram shows that it is more open than the open-mid tongue height. The lip position is neutral.

[ɒ] as in *spot* and *wasp.* This vowel is not quite back, and between open-mid and open in tongue height. The lips are slighdy rounded.

[ʊ] as in *put* and *full.* The nearest cardinal vowel is No. 8 [u], but it can be seen that [u] is more open and nearer to central. The lips are rounded.

[ə] as in *water* and *banana.* This central vowel – which is called **schwa** – is a very familiar sound in English; it is heard in the first syllable of the words *'about'*, *'oppose'*, *'perhaps'*, for example. It is different from the other vowels and needs separate consideration.

Schwa is the most frequently occurring vowel in English, which is always associated with weak syllables. In quality it is mid (i. e. halfway between close and open) and central (i. e. halfway between front and back). It is generally described as lax – that is, not articulated with much energy. Of course, the quality of this vowel is not always the same, but the variation is not important. Not all weak syllables contain [ə], though many do. Learners of English need to learn where [ə] is appropriate and where it is not. To do this we often have to use information

that traditional phonemic theory would not accept as relevant – we must consider spelling. The question to ask is: if the speaker were to pronounce a particular weak syllable as if it were strong instead, which vowel would it be most likely to have, according to the usual rules of English spelling? Knowing this will not tell us which syllables in a word or utterance should be weak but it will give us a rough guide to the correct pronunciation of weak syllables. Let us look at some examples:

1) spelt with *'a'*; strong pronunciation would have [æ] *'attend'* [ətennd] *'character'* [kærəktə] *'barracks'* [bærəks];

2) spelt with *'ar'*; strong pronunciation would have [ɒ:] *'particular'* [pətikjələ] *'molar'* [məʊlə] *'monarchy'* mɒnəki];

3) adjectival endings spelt *'ate'*; strong pronunciation would have [ei]:

'intimate' [intimət] *'accurate'* [ækjərət] *'desolate'* [desələt] (although there are exceptions to this: *'private'* is usually praivit]);

4) spelt with *'o'*; strong pronunciation would have [ɒ] or [əu] *'tomorrow'* [təmɒrəu] *'potato'* [pəteitəu] *'carrot'* [kærət];

5) spelt with *'or'*; strong pronunciation would have [ɔ:] *'forget'* [fəget] *'ambassador'* [æmbæsədə] *'opportunity'* [ɒpətʃuniti];

6) spelt with *'e'*; strong pronunciation would have [e] *'settlement'* [setlmənt] *'violet'* [vaiələt] *postmen'* [pəʊstmən];

7) spelt with *'er'*; strong pronunciation would have [ɜ:] *'perhaps'* [pəhæps] *'stronger'* [strɒŋgə] *'superman'* [su:pəmæn];

8) spelt with *'u'*; strong pronunciation would have [ʌ] *'autumn'* [ɔ:təm] *'support'* [səpɔ:t] *'halibut'* [hælibət];

9) spelt with *'ough'* (there are many pronunciations for the letter-sequence *'ough'*)

'thorough' [θʌrə] *'borough*' [bʌrə];

10) spelt with *'ou'*; strong pronunciation might have [aʊ]

'gracious' [greiʃəs]   'callous'   [kæləs].

The **five long vowels** are different from the short vowels, not only in length but also in quality. If we compare some similar pairs of long and short vowels, for example [i] with [i:], or [ʊ] with [u:], or [æ] with [ɑ:], we can see distinct differences in quality (resulting from differences in tongue shape and position, and lip position) as well as in length. For this reason, all the long vowels have symbols which are different from those of short vowels; you can see that the long and short vowel symbols would still all be different from each other even if we omitted the length mark, so it is important to remember that the length mark is used not because it is essential but because it helps learners to remember the length difference. Perhaps the only case where a long and a short vowel are closely similar in quality is that of [ə] and [ɜ:], but [ə] is a special case – as we have already learned.
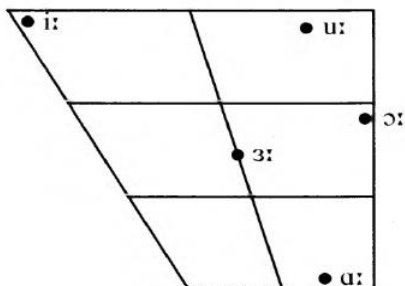
Figure 5.4 – English long vowels

Thus, there are five long vowels in English:

[i:] as in *feet* **and** *speak***.** This vowel is nearer to cardinal vowel No. 1 [i] (i.e. it is closer and more front) than is the short vowel of *'bid', 'pin', 'fish'*. Although the tongue shape is not much different from cardinal vowel No. 1, the lips are only

slightly spread and this results in a rather different vowel quality.

[u:] as in *moon* and *true*. The nearest cardinal vowel to this is No. 8 [u], but BBC [u:] is much less back and less close, while the lips are only moderately rounded.

[ɜ:] as in *heard* and *third*. This is a mid-central vowel which is used in most English accents as a hesitation sound (written 'er'), but which many learners find difficult to copy. The lip position is neutral.

[ɔ:] as in *taught* and *port* The tongue height for this vowel is between cardinal vowel No. 6 [ɔ] and No. 7 [o], and closer to the latter. This vowel is almost fully back and has quite strong lip-rounding,

[ɑ:] as in *bar* and *father*. This is an open vowel in the region of cardinal vowel No. 5 [a], but not as back as this. The lip position is neutral.

When sounds are used in connected speech they cannot help being influenced by one another. Duration is one of the characteristics of a vowel which is modified by and depends on the following factors:
- its own length;
- the accent of the syllable in which it occurs;
- phonetic context;
- the position of the sound in a syllable;
- the position in a rhythmic structure;
- the position in a tone group;
- the position in a phrase;
- the position in an utterance;
- the tempo of the whole utterance;
- the type of pronunciation;
- the style of pronunciation.

The problem the analysts are concerned with is whether variations in quantity or length are meaningful (relevant), that

is whether vowel length can be treated as a relevant feature of English vowel system. Different scholars attach varying significance to vowel quantity. The approach of D. Jones, an outstanding British phonetician, extends the principle, underlying phonological relevance of vowel quantity. That means that words in such pairs as [bid] – [bi:d], [sit] – [si:t], ['fɒ:wɘ:d] *(foreword)* – ['fɔwəd] *(forward)* are distinguished from one another by the opposition of different length, which D. Jones calls chronemes.

2. Stability of articulation specifies the actual position of the articulating organ in the process of the articulation of a vowel. There are two possible varieties: a) the tongue position is stable; b) it changes, that is the tongue moves from one position to another. In the first case the articulated vowel is relatively pure, in the second case a vowel consists of two clearly perceptible elements. So according to this principle the English vowels are subdivided into:

a) monophthongs,
b) diphthongs.

BBC pronunciation has a large number of diphthongs – sounds which consist of a movement or glide from one vowel to another. In terms of length, diphthongs are similar to the long vowels described above. Perhaps the most important thing to remember about all the diphthongs is that the first part is much longer and stronger than the second part; for example, most of the diphthong [ai] (as in the words *'eye'*, *'I'*) consists of the [a] vowel, and only in about the last quarter of the diphthong does the glide to [i] become noticeable. As the glide to [i] happens, the loudness of the sound decreases. As a result, the [i] part is shorter and quieter. Foreign learners should, therefore, always remember that the last part of English diphthongs must not be made too strongly.

A **diphthong** is defined as a unisyllabic complex in the articulation of which the organs of speech start from one position then glide into another position. A diphthong may be **falling** – when the nucleus is stronger than the glide, and **rising** – when the glide is stronger than the nucleus. When two elements are equal such diphthong is called **level.** English diphthongs are **falling.**

There are two categories of diphthongs in English which differ according to the direction of the vowel movement – **centering diphthongs** and **closing diphthongs**. The vowels [i:] and [u:] are diphthongized in modern English and the tendency of diphthongization is becoming gradually stronger – some phoneticians call them diphthongoids.

The total number of diphthongs is **eight** (though [ʊə] is increasingly rare). The easiest way to remember them is in terms of three groups divided as in this diagram:
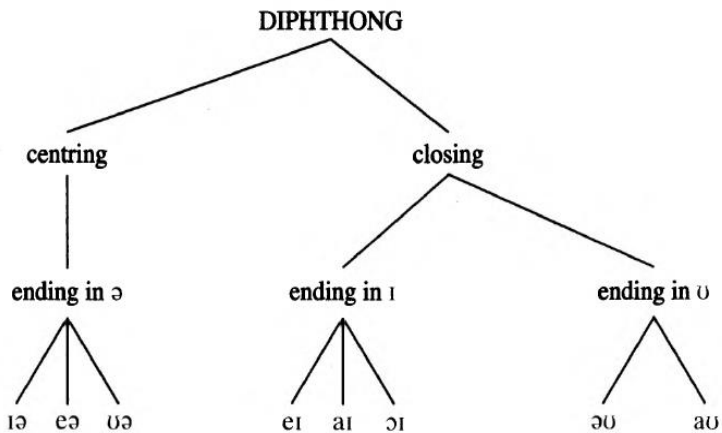
Figure 5.5 – Diphthongs

The centring diphthongs glide towards the [ə] (schwa) vowel, as the symbols indicate.
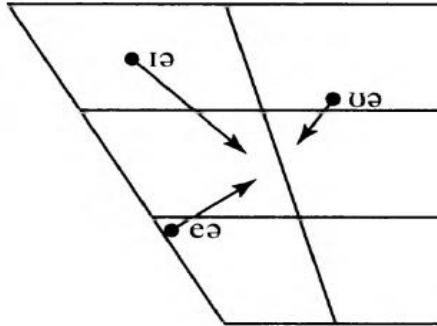
Figure 5.6 – Centering diphthongs

[ɪə] as in '*hear'* and '*pier'*. The starting point is a little closer than i in *'bit', 'bin'*.

[eə] as in *'care'* and *'flair'*. This diphthong begins with a vowel sound that is more open than the [e] of *'get', 'men'*.

[ʊə] as in *'pure'* and *'tour'*. For speakers who have this diphthong, this has a starting point similar to [ʊ] in *'put', 'pull'*. Many speakers pronounce [ɔ:] instead.

The **closing diphthongs** have the characteristic that they all end with a glide towards a closer vowel. Because the second part of the diphthong is weak, they often do not reach a position that could be called close. The important thing is that a glide from a relatively more open towards a relatively closer vowel is produced.
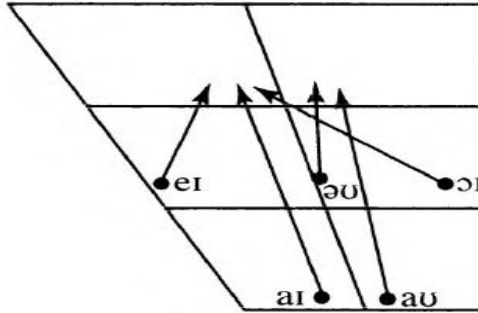
Figure 5.7 – Closing diphthongs

Three of the diphthongs glide towards [i], as described below:

[eɪ] as in *'pray'* **and** *'sleigh'*. The starting point is the same as the [e] of *'get', 'men'*.

[ɔɪ] as in *'joy'* **and** *'boy'*. The first part of this diphthong is slightly more open than [ɔ:] in *'ought', 'born'*.

[aɪ] as in *'fry'* **and** *'high'*. This diphthong begins with an open vowel which is between front and back; it is quite similar to the [ʌ] of the words *'cut', 'bun'*.

Two diphthongs glide towards [ʊ], so that as the tongue moves closer to the roof of the mouth there is at the same time a rounding movement of the lips. This movement is not a large one, again because the second part of the diphthong is weak.

[aʊ] as in *'cow'* **and** *'now'*. This diphthong begins with a vowel similar to [ai]. Since this is an open vowel, a glide to [ʊ] would necessitate a large movement, and the tongue often does not reach the [ʊ] position. There is only slight lip-rounding.

[əʊ] as in *'go'* **and** *'blow'*. The vowel position for the beginning of this is the same as for the "schwa" vowel [ə], as found in the first syllable of the word *'about'*. The lips may be slightly rounded in anticipation of the glide towards [ʊ], for which there is quite noticeable lip-rounding.

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Beware that a diphthong is not just a combination of two vowels. For example, in the two-syllable word *'seeing'*, [i:] becomes [ɪ] but it is not a diphthong because [i:] and [ɪ] are not in the same syllable.

It has already been mentioned that one component of a diphthong is more prominent than the other. In the English diphthongs, it is usually the first element which is more prominent, but in other languages like French, this may be different. The two articulations of a diphthong are described as nucleus and a glide.

The most complex English sounds of the vowel type are the **triphthongs.** They can be rather difficult to pronounce, and very difficult to recognise. A triphthong is a glide from one vowel to another and then to a third, all produced rapidly and without interruption. For example, a careful pronunciation of the word *'hour'* begins with a vowel quality similar to [ɑ:], goes on to a glide towards the back close rounded area (for which we use the symbol [ʊ]), then ends with a mid-central vowel (schwa, [ə]). We use the symbol [aʊə] to represent the pronunciation of *'hour'*, but this is not always an accurate representation of the pronunciation.

The triphthongs can be looked on as being composed of the five closing diphthongs described in the last section, with [ə] added on the end. Thus we get:

[ei] + [ə] = [eiə]   **[əʊ] + [ə] = [əʊə]**
[ai] + [ə] = [aiə]   **[aʊ] + [ə] = [aʊə]**
[ɔi] + [ə] = [ɔiə]

The principal cause of difficulty for the foreign learner is that in present-day English the extent of the vowel movement is very small, except in very careful pronunciation. Because of this, the middle of the three vowel qualities of the triphthong (i.e. the [i] or [ʊ] part) can hardly be heard and the resulting

sound is difficult to distinguish from some of the diphthongs and long vowels. To add to the difficulty, there is also the problem of whether a triphthong is felt to contain one or two syllables. Words such as *'fire'* [faiə] or *'hour'* [aʊə] are probably felt by most English speakers (with BBC pronunciation) to consist of only one syllable, whereas *'player'* [pleiə] or *'slower'* [sləʊə] are more likely to be heard as two syllables.

This is partly because there is so much variation in the amount of vowel movement according to how slow and careful the pronunciation is, and also because the "careful" pronunciation can be found by looking at the description of the corresponding diphthong and adding [ə] to the end. However, to help identify these triphthongs, some example words are given here:

[eiə] 'layer', 'player'   [əʊə] 'lower', 'mower'
[aiə] 'liar',   'fire'   [aʊə] 'power', 'hour'
[ɔiə] 'loyal', 'royal'

It seems that triphthongs in BBC pronunciation are in a rather unstable state, resulting in the loss of some distinctions: in the case of some speakers, for example, it is not easy to hear a difference between *'tyre'* [taiə], *'tower'* [taʊə], *'tar'* [tɑ:]. BBC newsreaders often pronounce *'Ireland'* as [ɑ:lənd]. This shows a change in progress in the phonemic system of RP [Roach 2009, p. 20].

3. Another principle we should consider from phonological point of view is **the position of the tongue.** For the sake of convenience, the position of the tongue in the mouth cavity is characterised from two aspects, that is the horizontal and vertical movement.

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According to the horizontal movement (depending on the part of the tongue that is raised) most vowels are classified into **front**, **back**, and **central**:

a) when the front part of the tongue is raised towards the hard palate, the vowel is called **front**: [i:], [i], [i(ə)], [e], [ei], [æ], [ɛ(ə)], e. g. in *meet*, *get*, or *land.*

b) when the back part of the tongue is raised towards the soft palate, the vowel is called **back**: [ɑ:], [ɔ:], [u:], [ʊ], [ʊ (ə)], as in *star*, *dog*, *law*, or *soon.*

c) when the front part of the tongue is raised towards the back part of the hard palate, the vowel is called **central**: [ʌ], [ɒ], [ɜ:], [ə], [ɜ(ʊ)], [ɛ(ə)], e.g. in *about*, *much*, or *nurse.*

As to the tongue position in its vertical movement (depending on the height of the tongue) British scholars distinguish **high**, **low**, and **mid vowels**:

a) when the front or the back of the tongue is raised towards the roof of the mouth, the vowel is called **high**: [i:] [u:], [i], [ʊ], [i(ə)], [ʊ (ə)], e. g., in *pill*, *meet*, *look*, or *soon.*

b) when the front or the back of the tongue is as low as possible, the vowel is called **low**: [e(ə)], [ɔ:], [ɑ(i)], [æ], [a (i, u)], [ɑ:], as, e. g., in *land*, *star*, or *dog.*

c) when the tongue occupies the position intermediate between the high and the low one, the vowel is called **mid**: [e], [ɜ:], [ə], [e(i)], [ɜ(ʊ)], [ʌ], [ɒ], e.g. in *get*, or the unstressed [ə] in *about.*

These high-low and front-back dimensions of vowel articulation are also referred to as vowel **quality**. To illustrate how the articulatory properties of vowels relate to each other, a **vowel chart** is commonly used as a reference system. The chart below describes the basic vowel qualities of most standard varieties of English together with their phonetic transcription.
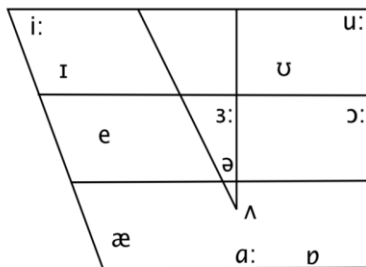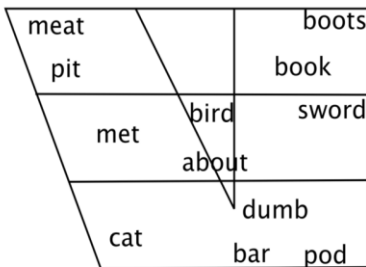
4. Tenseness. Special instrumental analysis shows that long as opposed to short vowels also differ by being **tense** as opposed to **lax**:

a) **tense** vowels are produced with a deliberate, accurate, maximally distinct gesture that involves considerable muscular effort. Tense vowels are either **long** vowels (e. g. [i:] in *'meet'*) or **diphthongs** (e.g. [ei] in *'say')*.

b) **non-tense** (or **lax**) vowels are produced rapidly and are therefore short (e.g. [i] in *'pill')*.

5. Another feature of English vowels which is sometimes included into the principles of classification is **lip rounding.** Traditionally three lip positions are distinguished, that is spread, neutral and rounded. For the purpose of classification, it is sufficient to distinguish between two lip positions: **rounded** or labialised and **unrounded**, or non-labialised (neutral). The fact is that any back vowel in English is produced with rounded lips, the degree of rounding is different and depends on the height of the raised part of the tongue; the higher it is raised the more rounded the lips are. So lip rounding is a phoneme constitutive indispensable feature, because no back vowel can exist without it.

It is well-known that a vowel in an unstressed syllable is perceived as very short, weak, and indistinct. The unstressed syllables are usually associated with vowels of central or

centralized quality [ə], [i], sometimes [ʊ] and the diphthongs [əʊ], [ai] (or a syllabic consonant), e. g. *among* [ə'mʌŋ], *before* [bi'fɔ:], *useful* ['ju:sfʊl], *tomato* [tə'ma:təʊ], *exercise* ['eksəsaiz], *sudden* ['sʌdn].

Also vowels of full quality sometimes occur in unstressed positions, often in borrowed words of Latin and Greek origin, e. g. *architect* ['ɑ:kʊtekt], *paragraph* ['pærəgrɑ:f], *canteen* [kæn'ti:n]. These nonreduced vowels in unstressed syllables are typical of all styles of pronunciation.

Then again partially reduced sounds are found in unstressed positions. They appear in more formal and careful style of pronunciation instead of the neutral sound used in informal casual speech. Cf.: *phonetics* [feu'netiks – fə'netiks – f'netiks].

Our next point should be made in connection with the **phonemic status of the schwa sound** [ə]. The phonological analysis marks the opposition of the schwa to other unstressed vowels, the most common among them being [i]. In the minimal pairs: *officers* [ʹɒfisəz] – *offices* [ʹɒfisiz]; *accept* [əkʹsept] – *except* [ikʹsept], *armour* [ʹɑ:mə] – *army* [ʹɑ:mi] the neutral sound is phonologically opposed to the phoneme [i] with its own distinctive features capable of differentiating the meaning of lexical units. So the neutral sound [ə] in *officers, accept, armour* is an independent phoneme opposed to the [i] phoneme of the minimal pairs given above.

On the other hand, the problem of the phonemic status of the schwa sound has a morphological aspect. In English as well as in Ukrainian there are numerous alternations of vowels in stressed and unstressed syllables between the derivatives of the same root or different grammatical forms of the same word. For example:

[æ] – [ə] *man – sportsman*
[ʌ] – [ə] *some – wholesome*
[ɒ] – [ə] *combine n – combine v*

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[ei] – [ə] *operation – operative*

[əʊ] – [ə] *post – postpone*

The alternated sounds are allophones of one and the same phoneme as they are derivatives of the same lexical units, the same morphemes. Thus the neutral sounds in the examples above are the neutralized allophones of the nonreduced vowels of full formation; so [ə] in *sportsman* is an allophone of the [æ] phoneme as in *man*; [ə] in *photography* is an allophone of the [əu] phoneme as in *photograph.*

To exemplify the above-mentioned principles of classification, the RP vocalic system can be presented in the following way:

Table 5.1

1. Stability of articulation		Monopthongs – 12					Diphthongs – 8 Triphthongs – 5
2. Length of articulation		Long – i:, u:, ɑ:, ɔ:, ɜ:		Short – i, e, æ, ɒ, ʌ, ʊ, ə			
3. Degree of muscular tension		Tense – i:, u:, ɑ:, ɔ:, ɜ:		Lax –i, e, æ, ɒ, ʌ, ʊ, ə			
4. Lip participation		Rounded (labialized) u:, ʊ, ɔ:, ɒ		Unrounded (non-labialized) i, e, æ, ʌ, ə, i:, ɑ:, ɜ:			
5. Vertical movement of the tongue		6. Horizontal movement of the tongue					
		fully front	front retracted	central (mixed)	back advanced	fully back	
High (close)	narrow variety	i:				u:	
	broad variety		i		ʊ		
Mid (mid-open)	narrow variety	e		ɜ:			
	broad variety			ə, ʌ			
Low (open)	narrow variety					ɔ:	
	broad		æ			ɒ, ɑ:	

Table 5.2

RP Monophthongs / 12	
[i:]	a monophthong (M), long, tense, unrounded, front, high/close vowel phoneme (Vph)
[i]	a M, short, lax, unrounded, front, high/close Vph
[e]	a M, short, lax, unrounded, front, mid V ph.
[æ]	a M, half-long, lax, unrounded, front, low/open V ph.
[ʌ]	a M, short, lax, unrounded, central/mixed, mid V ph.
[ɑ:]	a M, long, tense, unrounded, back, low/open V ph.
[ɒ]	a M, short, lax, rounded, back, low/open V ph.
[ɔ:]	a M, long, tense, rounded, back, low/open V ph.
[ʊ]	a M, short, lax, rounded, back, low/open V ph.
[u:]	a M, long, tense, rounded, back, high/close V ph.
[ɜ:]	a M, long, tense, unrounded, central/mixed, mid V ph.
[ə]	a M, short, lax, unrounded, central/mixed, mid V ph.
RP Diphthongs = 8	
[ei]	a closing diphthong (D) with the i-glide
[ai]	a closing D with the i-glide
[ɔi]	a closing D with the i-glide
[əu/ɜu]	a closing D with the u-glide
[au]	a closing D with the u-glide
[iə]	a centering D with the ə-glide
[eə]	a centering D with the ə-glide
[uə]	a centering D with the ə-glide
RP Triphthongs = 5	
[eiə]	
[aiə]	
[ɔiə]	
[əʊə]	
[aʊə]	

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QUESTIONS

1. What is the quality of a vowel determined by?
2. Define cardinal vowels.
3. What criteria are used for the classification of vowels?
4. How do English vowels differ quantitatively?
5. What is the phonemic status of the schwa vowel?
6. What are English vowels subdivided into according to stability if articulation?
7. What is a monophthong?
8. What is a diphthong?
9. Characterise English diphthongs.
10. Describe English triphthongs.
11. From what aspects is the position of the tongue in the mouth cavity characterised?
12. Which vowels are tense in English?
13. Which vowels are lax in English?
14. What are the traditional lip positions in English vowel pronunciation?
15. How is a vowel in an unstressed syllable perceived by listeners?

PRACTICAL TASK

1. Write the symbols for the vowels in the following words:
a) *bread;* b) *rough;* c) *foot*; d) *hymn;*
e) *pull ;* f) *cough;* g) *mat;* h) *friend.*

2. Write the symbols for the long vowels in the following words:

a) *broad;*   d) *learn;*   g) *err;*
b) *ward;*   e) *cool;*   h) *seal;*
c) *calf ;*   f) *team;*   i) *curl.*

3. On the vowel diagram provided, indicate the glides for the diphthongs in the following words:

a) *fright;*   b) *home;*   c) *clear;*   d) *cow.*
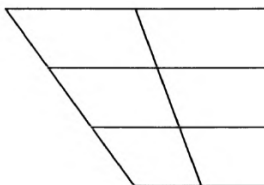
UNIT 6. ASPECTS OF CONNECTED SPEECH

6.1. Assimilation

A significant difference of natural connected speech from isolated sounds is the way that sounds belonging to one word can cause changes in sounds belonging to neighbouring words. Assuming that we know how the phonemes of a particular word would be realised when the word is pronounced in isolation, in cases where we find a phoneme realised differently as a result of being near some other phoneme belonging to a neighbouring word we call this difference an instance of **assimilation.** Assimilation is something which varies in extent according to speaking rate and style: it is more likely to be found in rapid, casual speech and less likely in slow, careful speech. Sometimes the difference caused by assimilation is very noticeable, and sometimes it is very slight. Generally speaking, the cases that have most often been described are assimilations affecting consonants. As an example, consider a case where two words are combined, the first of which ends with a single final consonant (which we will call C^f) and the second of which starts with a single initial consonant (which we will call C^i); we can construct a diagram like this:

$$- - - - - - C^f \quad \bigg| \quad C^i - - - - - -$$

<div align="center">
word
boundary
</div>
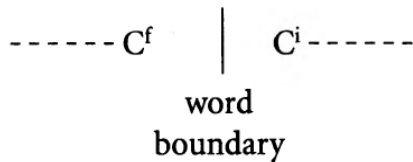
If C^f changes to become like C^i in some way, then the assimilation is called **regressive** (the phoneme that comes first is affected by the one that comes after it); if C^i changes to become like C^f in some way, then the assimilation is called **progressive.** An example of the latter is what is sometimes called **coalescence,** or **coalescent assimilation:** a final [t], [d]

and an initial [j] following often combine to form [tʃ], [dʒ], so that *'not yet'* is pronounced [nɒtʃet] and *'could you'* is [kʊdʒu]. In what ways can a consonant change? The main differences between consonants are of three types:

1) differences in place of articulation;
2) differences in manner of articulation;
3) differences in voicing.

In parallel with this, we can identify assimilation of place, of manner and of voicing in consonants. Assimilation of place is most clearly observable in some cases where a final consonant (C^f) with alveolar place of articulation is followed by an initial consonant (C^i) with a place of articulation that is *not* alveolar. For example, the final consonant in 'that' [ðæt] is alveolar [t]. In rapid, casual speech the [t] will become [p] before a bilabial consonant, as in: 'that person' [ðæp pɜ:sn]; 'that man' [ðæp mæn]; 'meat pie' [mi:p pai].

Before a dental consonant, [t] will change to a dental plosive, for which the phonetic symbol is [t̪], as in: 'that thing' [ðæt̪ θiŋ]; 'get those' [get̪ ðəʊz]; 'cut through' [kʌt̪ θru:]. Before a velar consonant, the [t] will become [k], as in: 'that case' [ðæk keis], 'bright colour' [braik kʌlə], 'quite good' [kwaik gʊd]. In similar contexts [d] would become [b], [d̪] and [g], respectively, and [n] would become [m], [n̪] and [ŋ]; examples of this would be: 'good boy' [gʊb bɔi], 'bad thing' [bæd̪ θiŋ], 'card game' [ka:g geim], 'green paper' [gri:m peipə], 'fine thought' [fain̪ θɔ:t], 'ten girls' [teŋ gɜ:lz].

However, the same is not true of the other alveolar consonants: [s] and [z] behave differently, the only noticeable change being that [s] becomes [ʃ], and [z] becomes [ʒ], when followed by [ʃ] or [j], as in: 'this shoe' [ðiʃ ʃu:]; 'those years' [ðəʊʒ jiəz]. It is important to note that the consonants that have undergone assimilation have not disappeared; in the above

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examples, the duration of the consonants remains more or less what one would expect for a two-consonant cluster. Assimilation of place is only noticeable in this regressive assimilation of alveolar consonants; it is not something that foreign learners need to learn to do.

Assimilation of manner is much less noticeable, and is only found in the most rapid and casual speech; generally speaking, the tendency is again for regressive assimilation and the change in manner is most likely to be towards an "easier" consonant – one which makes less obstruction to the airflow. It is thus possible to find cases where a final plosive becomes a fricative or nasal (e. g. *'that side'* [ðæs said], *'good night'* [gʊn nait], but most unlikely that a final fricative or nasal would become a plosive. In one particular case we find progressive assimilation of manner, when a word-initial [ð] follows a plosive or nasal at the end of a preceding word: it is very common to find that the C^i becomes identical in manner to the C^f but with dental place of articulation. For example:

'in the'   [in ðə]   → [iṇṇə]
'get them'   [get ðəm] → [geṭ ṭəm]
'read these' [ri:d ði:z] → [ri:ḍḍi:z]

The [ð] phoneme frequently occurs with no discernible friction noise.

Assimilation of voice is also found, but again only in a limited way. Only regressive assimilation of voice is found across word boundaries, and then only of one type; since this matter is important for foreign learners we will look at it in some detail. If C^f is a lenis (i. e. "voiced") consonant and C^i is fortis ("voiceless") we often find that the lenis consonant has no voicing; for example in *'I have to'* the final [v] becomes voiceless [f] because of the following voiceless [t] in [ai hæf tu], and in the same way the [z] in *'cheese'* [tʃi:z] becomes

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more like [s] when it occurs in *'cheesecake'* [tʃiːzkeik]. This is not a very noticeable case of assimilation, since initial and final lenis consonants usually have little or no voicing anyway; these devoiced consonants do not shorten preceding vowels as true fortis consonants do. However, when C^f is fortis ("voiceless") and C^i lenis ("voiced"), a context in which in many languages C^f would become voiced, assimilation of voice never takes place; consider the following example: *'I like that black dog'* [ai laik ðæt blæk dɒg]. It is typical of many foreign learners of English that they allow regressive assimilation of voicing to change the final [k] of *'like'* to [g], the final [t] of *'that'* to [d] and the final [k] of *'black'* to [g], giving [ai laig ðæd blæg dɒg]. This creates a strong impression of a foreign accent.

Up to this point we have been looking at some fairly clear cases of assimilation across word boundaries. However, similar effects are also observable across morpheme boundaries and to some extent also within the morpheme. Sometimes in the latter case it seems that the assimilation is rather different from the word-boundary examples; for example, if in a syllable-final consonant cluster a nasal consonant precedes a plosive or a fricative in the same morpheme, then the place of articulation of the nasal is always determined by the place of articulation of the other consonant; thus: *'bump'* [bʌmp], *'tenth'* [tenθ], *'hunt'* [hʌnt], *'bank'* [bæŋk]. It could be said that this assimilation has become fixed as part of the phonological structure of English syllables, since exceptions are almost non-existent. A similar example of a type of assimilation that has become fixed is the progressive assimilation of voice with the suffixes -s-, -z-; when a verb carries a third person singular '-s' suffix, or a noun carries an '-s' plural suffix or an '-s' possessive suffix, that suffix will be pronounced as [s] if the preceding consonant is fortis ("voiceless") and as [z] if the preceding consonant is lenis ("voiced"). Thus:

'cats'	[kæts]	*'dogs'*	[dɒgz]
'jumps'	[dʒʌmps]	*'runs'*	[rʌnz]
'Pat's'	[pæts]	*'Pam's'*	[pæmz]

Assimilation creates something of a problem for phoneme theory: when, for example, [d] in *'good'* [gʊd] becomes [g] in the context *'good girl'*, [gʊg gɜːl] or [b] in the context *'good boy'* [gʊb bɔi] , should we say that one phoneme has been substituted for another? If we do this, how do we describe the assimilation in *'good thing'*, where [d] becomes dental [d̪] before the [θ] of *'thing'*, or in *'good food'*, where [d] becomes a labiodental plosive before the [f] in *'food'*? English has no dental or labiodental plosive phonemes, so in these cases, although there is clearly assimilation, there could not be said to be a substitution of one phoneme for another. The alternative is to say that assimilation causes a phoneme to be realised by a different allophone; this would mean that, in the case of [gʊg gɜːl] and [gʊb bɔi] [gʊb bɔi], the phoneme [d] of *'good'* has velar and bilabial allophones. Traditionally, phonemes were supposed not to overlap in their allophones, so that the only plosives that could have allophones with bilabial place of articulation were [p], [b]; this restriction is no longer looked on as so important.

The traditional view of assimilation as a change from one phoneme to another is, herefore, naïve: modern instrumental studies in the broader field of **coarticulation** show that when assimilation happens one can often see some sort of combination of articulatory gestures. In *'good girl'*, for example, it is not a simple matter of the first word ending *either* in [d] *or* in [g], but rather a matter of the extent to which alveolar and/or velar closures are achieved. There may be an alveolar closure immediately preceding and overlapping with a velar closure; there may be simultaneous alveolar and velar closure, or a velar closure followed by slight contact but not

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closure in the alveolar region. There are many other possibilities.

Much more could be said about assimilation but, from the point of view of learning or teaching English pronunciation, to do so would not be very useful. It is essentially a natural phenomenon that can be seen in any sort of complex physical activity, and the only important matter is to remember the restriction, specific to English, on voicing assimilation mentioned above.

6.2. Elision

The nature of **elision** may be stated quite simply: under certain circumstances sounds disappear. One might express this in more technical language by saying that in certain circumstances a phoneme may be realised as **zero,** or have **zero realisation** or be **deleted.** As with assimilation, elision is typical of rapid, casual speech. Producing elisions is something which foreign learners do not need to learn to do, but it is important for them to be aware that when native speakers of English talk to each other, quite a number of phonemes that the foreigner might expect to hear are not actually pronounced. We will look at some examples, although only a small number of the many possibilities can be given here.

1) Loss of weak vowel after [p], [t], [k].

In words like *'potato', 'tomato', 'canary', 'perhaps', 'today'*, the vowel in the first syllable may disappear; the aspiration of the initial plosive takes up the whole of the middle portion of the syllable, resulting in these pronunciations (where [h] indicates aspiration in the phonetic transcription):

pʰ'teitəʊ   tʰ'ma:təʊ   kʰ'neəri   pʰ'hæps   tʰ'dei

2) Weak vowel + [n], [1], [r] becomes syllabic consonant. For example:

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'tonight' **[tnait]** *'police'* **[pli:s]** *'correct'* **[krekt]**

3) Avoidance of complex consonant clusters.

It has been claimed that no normal English speaker would ever pronounce all the consonants between the last two words of the following:

'George the Sixth's throne' **[dʒɔːdʒ ðə siksθs θrəʊn]**

Though this is not impossible to pronounce, something like [siksθrəʊn] or [siksrəʊn] is a more likely pronunciation for the last two words. In clusters of three plosives or two plosives plus a fricative, the middle plosive may disappear, so that the following pronunciations result:

'acts' **[æks]** *'looked back'* **[lʊk bæk]** *'scripts'* **[skrips]**

4) Loss of final [v] in *'of'* before consonants, for example:

'lots of them'   **[lɒts ə ðəm]**
'waste of money'   **[weist ə mʌni]**

This last example is typical of very casual speech, and would be regarded as substandard by conservative listeners. A more common case is where the vowel of *'of'* is lost, leaving either [v] in a voiced context (e. g. *'all of mine'* [ɔːl v main]) or [f] in a voiceless context (e. g. *'best of three'* [best f θriː]). It is difficult to know whether **contractions** of grammatical words should be regarded as examples of elision or not. The fact that they are regularly represented with special spelling forms makes them seem rather different from the above examples. The best-known cases are:

• *'had', 'would'*: spelt *'d*, pronounced [d] (after vowels), [əd] (after consonants);

• *'is', 'has'*: spelt *'s*, pronounced [s] (after fortis consonants), [z] (after lenis consonants), except that after [s], [z], [ʃ], [z] [tʃ], [dʒ] *'is'* is pronounced [iz] and *'has'* is pronounced [əz] in contracted form;

• *'will'*: spelt *'ll*, pronounced [1] (after vowels), [ḷ] (after consonants);

• *'have'*: spelt *'ve*, pronounced [v] (after vowels), [əv] (after consonants);

• *'not'*: spelt *n't*, pronounced [nt] (after vowels), [ṇt] (after consonants). There are also vowel changes associated with *n't* (e.g. *'can'* [kæn] – *'can't'* [ka:nt]; *'do'* [du:] – *'don't'* [dəʊnt]; *'shall'* [ʃæl] – *'shan't'* [ʃa:nt]);

• *'are'*: spelt *'re*, pronounced [ə] after vowels, usually with some change in the preceding vowel (e. g. *'you'* [ju:] – 'you're' [jʊə] or [jɔ:], *'we'* [wi:] – *'we're'* [wiə], *'they'* [ðei] – *'they're'* [ðeə]); linking is used when a vowel follows, as explained in the next section. Contracted *'are'* is also pronounced as [ə] or [ər] when following a consonant.

6.3. Linking

In our hypothetical "mechanical speech" all words would be separate units placed next to each other in sequence; in real connected speech, however, we link words together in a number of ways. The most familiar case is the use of **linking 'r'**; the phoneme [r] does not occur in syllable-final position in the BBC accent, but when the spelling of a word suggests a final 'r', and a word beginning with a vowel follows, the usual pronunciation is to pronounce with 'r'. For example:

'here' **[hiə] but** *'here are'* **[hiər ə]**
'four' **[fɔ:] but** *'four eggs'* **[fɔ:r egz]**

BBC speakers often use 'r' in a similar way to link words ending with a vowel, even when there is no "justification" from the spelling, as in:

'Formula A'   **[fɔ:mjələr ei]**
'Australia all out' **[ɒstreiliər ɔ:l aut]**
'media event'   **[mi:diər ivent]**

This has been called **intrusive 'r'**; some English speakers and teachers still regard this as incorrect or substandard pronunciation, but it is undoubtedly widespread. There are many other examples: *vanilla[r] ice cream, media[r]event, the idea[r] of it, Asia[r] and Africa* etc.

Linking 'r' and intrusive 'r' are special cases of **juncture;** we need to consider the relationship between one sound and the sounds that immediately precede and follow it. If we take the two words *'my turn'* [mai tɜ:n], we know that the sounds [m] and [ai], [t] and [ɜ:], and [ɜ:] and [n] are closely linked. The problem lies in deciding what the relationship is between [ai] and [t]; since we do not usually pause between words, there is no silence to indicate word division and to justify the space left in the transcription. But if English speakers hear [mai tɜ:n] they can usually recognise this as *'my turn'* and not *'might earn'*. This is where the problem of juncture becomes apparent.

What is it that makes perceptible the difference between [mai tɜ:n] and [mait ɜ:n]? The answer is that in one case the [t] is fully aspirated (initial in *'turn'*), and in the other case it is not (being final in *'might'*). In addition to this, the [ai] diphthong is shorter in *'might'*. If a difference in meaning is caused by the difference between aspirated and unaspirated [t], how can we avoid the conclusion that English has a phonemic contrast between aspirated and unaspirated [t]? The answer is that the position of a word boundary has some effect on the realisation of the [t] phoneme; this is one of the many cases in which the

occurrence of different allophones can only be properly explained by making reference to units of grammar (something which was for a long time disapproved of by many phonologists).

Many ingenious minimal pairs have been invented to show the significance of juncture, a few of which are given below:

• *'might rain'* [mait rein] ([r] voiced when initial in *'rain'*, [ai] shortened), vs.

  'my train' [mai trein] ([r] voiceless following [t] in *'train'*, [ai] longer)

• *'all that I'm after today'* [ɔ:l ðət aim ɑ:ftə tədei] ([t]relatively unaspirated when final in *'that'*)

  'all the time after today' [ɔ:l ðə taim ɑ:ftə tədei] ([t] aspirated when initial in *'time'*)

• *'tray lending'* [trei lendiŋ] ("clear [1]" initial in *'lending'*)

  'trail ending' [treil endiŋ] ("dark [1]" final in *'trail'*)

• *'keep sticking'* [ki:p stikiŋ] ([t] unaspirated after [s])

  'keeps ticking' [ki:ps tikiŋ] ([t] aspirated in *'ticking'*)

The context in which the words occur almost always makes it clear where the boundary comes, and the juncture information is then redundant. It should by now be clear that there is a great deal of difference between the way words are pronounced in isolation and their pronunciation in the context of connected speech.

6.4. Modifications of Vowels

The modifications of vowels in a speech chain are traced in the following directions: they are either quantitative or qualitative or both. These changes of vowels in a speech continuum are determined by a number of factors such as the position of the vowel in the word, accentual structure, tempo of speech, rhythm, etc.

The decrease of the vowel quantity or in other words the shortening of the vowel length is known as a quantitative modification of vowels, which may be illustrated as follows:

1. The shortening of the vowel length occurs in unstressed positions, e. g.:

Is → he or ͜she to blame? – [hi:]

But: *At → last he has ͜come*. – [hi]

2. The length of a vowel depends on its position in a word. It varies in different phonetic environments. English vowels are said to have positional length, e. g. *knee – need – neat* (accommodation). The vowel [i:] is the longest in the final position, it is obviously shorter before the voiced consonant [d], and it is the shortest before the voiceless consonant [t].

Qualitative modification of most vowels occurs in unstressed positions. Unstressed vowels lose their "colour", their quality, which is illustrated by the examples below.

1. In unstressed syllables vowels of full value are usually subjected to qualitative changes, e. g. *man* [mæn] – *sportsman* ['spɔ:tsmən], *conduct* ['kɒndəkt] – *conduct* [kən'dʌkt]. In such cases the quality of the vowel is reduced to the neutral sound [ə].

These examples illustrate the neutralized (reduced) allophones of the same phonemes as the same morphemes are opposed.

2. Slight degree of nasalization marks vowels preceded or followed by the nasal consonants [n], [m], e. g. *never, no, then, men* (accommodation).

The realization of reduction as well as assimilation and accommodation is connected with the style of speech. In rapid colloquial speech reduction may result in vowel elision, the complete omission of the unstressed vowel, which is also known as zero reduction. Zero reduction is likely to occur in a sequence of unstressed syllables, e.g. *history, factory, literature, territory.* It often occurs in initial unstressed

syllables preceding the stressed one, e. g. *correct, believe, suppose, perhaps.*

The example below illustrates a stage-by-stage reduction (including zero reduction) of a phrase.

Has he done it? [hæz hi ˌdʌn it]

[həz hi ˌdʌn it]

[əz i ˌdʌn it]

[zi ˌdʌn it].

6.5. Stylistic Modifications of Sounds

Stylistic oppositions have long been observed in linguistic literature in the two marginal types of pronunciation: formal and informal. **Formal speech** suggests dispassionate information on the part of the speaker. It is characterized by careful articulation and relatively slow speed. **Informal speech** implies everyday conversation. The following definitions are also used: rapid colloquial speech, conversational style.

Now let us turn to different forms of communication. A monologue often presupposes public speaking with a considerable distance of the addresser (the speaker) from the addressee (the listener) or a piece of calm narrative. Dialogues are more often private, personal and intimate. Monologuing is characterized by more phonetic precision. On the other hand, speech may vary in numerous ways. The interaction of the extralinguistic factors may arrange the opposite situation: the speaker's highly excited narration of some critical situation will become full of slurring while a dialogic discussion of problems between colleagues will be phonetically most precise.

Stylistic sound variations seem to have the tendency towards the increase of the sound modifications in speech with the quickening of its tempo and the weakening of the carefulness, e. g. *government* ['gʌvənmənt → 'gʌvəmnt → 'gʌvmnt →' gʌbmnt].

It is assumed that in formal situations the participants will monitor their linguistic behaviour. If the speaker wants to be clearly understood (like while producing a lecture with an educational aim), he/she should sound explicit and the pronunciation may be characterized as supercorrect. In informal situations, where speakers are more relaxed, less attention will be given to speech and more natural and simplified it will sound. Consequently, the degree of simplification of speech (assimilation, reduction, elision) may be looked upon as a style forming means.

Typical character of sound simplifications in relation to the degree of formality is the great qualitative stability of vowels in slow formal speech and more frequent sound variability in formal spoken English. Both front and back vowels in less explicit articulation tend to be changing towards neutralized sounds, especially in grammatical words.

Spelling	*Formal*	*Informal*
it's not	its 'nɒt	əts 'not
because	bi'kɒz	bikəz
I think he was	ai'θiŋk hi: wəz	ʌ'θiŋk i wz

The historically long vowel [i:] tends to lose its diphthongization; as the next stage it undergoes quantitative reduction and finally changes its quality as well.

Spelling	*Formal*	*Informal*
I don't believe it	ai ' dʒunt bi'li:v it	ʌ dʒun(t) bə'liv it
it seems to be	it 'si:mz tə bi	it 'simz tə bi

The similar process of reduction is likewise observed in [u:] simplified to [u].

Spelling	*Formal*	*Informal*
a few more words	ə 'fju: 'mɔ: 'wɜ:dz	ə fju mɔ 'wɜ:dz
a new aspect	ə 'nju: 'æspekt	ə 'n(j)u 'æspekt

Diphthongs are very often monophthongized in informal speech.

The diphthong [eə] tends to be simplified to [e(:)], e. g.

Spelling	Formal	Informal
Where	weə	we
here and there	'hiər ənd 'ðeə	'hi (ə)r ən 'ðe

In an unstressed position it is further modified to [ə], e. g. *there is an opinion* [ðər iz ən ə'pinjən].

The diphthong [iə] often gets a sort of central vowel realization[ə].

Spelling	Formal	Informal
really strange	'riəli 'streindz	'rəli 'streindz
serious action	'siəriəs 'ækʃn	'səri(ə)s 'ækʃn

Unstressed positions are sometimes marked by the next stage of qualitative reduction. The diphthong [au] is realized as some kind of [ʌ].

Spelling	Formal	Informal
and now we've	ənd 'nau wi·v	ən nʌwi·v

Vowel elision is very frequent in informal conversational style. It often goes with other processes involving assimilation and elision of consonants. Elided neutral sound [ə] is very common in the unstressed syllables of polysyllabic words, like:

Spelling	Formal	Informal
different	'difərənt	'difrənt
political	pə'litikl	'plitikl

In the last examples the loss of [ə] in the initial unstressed syllable of a word causes the initial consonant form a cluster with the consonant of the stressed syllable.

In the majority of spoken utterances beginning with *its* the initial [i] is elided when the phrase runs on without a marked pause after the previous saying.

Spelling	Formal	Informal
it's paid well	its 'peid wel	ts 'peid wel
it's necessary	its 'nesəsəri	ts 'nesəsəri

Likewise, in polysyllabic words beginning with the unstressed ex- it is often simplified to [ks].

Spelling	Formal	Informal

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| *Extremely* | iks'tri:mli | 'kstri:mli |
| *Extraordinary* | iks'trɔ:dnri | 'kstrɔ:dnri |

In informal careless speech we find phonetic facts which seem impossible for the English pronunciation namely consonant sequences [tsn], [tsk], [tsp] and others.

Spelling	***Formal***	***Informal***
it's not exact	its 'nɒt ig'zækt	ts 'nɒt ig'zækt
it's close to	its 'kləus tə	ts 'kləus tə

These sequences never occur in speech where the words are uttered clearly and explicitly but in the stream of informal speech in the least prominent parts of the utterance. These facts represent the natural processes of compression, or simplification which are known in other languages.

We cannot deny that every actual sound realization is a unique and individual ideophone. Apart from the distinctive, contextual and stylistic features it differs in the timbre and **personal voice qualities** of every speaker which make his/her speech recognizable though we may not see the speaker but only hear him/her over the radio or in a telephone talk. Thus the sound realizations of phonemes are marked by personal features in addition to distinctive, contextual and stylistic. So, a phoneme, an allophone, a variant and a phone form a kind of hierarchy of phonetic units in discourse.

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QUESTIONS

1. What is assimilation?
2. Define the types of assimilation.
3. Give the examples of assimilation.
4. What is elision?

5. Give the examples of elision.
6. What is linking?
7. Characterise special cases of junctures.
8. Describe the cases of vowel modifications.
9. What are the characteristic features of formal speech?
10. What are the characteristic features of informal speech?
11. Characterise stylistic modifications of sounds.

PRACTICAL TASK

The following sentences are given in spelling and in a "slow, careful" phonemic transcription. Rewrite the phonemic transcription as a "broad phonetic" one so as to show likely assimilations, elisions and linking.

A. *One cause of asthma is supposed to be allergies*

[wʌn kɔ:z əv æsθmə iz səpəʊzd tə bi ælədʒiz'].

B. *What the urban population could use is better trains*

[wɒt ði ɜ:bən pɒpjəleiʃn kʊd ju:z iz betə treinz].

C. *She acts particularly well in the first scene*

[ʃi ækts pətikjələli wel in ðə fɜ:st si:n].

UNIT 7. SYLLABIC STRUCTURE OF ENGLISH WORDS

7.1. The Structure of the English Syllable

Speech is a continuum. However, it can be broken into minimal pronounceable units into which sounds show a tendency to cluster or group themselves. These smallest phonetic groups are generally given the name of **syllables.** The syllable is a very important unit. Most people seem to believe that, even if they cannot define what a syllable is, they can count how many syllables there are in a given word or sentence. If they are asked to do this they often tap their finger as they count, which illustrates the syllable's importance in the rhythm of speech. As a matter of fact, if one tries the experiment of asking English speakers to count the syllables in, say, a recorded sentence, there is often a considerable amount of disagreement.

The syllable is one or more speech sounds forming a single uninterrupted unit of utterance which may be a commonly recognized subdivision of a word or the whole of a word. Being the smallest pronounceable units, the syllables form language units of greater magnitude that is morphemes, words and phrases. Each of these units is characterized by a certain syllabic structure.

Phonetically, (i. e. in relation to the way we produce them and the way they sound), syllables are usually described as consisting of a centre which has little or no obstruction to airflow and which sounds comparatively loud; before and after this centre (i.e. at the beginning and end of the syllable), there will be greater obstruction to airflow and/or less loud sound.

Articulatorily, the syllable is the minimal articulatory unit of the utterance.

Auditorily, the syllable is the smallest unit of perception: the listener identifies the whole of the syllable and after that the sounds which it contains.

Phonologically it is a structural unit which consists of a sequence of one or some phonemes of a language in numbers and arrangements permitted by the given language. Looking at syllables from the phonological point of view is quite different. What this involves is looking at the possible combinations of English phonemes; the study of the possible phoneme combinations of a language is called **phonotactics.** It is simplest to start by looking at what can occur in initial position – in other words, what can occur at the beginning of the first word when we begin to speak after a pause. We find that the word can begin with a vowel, or with one, two or three consonants. No word begins with more than three consonants. In the same way, we can look at how a word ends when it is the last word spoken before a pause; it can end with a vowel, or with one, two, three or (in a small number of cases) four consonants. No current word ends with more than four consonants.

A meaningful language unit has two aspects: syllable formation and syllable division which form a dialectical unity.

Syllable formation in English is based on the phonological opposition vowel – consonant.

In English the syllable is formed:

1) by any vowel alone or in combination with one or more consonants – not more than 3 preceding and not more than 4 following it, e.g. *are* [a:]*, we* [wi:], *it* [it], *sixths* [siksθs];

2) by a word final sonorants [n], [1], [m] immediately preceded by a consonant: e. g. *rhythm* ['rIðᵊm], *garden* ['ga:dᵊn].

The English sonorants [w], [j] are never syllabic as they are always syllable-initial.

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Thus vowels and sonorants are syllable-forming elements and every word, phrase or sentence has as many syllables as it has syllabic elements.

Every English syllable has a center or **peak** – a vowel or a sonorant. What we will call a **minimum syllable** is a single vowel in isolation (e.g. the words '*are*' [ɑ:], '*or*' [ɔ:], '*err*' [ɜ:]. These are preceded and followed by silence. Isolated sounds such as [m], which we sometimes produce to indicate agreement, or [ʃ], to ask for silence, must also be regarded as syllables.

The peak may be preceded by one or more non-syllabic elements which constitute the **onset** of the syllable, that is, instead of silence, they have one or more consonants preceding the centre of the syllable: '*bar*' [bɑ:] '*key*' [ki]: '*more*' [mɔ:]. The peak may be followed by one or more non-syllabic elements which constitute the **coda** – that is, they end with one or more consonants: '*am*' [æm], '*ought*' [ɔ:t], '*ease*' [i:z]. Some syllables have both **onset** and *coda*: '*ran*' [ræn], '*sat*' [sæt], '*fill*' [fil].

Let us now look in more detail at syllable onsets. If the first syllable of the word in question begins with a vowel (any vowel may occur, though [ʊ] is rare) we say that this initial syllable has a **zero onset.** If the syllable begins with one consonant, that initial consonant may be any consonant phoneme except [ŋ]; [ʒ] is rare.

We now look at syllables beginning with two consonants. When we have two or more consonants together we call them a **consonant cluster.** Initial two-consonant clusters are of two sorts in English. One sort is composed of [s] followed by one of a small set of consonants; examples of such clusters are found in words such as '*sting*' [stiŋ], '*sway*' [swei], '*smoke*' [sməʊk]. The [s] in these clusters is called the **pre-initial** consonant and the other consonant ([t], [w], [m] in the above examples) – the **initial** consonant.

The other sort begins with one of a set of about fifteen consonants, followed by one of the set [1], [r], [w], [j] as in, for example, '*play*' [plei], '*try*' [trai], '*quick*' [kwik], '*few*' [fju:]. We call the first consonant of these clusters the **initial consonant** and the second – the **post-initial.** When we look at three-consonant clusters we can recognise a clear relationship between them and the two sorts of two-consonant cluster described above; examples of three-consonant initial clusters are: '*split*' [split], '*stream*' [stri:m], '*square*' [skweə]. The [s] is the pre-initial consonant, the [p], [t], [k] that follow [s] in the three example words are the initial consonant, and the [1], [r], [w] are post-initial.

We now have a similar task to do in studying final consonant clusters. Here we find the possibility of up to four consonants at the end of a word. If there is no final consonant we say that there is a **zero coda.** When there is one consonant only, this is called the **final** consonant. Any consonant may be a final consonant except [h], [w], [j]. The consonant [r] is a special case: it doesn't occur as a final consonant in BBC pronunciation, but there are many rhotic accents of English in which syllables may end with this consonant.

There are two sorts of two-consonant final cluster, one being a final consonant preceded by a **pre-final** consonant and the other – a final consonant followed by a **post-final** consonant. The pre-final consonants form a small set: [m], [n], [ŋ], [1], [s]. We can see these in '*bump*' [bʌmp], '*bent*' [bent], '*bank*' [bæŋk], '*belt*' [belt], '*ask*' [ɑ:sk]. The post-final consonants also form a small set: [s], [z], [t], [d], [θ]; example words are: '*bets*' [bets], '*beds*' [bedz], '*backed*' [bækt], '*bagged*' [bægd], '*eighth*' [eitθ]. These post-final consonants can often be identified as separate morphemes (although not always – '*axe*' [æks], for example, is a single morpheme and its final [s] has no separate meaning). A point of pronunciation can be pointed out here: the release of the first plosive of a plosive-plus-plosive cluster such as the [g]

(of [gd]) in [bægd] or the [k] (of [kt]) in [bækt] is usually without plosion and is therefore practically inaudible.

There are two types of final three-consonant cluster: the first is pre-final plus final plus post final:

		Pre-final	Final	Post-final
'helped'	he	l	p	t
'banks'	bæ	ŋ	k	s
'bonds'	bɒ	n	d	z
'twelfth'	twe	l	f	θ

The second type shows how more than one post-final consonant can occur in a final cluster: final plus post-final 1 plus post-final 2. Post-final 2 is again one of [s], [z], [t], [d], [θ].

		Pre-final	Final	Post-final 1	Post-final 2
'fifths'	fɪ	–	f	θ	s
'next'	ne	–	k	s	t
'lapsed'	læ	–	p	s	t

Most four-consonant clusters can be analysed as consisting of a final consonant preceded by a pre-final and followed by post-final 1 and post-final 2, as shown below:

		Pre-final	Final	Post-final 1	Post-final 2
'twelfths'	twe	l	f	θ	s
'prompts'	prɒ	m	p	t	s

A small number of cases seem to require a different analysis, as consisting of a final consonant with no pre-final but three post-final consonants:

		Pre-final	Final	Post-final 1	Post-final 2	Post-final 3
'sixths'	sɪ	–	k	s	θ	s
'texts'	te	–	k	s	t	s

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To sum up, we may describe the English syllable as having the following maximum phonological structure:

pre-initial	initial	post-initial	VOWEL	pre-final	final	post-final 1	post-final 2	post-final 3
ONSET				CODA				
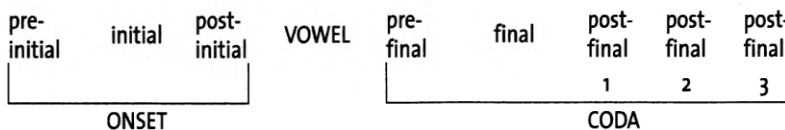
In the above structure there must be a vowel in the centre of the syllable. There is, however, a special case, that of **syllabic consonants**; we do not, for example, analyse the word '*students*' [stju:dnts] as consisting of one syllable with the three-consonant cluster [stj] for its onset and a four-consonant final cluster [dnts]. To fit in with what English speakers feel, we say that the word contains two syllables, with the second syllable ending with the cluster [nts]; in other words, we treat the word as though there was a vowel between d and n, although a vowel only occurs here in very slow, careful pronunciation.

Much present-day work in phonology makes use of a rather more refined analysis of the syllable in which the vowel and the coda (if there is one) are known as the **rhyme;** if you think of rhyming English verse you will see that the rhyming works by matching just that part of the last syllable of a line. The rhyme is divided into the **peak** (normally the vowel) and the **coda** (but note that this is optional: the rhyme may have no coda, as in a word like '*me*'). As we have seen, the syllable may also have an onset, but this is not obligatory. The structure is thus the following:
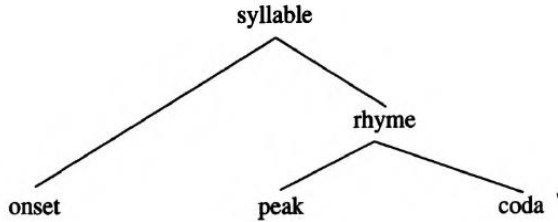
Every language has its own common patterns in which the phonemes are arranged to form syllables. According to the placement of vowels and consonants the following types of syllables are distinguished:

Table 7.1

Placement of VOWELS	**Placement of CONSONANTS**
open: the V is at the end, such a S is articulated with the opening of the mouth by the end: e. g. *they, wri-ter*	**covered at the beginning:** the C is at the beginning of the syllable: e. g. *tie*
closed: which end in C, at the end of such a S the mouth is closed: e. g. *hun-dred, hat*	**covered at the end:** the C is at the end of a S: e. g. *on*

The presentation of a syllable structure in terms of C and V (canonical forms) gives rather numerous combinations which can be grouped into **4 structural types of syllables:**

Table 7.2

1. **Fully open**	V *are, or*
2. **Fully closed** (V between C)	CVC *'fat'* CCVC *'place'* CVCC *'fact'* CCCVC *'street'* CVCCC *'facts'* CVCCCC *'sixths'* [siksθs]
3. **Covered at the beginning** (one C or a sequence of C precede a vowel)	CV *'too'* CCV *'spy'* CCCV *'straw'*
4. **Covered at the end** (one C or more complete the syllable)	VC *'on'* VCC *'act'* VCCC *'acts'*

Structurally, the most common types of the syllable in English are VC; CVC. CVs considered to be the universal structure. CV syllabic types constitute more than half of all structural types in Ukrainian.

The characteristic feature of English is monosyllabism: it contains between four and five thousand monosyllabic words. Most of the words of old English origin is of one syllable, the limit for the number of syllables in a word in English is **8**, e. g. *incomprehensibility.*

Syllables can be also designated

1) by the position in the word:

from the beginning – INITIAL (початковий), MEDIAL (серединний), FINAL фінальний/кінцевий) or *from the end* – ULTIMATE (останній), PENULTIMATE (передостанній/другийвідкінця), ANTEPENULTIMATE (третій відкінця);

2) by the position in relation to stress:

PRETONIC (переднаголошений), TONIC (наголошений), POSTTONIC післянаголошений) (any syllable which is not tonic is ATONIC/ненаголошений).

e. g.   *tre -   men -   dous*

initial   medial   final
antepenultimate   penultimate   ultimate
pretonic   tonic   posttonic

Syllabic structure of a language like its phonemic structure is patterned, which means that the sounds of language can be grouped into syllables according to certain rules. The part of phonetics that deals with this aspect of a language is called **phonotactics**. Phonotactic possibilities of a language determine the rules of syllable division.

Thus, each syllable contains exactly one vowel. This vowel may be preceded or followed by one or more consonants. The vowel itself may be a short vowel, a long vowel or a diphthong; or if it is the weak vowel [ə], it may be combined with a nasal [n], [m] or a liquid [l] to give a syllabic consonant.

7.2. Syllable Division

There are still problems with the description of the syllable: an unanswered question is how we decide on the division between syllables when we find a connected sequence of them as we usually do in normal speech. It often happens that one or more consonants from the end of one word combine with one or more at the beginning of the following word, resulting in a consonant sequence that could not occur in a single syllable. For example, *'walked through'* [wɔːkt θruː] gives us the consonant sequence [ktθr].

The division of a word into syllables is called **syllabification**. In *Longman Pronunciation Dictionary* (LPD) by J. C. Wells it is shown by spacing, *e.g. playtime* ['pleɪ taɪm]. In *English Pronouncing Dictionary* (EPD) by Daniel Jones, Alfred Ch. Gimson, Peter Roach (15th edition 1997), syllable division is marked with a dot − [.] as recommended by the International Phonetic Association (the IPA), e. g. *admirable* ['æd.mər.ə.bl].

The issue of syllabification in English is controversial: different phoneticians hold different views about it. We will begin by looking at two words that are simple examples of the problem of dividing adjoining syllables. Most English speakers feel that the word '*morning*' [mɔ:niŋ]) consists of two syllables, but we need a way of deciding whether the division into syllables should be [mo: and niŋ], or [mo:n and iŋ]. A more difficult case is the word '*extra*' [ekstrə]. One problem is that by some definitions the [s] in the middle, between [k] and [t], could be counted as a syllable, which most English speakers would reject. They feel that the word has two syllables. However, the more controversial issue relates to where the two syllables are to be divided; the possibilities are (using the symbol to signify a syllable boundary):

1) [e.kstrə];
2) [ek.strə];
3) [eks.trə];
4) [ekst.rə];
5) [ekstr.ə].

How can we decide on the division? No single rule will tell us what to do without bringing up problems. It is generally agreed that phonetic syllable divisions must be such as to avoid (as far as possible) creating consonant clusters which are not found in words in isolation. Thus it may be argued that *candy* should be ['kæn.di] or ['kænd. i] but not ['kæ. ndi] since [nd] is not a possible initial consonant cluster in English. This principle is called **the phonotactic constraint** (фонотактичне обмеження) on syllabification.

One more accepted guideline is what is known as the **maximal onsets principle.** This principle states that where two syllables are to be divided, any consonants between them should be attached to the right-hand syllable, not the left, as far

as possible. In the example above, '*morning*' would thus be divided as [mo:.nɪŋ]. If we just followed this rule, we would have to divide '*extra*' as (i) [e.kstrə], but we know that an English syllable cannot begin with [kstr]. Our rule must therefore state that consonants are assigned to the right-hand syllable as far as possible *within the restrictions governing syllable onsets and codas.* This means that we must reject (1) [e.kstrə] because of its impossible onset, and (5) [ekstr.ə] because of its impossible coda. We then have to choose between (2), (3) and (4). The maximal onsets rule makes us choose (2). There are, though, many problems still remaining. How should we divide words like '*better*' [betə]. The maximal onsets principle tells us to put the [t] on the right-hand syllable, giving [be.tə], but that means that the first syllable is analysed as [be].

However, we never find isolated syllables ending with one of the vowels [i], [e], [æ], [ʌ], [ɒ], [ʊ], so this division is not possible. The maximal onsets principle must therefore also be modified to allow a consonant to be assigned to the left syllable if that prevents one of the vowels [i], [e], [æ], [ʌ], [ɒ], [ʊ] from occurring at the end of a syllable. We can then analyse the word as [bet.ə], which seems more satisfactory. There are words like '*carry*' [kæri] which still give us problems: if we divide the word as [kæ.ri], we get a syllable-final [æ], but if we divide it as [kær.i] we have a syllable-final [r], and both of these are non-occurring in BBC pronunciation. We have to decide on the lesser of two evils here, and the preferable solution is to divide the word as [kær.i] on the grounds that in the many rhotic accents of English this division would be the natural one to make.

One further possible solution should be mentioned: when one consonant stands between vowels and it is difficult to assign the consonant to one syllable or the other – as in '*better*' and '*carry*' – we could say that the consonant belongs to *both*

syllables. The term used by phonologists for a consonant in this situation is **ambisyllabic.**

One of the most noticeable features of English pronunciation is that some of its syllables are **strong** while many others are **weak;** this is also true of many other languages, but it is necessary to study how these weak syllables are pronounced and where they occur in English. Words with "strong forms" and "weak forms" are clearly a related matter. What do we mean by "strong" and "weak"? To begin with, we can look at how we use these terms to refer to phonetic characteristics of syllables. When we compare weak syllables with strong syllables, we find that the vowel in a weak syllable tends to be shorter, of lower intensity (loudness) and different in quality. For example, in the word '*data*' [deitə] the second syllable, which is weak, is shorter than the first, is less loud and has a vowel that cannot occur in strong syllables. In a word like '*bottle*' [bɒtl] the weak second syllable contains no vowel at all, but consists entirely of the consonant [1].

There are other ways of characterising strong and weak syllables. We could describe them partly in terms of stress (by saying, for example, that strong syllables are stressed and weak syllables unstressed) but, until we describe what "stress" *means,* such a description would not be very useful. The most important thing to note at present is that any strong syllable will have as its peak one of the vowel phonemes (or possibly a triphthong), but not [ə], [i], [u]. If the vowel is one of [i], [e], [æ], [ʌ], [ɒ], [ʊ], then the strong syllable will always have a coda as well. Weak syllables, on the other hand, as they are defined here, can only have one of a very small number of possible peaks. At the end of a word, we may have a weak syllable ending with a vowel (i. e. with no coda):

1) the vowel [ə] ("schwa");

2) a close front unrounded vowel in the general area of [i:], [i], symbolised [i];

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3) a close back rounded vowel in the general area of [u:], [ʊ], symbolised [u].

Examples would be:

1) '*better*'   [betə];

2) '*happy*'   [hæpi];

3) '*thank you'* [θæŋk ju];

We also find weak syllables in word-final position with a coda if the vowel is [ə]. For example:

'*open*' [əʊpən]

'*sharpen*' [ʃɑ:pən]

Inside a word, we can find the above vowels acting as peaks without codas in weak syllables; for example, look at the second syllable in each of these words:

'*photograph*' [fəʊtəgrɑ:f]

'*radio*' [reidiəʊ]

'*influence*' [influəns]

In addition, the vowel i can act as a peak without a coda if the following syllable begins with a consonant:

'*architect*' [ɑ:kitekt]

Phonetic (spoken) syllables must not be confused with **orthographic (written)** syllables. An orthgraphic syllable is a group of letters in spelling. Syllables in writing are also called **syllabographs.** When a word is split across two lines of writing, it should be broken at an orthographic syllable boundary. Parts of phonetic and orthographic syllables do not always coincide:

Worker ['wɜ:k.ə] CVC-V = two phonetic syllables and one syllabograph

A most general rule claims that division of words into syllables in writing is passed on **the morphological principle** which demands that the part of a word which is separated should be either a prefix, or a suffix or a root (morphograph), *e.g. pic-ture* ['pik t͡ʃə].

Compound words can be divided according to their meaning: *hot-dog; spot-light.*

It is not possible to divide a word within a phonetic syllable:

A suffix of two syllables such as *-able, -ably, -fully* cannot be divided in writing, e.g. *reli-able, lov-ably, beauti-fully.* If there are two or three consonants before *-ing,* these consonants may be separated in writing: *gras-ping, puz-zling.*

With the exception of *-ly,* a word cannot be divided so that an ending of two letters such *-ed, -er, -ic* begins the next line, e. g. *worked, teacher, hectic,* but: *cold-ly, bold-ly.*

A word of one phonetic syllable, a word of less than five letters cannot be divided into syllabographgs, e. g. *piece* [pi:s], *time* [taim].

Now we shall consider three very **important functions of the syllable**.

The first function is known to be the **constitutive** function (конститутивна функція) of the syllable. It lies in its ability to be a part of a word or a word itself. The syllable forms languge units of greater magnitude that is words, morphemes and utterances. In this respect two things should be emphasized. First, the syllable is the unit within which the relations between the distinctive features of the phonemes and their acoustic correlates are revealed. Second, within a syllable (or a sequence of syllables) prosodic characteristics of speech are realized, which form the stress-pattern of a word and the rhythmic and intonation structures of an utterance. In sum, the syllable is a specific minimal structure of both segmental and suprasegmental features.

The other function of the syllable is its **distinctive** function (смислорозрізнювальна/дистинктивна функція). In this respect, the syllable is characterized by its ability to differentiate words and word-forms. To illustrate this a set of minimal pairs should be found so that qualitative and/or

quantitative peculiarities of certain allophones should indicate the beginning or the end of the syllable.

To illustrate the word distinctive function in the syllable, let's take a minimal pair:

['nai-treit] *nitrate* – ['nait-reit] *night-rate.*

The distinction here lies in:

1) the degree of aspiration of [t] sounds which is greater in the first member of the opposition than in the second;

2) allophonic difference of [r]: in the first member of the opposition it is slightly devoiced under the influence of the initial [t];

3) the length of the diphthong [ai]: in the second member of the opposition it is shorter because the syllable is closed by a voiceless plosive [t].

The third function of the syllable is the **identificatory** function (ідентифікативна функція): the listener can understand the exact meaning of the utterance only when the correct syllabic boundary is perceived:

an aim — a name
an ice house — a nice house
peace talks — pea stalks

Sometimes the difference in syllabic division might be the basic ground for differentiating sentences in such minimal pairs as:

I saw her eyes — I saw her rise
I saw the meat — I saw them eat.

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QUESTIONS

1. What is a syllable?
2. How are syllables described phonetically?

3. How are syllables described phonologically?
4. Describe syllable formation.
5. How is the centre of the syllable called?
6. What is an onset of the syllable?
7. What is a coda of the syllable?
8. Describe initial and final consonants of the syllable.
9. What is a syllabic consonant?
10. Which types of syllables are distinguished according to the placement of vowels and consonants?
11. What is the limit for the number of syllables in a word in English?
12. Describe four structural types of syllables.
13. How is syllable division marked in the dictionaries?
14. What is phonotactic constraint?
15. What is a maximal onsets principle?
16. What is the difference between phonetic and orthographic syllables?
17. Enumerate the functions of the syllable.

PRACTICAL TASK

Using the analysis of the word *'cramped'* given below as a model, analyse the structure of the following one-syllable English words:

	Initial	Post-initial		Pre-final	Final	Post-final
'cramped'	k	r	æ	m	p	t
		Onset	Peak		Coda	
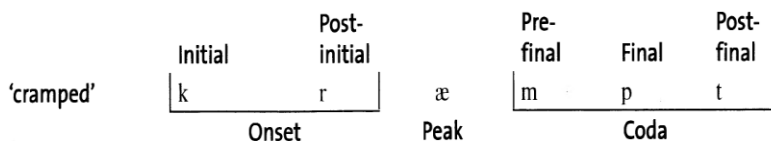
a) *squealed*
b) *eighths*
c) *splash*
d) *text*

UNIT 8. ACCENTUAL STRUCTURE OF ENGLISH WORDS

8.1. The Nature of Stress

The nature of stress is simple enough: practically everyone would agree that the first syllable of words like *'father', 'open', 'camera'* is stressed, that the middle syllable is stressed in *'potato', 'apartment', 'relation'*, and that the final syllable is stressed in *'about', 'receive', 'perhaps'*. Also, most people feel they have some sort of idea of what the difference is between stressed and unstressed syllables, although they might explain it in different ways.

We will mark a stressed syllable in transcription by placing a small vertical line (') high up, just before the syllable it relates to; the words quoted above will thus be transcribed as follows:

['fɑːðə]	[pə'teitəʊ]	[ə'baʊt]
['əʊpən]	[ə'pɑːtmənt]	[ri'siːv]
['kæmrə]	[ri'leiʃn]	[pə'hæps]

What are the characteristics of stressed syllables that enable us to identify them? It is important to understand that there are two different ways of approaching this question. One is to consider what the speaker does in producing stressed syllables and the other is to consider what characteristics of sound make a syllable seem to a listener to be stressed. In other words, we can study stress from the points of view of **production** and of **perception;** the two are obviously closely related, but are not identical. The production of stress is generally believed to depend on the speaker using more muscular energy than is used for unstressed syllables. Measuring muscular effort is difficult, but it seems possible, according to experimental studies, that when we produce stressed syllables, the muscles that we use to expel air from the lungs are often more active, producing

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higher subglottal pressure. It seems probable that similar things happen with muscles in other parts of our vocal apparatus.

Many experiments have been carried out on the perception of stress, and it is clear that many different sound characteristics are important in making a syllable recognizably stressed. From the perceptual point of view, all stressed syllables have one characteristic in common, and that is prominence. Stressed syllables are recognised as stressed because theyare more prominent than unstressed syllables. What makes a syllable prominent? At least four different factors are important:

1) most people seem to feel that stressed syllables are **louder** than unstressed syllables; in other words, loudness is a component of prominence. In a sequence of identical syllables, if one syllable is made louder than the others, it will be heard as stressed. However, it is important to realise that it is very difficult for a speaker to make a syllable louder without changing other characteristics of the syllable such as those explained below (2-4); if one literally changes *only* the loudness, the perceptual effect is not very strong;

2) the **length** of syllables has an important part to play in prominence. If one of the syllables is made longer than the others, there is quite a strong tendency for that syllable to be heard as stressed;

3) every voiced syllable is said on some pitch; pitch in speech is closely related to the frequency of vibration of the vocal folds and to the musical notion of low- and high-pitched notes. It is essentially a *perceptual* characteristic of speech. If one syllable is said with a pitch that is noticeably different from that of the others, this will have a strong tendency to produce the effect of prominence. For example, if all syllables are said with low pitch except for one said with high pitch, then the high-pitched syllable will be heard as stressed and the others as unstressed. To place some movement of pitch

(e. g. rising or falling) on a syllable is even more effective in making it sound prominent;

4) a syllable will tend to be prominent if it contains a vowel that is different in **quality** from neighbouring vowels. This effect is not very powerful, but there is one particular way in which it is relevant in English: the previous unit explained that the most frequently encountered vowels in weak syllables are [ə], [i], [u] (syllabic consonants are also common). We can look on stressed syllables as occurring against a "background" of these weak syllables, so that their prominence is increased by contrast with these background qualities.

Prominence, then, is produced by four main factors: **(1) loudness, (2) length, (3) pitch and (4) quality**. Generally, these four factors work together in combination, although syllables may sometimes be made prominent by means of only one or two of them. Experimental work has shown that these factors are not equally important; the strongest effect is produced by pitch, and length is also a powerful factor. Loudness and quality have much less effect.

Up to this point we have talked about stress as though there were a simple distinction between "stressed" and "unstressed" syllables with no intermediate levels; such a treatment would be a **two-level** analysis of stress. Usually, however, we have to recognise one or more intermediate levels. It should be remembered that in this unit we are dealing only with stress *within the word.* This means that we are looking at words as they are said in isolation, which is a rather artificial situation: we do not often say words in isolation, except for a few such as *'yes', 'no', 'possibly', 'please'* and interrogative words such as *'what', 'who'*, etc. However, looking at words in isolation does help us to see stress placement and stress levels more clearly than studying them in the context of continuous speech.

Let us begin by looking at the word *'around'* [ə'raʊnd], where the stress always falls clearly on the last syllable and the

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first syllable is weak. From the point of view of stress, the most important fact about the way we pronounce this word is that on the second syllable the pitch of the voice does not remain level, but usually falls from a higher to a lower pitch. We can diagram the pitch movement as shown below, where the two parallel lines represent the speaker's highest and lowest pitch level. The prominence that results from this pitch movement, or tone, gives the strongest type of stress; this is called **primary stress**.

speaker's highest pitch level

speaker's lowest pitch level
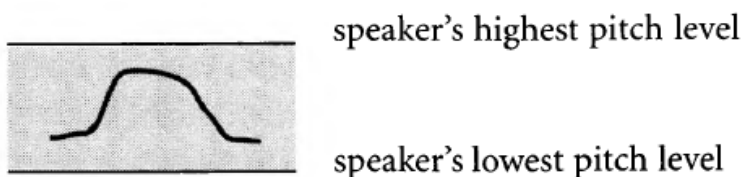
In some words, we can observe a type of stress that is weaker than primary stress but stronger than that of the first syllable of *'around'*; for example, consider the first syllables of the words *'photographic'* [fəʊtogræfik], *'anthropology'* [ænθrəpɒlədʒi]. The stress in these words is called **secondary stress**. It is usually represented in transcription with a low mark (◌̜) so that the examples could be transcribed as [◌̜fəʊto'græfik], [◌̜ænθrə'pɒlədʒi].

We have now identified two levels of stress: primary and secondary; this also implies a third level which can be called unstressed and is regarded as being the absence of any recognisable amount of prominence. These are the three levels that we will use in describing English stress. However, it is worth noting that unstressed syllables containing [o], [i], [u], or a syllabic consonant, will sound less prominent than an unstressed syllable containing some other vowel. For example, the first syllable of *'poetic'* [pəʊ 'etik] is more prominent than the first syllable of *'pathetic'* [pə 'θetik]. This *could* be used as a basis for a further division of stress levels, giving us a third

("tertiary") level. It is also possible to suggest a tertiary level of stress in some polysyllabic words. To take an example, it has been suggested that the word *'indivisibility'* shows four different levels: the syllable [bil] is the strongest (carrying primary stress), the initial syllable [in] has secondary stress, while the third syllable [viz] has a level of stress which is weaker than those two but stronger than the second, fourth, sixth and seventh syllable (which are all unstressed). Using the symbol to mark this tertiary stress, the word could be represented like this: [ˌindiˌvizəˈbiləti].

8.2. Placement of Stress within the Word

We now come to a question that causes a great deal of difficulty, particularly to foreign learners: how can one select the correct syllable or syllables to stress in an English word? As is well known, English is not one of those languages where word stress can be decided simply in relation to the syllables of the word, as can be done in French (where the last syllable is usually stressed), Polish (where the syllable before the last – the penultimate syllable – is usually stressed) or Czech (where the first syllable is usually stressed). Many writers have said that English word stress is so difficult to predict that it is best to treat stress placement as a property of the individual word, to be learned when the word itself is learned. Certainly anyone who tries to analyse English stress placement has to recognise that it is a highly complex matter. However, it must also be recognised that in most cases (though certainly not all), when English speakers come across an unfamiliar word, they can pronounce it with the correct stress; in principle, it should be possible to discover what it is that the English speaker knows and to write it in the form of rules. The following summary of ideas on stress placement in nouns, verbs and adjectives is an attempt to present a few rules in the simplest possible form. Nevertheless, practically all the rules have exceptions and

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readers may feel that the rules are so complex that it would be easier to go back to the idea of learning the stress for each word individually.

In order to decide on stress placement, it is necessary to make use of some or all of the following information:

1) whether the word is morphologically simple, or whether it is complex as a result either of containing one or more affixes (i.e. prefixes or suffixes) or of being a compound word;

2) what the grammatical category of the word is (noun, verb, adjective, etc.);

3) how many syllables the word has;

4) what the phonological structure of those syllables is.

It is sometimes difficult to make the decision referred to in (1). The rules for complex words are different from those for simple words. Single syllable words present no problems: if they are pronounced in isolation they are said with primary stress.

Point (4) above is something that should be dealt with right away, since it affects many of the other rules that we will look at later. It is possible to divide syllables into two basic categories: strong and weak. One component of a syllable is the rhyme, which contains the syllable peak and the coda. A strong syllable has a rhyme with:

either (1) a syllable peak which is a long vowel or diphthong, with or without a following consonant (coda). Examples:

'die' [dai]   *'heart'* [hɑ:t]   *'see'* [si:]

or (2) a syllable peak which is a short vowel, one of [i], [e], [æ], [ʌ], [ɒ], [ʊ], followed by at least one consonant. Examples:

'bat' [bæt]   *'much'* [mʌtʃ]   *'pul'* [pʊl]

A weak syllable has a syllable peak which consists of one of the vowels a, i, u and no coda except when the vowel is a. Syllabic consonants are also weak. Examples:

'fa' in   *'sofa'*   ['səʊfə]   *'zy'* in *'lazy'*   ['leizi]

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'flu' in   *'influence'* ['influəns]   *'en'* in *'sudden'* ['sʌdn]

The vowel [i] may also be the peak of a weak syllable if it occurs before a consonant that is initial in the syllable that follows it. Examples:

'bi' in *'herbicide'*   ['hɜ:bisaid]   *'e'* in *'event'*   [i'vent]

(However, this vowel is also found frequendy as the peak of stressed syllables, as in *'thinker'* ['θiŋkə], *'input'* ['inpʊt]).

The important point to remember is that, although we do find unstressed strong syllables (as in the last syllable of *'dialect'* ['daiəlekt]), *only* strong syllables can be stressed. Weak syllables are always unstressed. This piece of knowledge does not by any means solve all the problems of how to place English stress, but it does help in some cases.

In the case of simple **two-syllable words**, either the first or the second syllable will be stressed – not both. There is a general tendency for verbs to be stressed nearer the end of a word and for nouns to be stressed nearer the beginning. We will look first at verbs. If the final syllable is weak, then the first syllable is stressed. Thus:

'enter' ['entə]   *'open'* ['əʊpan]
'envy' ['envi]   *'equal'* ['i:kwəl]

A final syllable is also unstressed if it contains [əʊ] (e. g. *'follow'* ['fɒləʊ], *'borrow'* ['bɒrəʊ]).

If the final syllable is strong, then that syllable is stressed even if the first syllable is also strong. Thus:

'apply' [ə'plai] *'attract'* [ə'trækt] *'rotate'*   [rəʊ'teit]
'arrive' [ə'raiv] *'assist'*   [ə'sist]   *'maintain'* [mein'tein]

Two-syllable simple adjectives are stressed according to the same rule, giving:

'lovely' ['lʌvli]   *'divine'*   [di'vain]
'even'   ['i:vən] *'correct'* [kə'rekt]
'hollow' ['hɒləu]   *'alive'*   [ə'laiv]

As with most stress rules, there are exceptions; for example: *'honest'* ['ɒnist], *'perfect'* ['pɜ:fikt], both of which end with strong syllables but are stressed on the first syllable.

Nouns require a different rule: stress will fall on the first syllable unless the first syllable is weak and the second syllable is strong. Thus:

'money' ['mʌni]　　*'divan'*　[di'væn]
'product' ['prodʌkt] *'balloon'* [bə'lu:n]
'larynx' ['læriŋks] *'design'*　[di'zain]

Other two-syllable words such as adverbs seem to behave like verbs and adjectives.

Three-syllable words. Here we find a more complicated picture. One problem is the difficulty of identifying three-syllable words which are indisputably simple. In simple verbs, if the final syllable is strong, then it will receive primary stress. Thus:

'entertain' [ˌentə'tein]　　*'resurrect'* [ˌrezə'rekt]

If the last syllable is weak, then it will be unstressed, and stress will be placed on the preceding (penultimate) syllable if that syllable is strong. Thus:

'encounter' [iŋ'kaʊntə] *'determine'* [di'tɜ:min]

If both the second and third syllables are weak, then the stress falls on the initial syllable:

'parody' ['pærədi]　　　*'monitor'* ['mɒnitə]

Nouns require a slightly different rule. The general tendency is for stress to fall on the first syllable unless it is weak. Thus:

'quantity' ['kwɒntəti]　　*'emperor'* ['empərə]
'custody' ['kʌstədi]　　　*'enmity'*　['enməti]

However, in words with a weak first syllable the stress comes on the next syllable:

'mimosa' [mi'məʊzə]　*'disaster'* [di'zɑ:stə]
'potato'　[pə'teitəʊ]　*'synopsis'* [si'nɒpsis]

When a three-syllable noun has a strong final syllable, that syllable will not usually receive the main stress:

'intellect' ['intəlekt]   *'marigold'* ['mærigəʊld]
'alkali'   ['ælkəlai]   *'stalactite'* ['stæləktait]

Adjectives seem to need the same rule, to produce stress patterns such as:

'opportune' ['ɒpətjuːn]   *'insolent'*   ['insələnt]
'derelict'   ['deralikt]   *'anthropoid'* ['ænθrəpɔid]

The above rules certainly do not cover all English words. They apply only to major categories of lexical words (nouns, verbs and adjectives in this chapter), not to function words such as articles and prepositions. There are many cases of English words with alternative possible stress patterns (e. g. *'controversy'* as either ['kɒntrəvɜːsi] or kən'trɒvəsi). Other words change their stress pattern according to the context they occur in. Despite the exceptions, it seems better to attempt to produce *some* stress rules (even if they are rather crude and inaccurate) than to claim that there is no rule or regularity in English word stress.

Complex words. The majority of English words of more than one syllable (**polysyllabic** words) have come from other languages whose way of constructing words is easily recognisable; for example, we can see how combining *'mit'* with the prefixes *'per-', 'sub-', 'com-'* produced *'permit', 'submit', 'commit'* – words which have come into English from Latin. Similarly, Greek has given us *'catalogue', 'analogue', 'dialogue'*, *'monologue'*, in which the prefixes *'cata-', 'ana-', 'dia-', 'mono-'* are recognisable. But we cannot automatically treat the separate grammatical units of other languages as if they were separate grammatical units of English. If we did, we would not be able to study English morphology without first studying the morphology of five or six other languages, and we would be forced into ridiculous analyses such as that the English word *'parallelepiped'* is composed of four or five grammatical units (which is the case in Ancient Greek). We

must accept, then, that the distinction between "simple" and "complex" words is difficult to draw.

Complex words are of two major types:

1) words made from a basic word form (which we will call the **stem),** with the addition of an affix;

2) **compound** words, which are made of two (or occasionally more) independent English words (e. g. *'ice cream', 'armchair'*).

We will look first at the words made with affixes. Affixes are of two sorts in English: **prefixes,** which come before the stem (e. g. prefix *'un-'* + stem *'pleasant'* → *'unpleasant'*) and **suffixes,** which come after the stem (e. g. stem *'good'* + suffix *'- ness'* → *'goodness'*).

Affixes have one of three possible effects on word stress:

1) the affix itself receives the primary stress (e. g. *'semi-'* + *'circle'* [sɜ:kl] → *'semicircle'* ['semsɜ:kl]; *'-ality'* + *'person'* ['pɜ:sn] → *'personality'* ['pɜ:sn'æləti]);

2) the word is stressed as if the affix were not there (e. g. *'pleasant'* ['pleznt], *'unpleasant'* [ʌn'pleznt]; *'market'* ['mɑ:kit], *'marketing'* ['mɑ:kitiŋ]);

3) the stress remains on the stem, not the affix, but is shifted to a different syllable (e. g. *'magnet'* ['mægnət], *'magnetic'* [mæg'netik]).

Suffixes. One of the problems that we encounter is that we find words which are obviously complex but which, when we try to divide them into stem + affix, turn out to have a stem that is difficult to imagine as an English word. For example, the word *'audacity'* seems to be a complex word – but what is its stem? Another problem is that it is difficult in some cases to know whether a word has one, or more than one, suffix: for example, should we analyse *'personality'* from the point of view of stress assignment, as [pɜ:sn+æləti] or as [pɜ:sn+æl+əti]? In the study of English word formation at a deeper level than we can go into here, it is necessary for such

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reasons to distinguish between a stem (which is what remains when affixes are removed), and a root, which is the smallest piece of lexical material that a stem can be reduced to. So, in *'personality'*, we could say that the *suffix '-ity'* is attached to the *stem 'personal'* which contains the *root 'person'* and the *suffix 'al'*. The suffixes are referred to in their spelling form.

Suffixes carrying primary stress themselves. In the examples given, which seem to be the most common, the primary stress is on the first syllable of the suffix. If the stem consists of more than one syllable, there will be a secondary stress on one of the syllables of the stem. This cannot fall on the last syllable of the stem and is, if necessary, moved to an earlier syllable. For example, in *'Japan'* [dʒə'pæn] the primary stress is on the last syllable, but when we add the stress-carrying suffix *'-ese'* the primary stress is on the suffix and the secondary stress is placed not on the second syllable but on the first: *'Japanese'* [ˌdʒəpæ'ni:z].

• '-ee': *'refugee'* [ˌrefjʊ'dʒi:]; *'evacuee'* [iˌvækju'i:];
• '-eer': *'mountaineer'* [ˌmaʊnti'niə]; *'volunteer'* [ˌvɒlən'tiə];
• '-ese': *'Portuguese'* [ˌpɔ:tʃə'gi:z]; *'journalese'* [ˌdʒɜ:nl'i:z];
• '-ette': *'cigarette'* [ˌsigr'et]; *'launderette'* [ˌlɔ:ndr'et];
• 'esque': *'picturesque'* [ˌpiktʃr'esk].

Suffixes that do not affect stress placement.
• '-able': *'comfort'* ['kʌmfət]; 'comfortable' ['kʌmfətəbl];
• '-age': *'anchor'* ['æŋkə]; *'anchorage'* ['æŋkridʒ];
• '-al': *'refuse'* (verb) [ri'fju:z]; *'refusal'* [ri'fju:zl];
• '-en': 'wide' ['waid]; *'widen'* ['waidn];
• '-ful': *'wonder'* ['wʌndə]; *'wonderful'* ['wʌndəfl];
• '-ing': *'amaze'* [ə'meiz]; *'amazing'* [a'meiziŋ];
• '-like': *'bird'* ['bɜ:d]; *'birdlike'* ['bɜ:dlaik];

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- '-less': *'power'* ['paʊə];   *'powerless'*   ['paʊələs];
- '-ly':   *'hurried'* ['hʌrid];   *'hurriedly'*   ['hʌridli];
- '-ment' (noun): *'punish'* ['pʌniʃ]; *'punishment'* ['pʌniʃmənt];
- '-ness': *'yellow'* ['jeləʊ];   *'yellowness'* ['jeləʊnəs];
- '-ous':   *'poison'* ['pɔizn];   *'poisonous'* ['pɔiznəs];
- '-fy':   *'glory'*   ['glɔ:ri];   *'glorify'*   ['glɔ:rifai];
- '-wise': *'other'*   ['ʌðə];   *'otherwise'* ['ʌðəwaiz];
- '-y' (adjective or noun):   *'fun'* ['fʌn]; *'funny'* ['fʌns];
- '('-ish' in the case of adjectives does not affect stress placement: *'devil'* ['devl]; *'devilish'* ['devliʃ]; however, verbs with stems of more than one syllable always have the stress on the syllable immediately preceding 'ish' – for example, *'replenish'* [ri'pleniʃ], *'demolish'* [di'mɒliʃ].

Suffixes that influence stress in the stem.

In these examples primary stress is on the last syllable of the stem.

- '-eous':   *'advantage'*   [ad'vɑ:ntidʒ];   *'advantageous'* [ˌædvan'teidʒəs]
- '-graphy': *'photo'*   ['fəʊtəʊ]; *'photography'* [fə'tɒgrəfi];
- '-ial':   *'proverb'* ['prɒvɜ:b]; *'proverbial'*   [prə'vɜ:biəl];
- '-ic':   *'climate'* ['klaimət]; 'climatic'   [klai'mætik];
- '-ion':   *'perfect'* ['pɜ:fikt];   *'perfection'*   [pə'fekʃn];
- '-ious':   *'injure'* ['indʒə];   *'injurious'*   [in'dʒʊəriəs];
- '- ty':   *'tranquil'* ['træŋkwil]; *'tranquillity'* [træŋ'kwiləti];
- '-ive':   *'reflex'*   ['riifleks];   *'reflexive'*   [ri'fleksiv].

Finally, when the suffixes '-ance', '-ant' and '-ary' are attached to single-syllable stems, the stress is almost always placed on the stem (e.g. *'guidance', 'sealant', 'dietary'*). When the stem has more than one syllable, the stress is on one of the syllables in the stem. To explain this, we need to use a rule based on syllable structure, as was done for simple words in the previous chapter. If the final syllable of the stem is strong, that syllable receives the stress. For example: *'importance'*

[im'pɔ:tns], *'centenary'* [sen'ti:nri]. Otherwise the syllable *before* the last one receives the stress: *'inheritance'* [in'heritəns], *'military'* ['militri].

In words with prefixes the stress is governed by the same rules as those for polysyllabic words without prefixes.

Compound words. The words discussed so far have all consisted of a stem plus an affix. We now pass on to another type of word. This is called compound, and its main characteristic is that it can be analysed into two words, both of which can exist independently as English words. Some compounds are made of more than two words, but we will not consider these. As with many of the distinctions being made in connection with stress, there are areas of uncertainty. For example, it could be argued that 'photograph' may be divided into two independent words, 'photo' and 'graph'; yet we usually do not regard it as a compound, but as a simple word. If, however, someone drew a graph displaying numerical information about photos, this would perhaps be called a 'photo-graph' and the word would then be regarded as a compound.

Compounds are written in different ways: sometimes they are written as one word (e. g. *'armchair', 'sunflower'*); sometimes with the words separated by a hyphen (e. g. *'open-minded', 'cost-effective'*); and sometimes with two words separated by a space (e. g. *'desk lamp', 'battery charger'*). In this last case there would be no indication to the foreign learner that the pair of words was to be treated as a compound. There is no clear dividing line between two-word ompounds and pairs of words that simply happen to occur together quite frequently. As far as stress is concerned, the question is quite simple. When is primary stress placed on the first constituent word of the compound and when on the second? Both patterns are found. A few rules can be given, although these are not completely reliable. Perhaps the most familiar type of

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compound is the one which combines two nouns and which normally has the stress on the first element, as in:

'typewriter' ['taipraitə];
'car ferry' ['kɑ:feri];
'sunrise'   ['sʌnraiz];
'suitcase' ['su:tkeis];
'teacup'   ['ti:kʌp].

It is probably safest to assume that stress will normally fall in this way on other compounds; however, a number of compounds receive stress instead on the second element. The first words in such compounds often have secondary stress. For example, compounds with an adjectival first element and the -*ed* morpheme at the end have this pattern (given in spelling only):

ˌ*bad-'tempered;*
ˌ*half-'timbered;*
ˌ*heavy-'handed.*

Compounds in which the first element is a number in some form also tend to have final stress:

ˌ*three-'wheeler;*
ˌ*second-'class;*
ˌ*five-'finger.*

Compounds functioning as adverbs are usually final-stressed:

ˌ*head'first;*
ˌ*North-'East;*
ˌ*down'stream.*

Finally, compounds which function as verbs and have an adverbial first element take final stress:

ˌ*down'grade;*
ˌ*back-'pedal;*
ˌ*ill-'treat.*

It would be wrong to imagine that the stress pattern is always fixed and unchanging in English words. Stress position

may vary for one of two reasons: either as a result of the stress on other words occurring next to the word in question, or because not all speakers agree on the placement of stress in some words. The main effect is that the stress on a final-stressed compound tends to move to a preceding syllable and change to secondary stress if the following word begins with a strongly stressed syllable. Thus:

ˌbad-'tempered **but** a ˌbad-tempered 'teacher;

ˌhalf-'timbered **but** a ˌhalf-timbered 'house;

ˌheavy-'handed **but** a ˌheavy-handed 'sentence.

There is also a group of accentuation oppositions where compound nouns are opposed to free word combinations, e. g.

a 'blackboard – класна дошка;

a 'black 'board – чорна дошка;

a 'dancing-girl – танцівниця;

a 'dancing 'girl – дівчина, яка танцює.

Compounds = EARLY STRESS	Phrases = LATE STRESS
a 'darkroom = a room for developing photographs	*a ˌdark 'room* = a room which is dark because there is little light in it
a 'moving van = a van which carries furniture when one moves house	*a ˌmoving 'van* = a van that is in motion
a 'blackbird = a kind of bird: *Turdus merula*	*a ˌblack 'bird* = any bird that is black
an 'English teacher = a teacher of English	*an ˌEnglish 'teacher* = a teacher who is English

There are also often differences between the stressing of compounds in RP and General American, e. g.:

RP	GenAm
'season ˌticket	*ˌseason 'ticket*
ˌAdam's 'apple	*'Adam's ˌapple*
ˌˌpeanut 'butter	*'peanut ˌbutter*
ˌvocal 'cords	*'vocal ˌcords*

It is not a serious problem, but is one that foreign learners should be aware of. A well-known example is *'controversy'*, which is pronounced by some speakers as [ˈkɒntrəvɜːsi] and by others as [kənˈtrɒvəsi]; it would be quite wrong to say that one version was correct and one incorrect. Other examples of different possibilities are *'ice cream'* (either [ˌais 'kriːm or [ˈais kriːm)], *'kilometre'* (either [kiˈlɒmitə] or [ˈkiləmiːtə] and *'formidable'* [ˈfɔːmidəbl] or [fɔːˈmidəbl].

Word-class pairs. One aspect of word stress is best treated as a separate issue. There are several dozen pairs of two-syllable words with identical spelling which differ from each other in stress placement, apparently according to word class (noun, verb or adjective). All appear to consist of prefix +

stem. We shall treat them as a special type of word and give them the following rule: if a pair of prefix-plus-stem words exists, both members of which are spelt identically, one of which is a verb and the other of which is either a noun or an adjective, then the stress is placed on the second syllable of the verb but on the first syllable of the noun or adjective. Some common examples are given below (V = verb, A = adjective, N = noun):

abstract	['æbstrækt] (A)	[æb'strækt] (V);
conduct	['kɒndʌkt] (N)	['kən'dʌkt] (V);
contract	['kɒntrækt] (N)	[kən'trækt] (V);
contrast	['kɒntrɑːst] (N)	[kən'trɑːst] (V);
desert	['dezət] (N)	[di'zɜːt] (V);
escort	['eskɔːt] (N)	[i'skɔːt] (V);
export	['ekspɔːt] (N)	[ik'spɔːt] (V);
import	['impɔːt] (N)	[im'pɔːt] (V);
insult	['insʌlt] (N)	[in'sʌlt] (V);
object	['ɒbdʒekt] (N)	[əb'dʒekt] (V);
perfect	['pɜːfikt] (A)	[pə'fekt] (V);
permit	['pɜːmit] (N)	[pə'mit] (V);
present	['preznt] (N, A)	[pri'zent] (V);
produce	['prɒdjuːs] (N)	[prə'djuːs] (V);
protest	['prəʊtest] (N)	[prə'test] (V);
rebel	['rebl] (N)	[ri'bel] (V);
record	['rekɔːd] (N, A)	[ri'kɔːd] (V);
subject	['sʌbdʒekt] (N)	[səb'dʒekt] (V).

We shall turn now to the **functional aspect of word stress.** Word stress in a language performs three functions.

1. Word stress constitutes a word, it organizes the syllables of a word into a language unit having a definite accentual structure, that is a pattern of relationship among the syllables; a word does not exist without the word stress. Thus the word stress performs the constitutive function. Sound continuum

becomes a phrase when it is divided into units organized by word stress into words.

2. Word stress enables a person to identify a succession of syllables as a definite accentual pattern of a word. This function of word stress is known as identificatory (or recognitive). Correct accentuation helps the listener to make the process of communication easier, whereas the distorted accentual pattern of words, misplaced word stresses prevent normal understanding.

3. Word stress alone is capable of differentiating the meaning of words or their forms, thus performing its distinctive function. The accentual patterns of words or the degrees of word stress and their positions form oppositions. There are about 135 pairs of

words of identical orthography in English which could occur either as nouns (with stress on the penultimate syllable) or as verbs (with stress on the final syllable), the location of word stress alone being the differentiating factor.

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QUESTIONS

1. Which points of view can we study stress from?
2. What makes a syllable prominent?
3. What is primary stress?
4. What is secondary stress?
5. What information do we need to decide on stress placement?
6. Describe the stress placement in two-syllable words.
7. Describe the stress placement in three-syllable words.
8. Describe the stress placement in complex words.
8. What are the suffixes carrying primary stress themselves?

9. What are the suffixes that do not affect stress placement?
10. What are the suffixes that influence stress in the stem?
11. Describe the stress placement in compound words.
12. Give the examples of word-class pairs.

PRACTICAL TASK

1. Mark the stress on the following words:

Verbs	**Nouns**
a) protect	a) language
b) clamber	b) captain
c) festoon	c) career
d) detest	d) paper
e) bellow	e) event
f) menace	f) jonquil
g) disconnect	g) injury
h) enter	h) connection

2. Put stress marks on the following words (try to put secondary stress marks on as well).

a) shopkeeper;	f) confirmation;
b) open-ended;	g) eight-sided;
c) Javanese;	h) fruitcake;
d) birthmark;	i) defective;
e) anti-clockwise;	j) roof timber.

UNIT 9. GENERAL CHARACTER OF ENGLISH INTONATION

9.1. Structure and Functions of Intonation

Intonation is a language universal. There are no languages which are spoken as a monotone, i.e. without any change of prosodic parameters, but intonation functions in various languages in a different way. Foreign learners of English at advanced levels who may use this course should be given training to make them better able to recognise and copy English intonation. The only really efficient way to learn to *use* the intonation of a language is the way a child acquires the intonation of its first language, and the training referred to above should help the adult learner of English to acquire English intonation in a similar (though much slower) way – through listening to and talking to English speakers. It is perhaps a discouraging thing to say, but learners of English who are not able to talk regularly with native speakers of English, or who are not able at least to listen regularly to colloquial English, are not likely to learn English intonation, although they may learn very good pronunciation of the segments and use stress correctly.

There is wide agreement among linguists that on perception level **prosody** is a complex, a whole, formed by significant variations of **pitch, loudness, tempo** and **rhythm** (i. e. the rate of speech and pausation) closely related. Some linguists regard speech timbre as a component of intonation. On perception level a complex unity formed by significant variationsof 1) pitch, 2) loudness (force) and 3) tempo is called **intonation**. Thus, *prosody* and *intonation* relate to each other as a more general notion (prosody) and its part (intonation).

On the **acoustic** level pitch correlates with the fundamental frequency of the vibration of the vocal cords; loudness

correlates with the amplitude of vibrations; tempo is a correlate of time during which a speech unit lasts. Each syllable of the speech chain has a special pitch colouring. Pitch movements are inseparably connected with loudness. Together with the tempo of speech they form an **intonation pattern** which is the basic unit of intonation. An intonation pattern contains one nucleus and may contain other stressed or unstressed syllables normally preceding or following the nucleus. The boundaries of an intonation pattern may be marked by stops of phonation that are temporal pauses. Intonation patterns serve to actualize syntagms in oral speech. The syntagm is a group of words which is semantically and syntactically complete. In phonetics actualized syntagms are called **intonation groups.**

It is very important to make the point that we are not interested in all aspects of a speaker's pitch; the only things that should interest us are those which carry some linguistic information. If a speaker tries to talk while riding fast on a horse, his or her pitch will make a lot of sudden rises and falls as a result of the irregular movement; this is something which is outside the speaker's control and therefore cannot be linguistically significant. Similarly, if we take two speakers at random we will almost certainly find that one speaker typically speaks with lower pitch than the other; the difference between the two speakers is not linguistically significant because their habitual pitch level is determined by their physical structure. But an individual speaker does have control over his or her own pitch, and may choose to speak with a higher than normal pitch; this is something which *is* potentially of linguistic significance.

Not all stressed syllables are of equal importance. One of the syllables has the greater prominence than the others and forms the **nucleus** of an intonation pattern. Formally the nucleus may be described as a strongly stressed syllable which is generally the last strongly accented syllable of an intonation

pattern and which marks a significant change of pitch direction that is where the pitch goes distinctly up or down.

We will begin by looking at intonation in the shortest piece of speech we can find – the single syllable. At this point a new term will be introduced: we need a name for a continuous piece of speech beginning and ending with a clear pause, and we will call this an **utterance.** We are going to look at the intonation of one-syllable utterances. These are quite common, and give us a comparatively easy introduction to the subject.

Two common one-syllable utterances are *'yes'* and *'no'*. The first thing to notice is that we have a choice of saying these with the pitch remaining at a constant level, or with the pitch changing from one level to another. The word we use for the overall behaviour of the pitch in these examples is **tone;** a one-syllable word can be said with either a **level tone** or a **moving tone.** If you try saying *'yes'* or *'no'* with a level tone (rather as though you were trying to sing them on a steady note) you may find the result does not sound natural, and indeed English speakers do not use level tones on one-syllable utterances very frequently. Moving tones are more common. If English speakers want to say 'yes' or 'no' in a definite, final manner they will probably use a **falling** tone – one which descends from a higher to a lower pitch. If they want to say 'yes?' or 'no?' in a questioning manner they may say it with a **rising** tone – a movement from a lower pitch to a higher one.

It will often be necessary to use symbols to represent tones, and for this we will use marks placed before the syllable in the following way (phonemic transcription will not be used in these examples – words are given in spelling):

Level   _yes _no
Falling   \yes \no
Rising   /yes /no

This simple system for tone transcription could be extended, if we wished, to cover a greater number of possibilities. For example, if it were important to distinguish between a high level and low level tone for English we could do it in this way:

High level	¯yes	¯no
Low level	_yes	_no

Together with level, fall, and rise, other more complex tones are also used. One that is quite frequently found is the **fall-rise** tone, where the pitch descends and then rises again. Another complex tone, much less frequently used, is the **rise-fall** in which the pitch follows the opposite movement.

Fall ╲yes ╲no

This is the tone about which least needs to be said, and which is usually regarded as more or less "neutral". If someone is asked a question and replies \yes or \no it will be understood that the question is now answered and that there is nothing more to be said. The fall could be said to give an impression of "finality".

Rise ╱yes ╱no

In a variety of ways, this tone conveys an impression that something more is to follow. A typical occurrence in a dialogue between two speakers whom we shall call A and B might be the following:

A (wishing to attract B's attention): Excuse me.

B: /yes

(B's reply is, perhaps, equivalent to 'what do you want?') Another quite common occurrence would be:

A: Do you know John Smith?

One possible reply from B would be /yes, inviting A to continue with what she intends to say about John Smith after establishing that B knows him. To reply instead \yes would give a feeling of "finality", of "end of the conversation"; if A

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did have something to say about John Smith, the response with a fall would make it difficult for A to continue.

Similarly, someone may ask a question that implies readiness to present some new information. For example:

A: Do you know what the longest balloon flight was?

If B replies /*no* he is inviting A to tell him, while a response of \no would be more likely to mean that he does not know and is not expecting to be told. Such "do you know?" questions are, in fact, a common cause of misunderstanding in English conversation, when a question such as A's above might be a request for information or an offer to provide some.

Fall–rise ⌄yes ⌄no

The fall-rise is used a lot in English and has some rather special functions. We will only consider one fairly simple one, which could perhaps be described as "limited agreement" or "response with reservations". Examples may make this clearer:

A: I've heard that it's a good school.

B: ⌄*yes*

B's reply would be taken to mean that he would not completely agree with what A

said, and A would probably expect B to go on to explain why he was reluctant to agree.

Similarly:

A: It s not really an expensive book, is it?

B: ⌄*no*

The fall-rise in B's reply again indicates that he would not completely agree with A. Fall-rise in such contexts almost always indicates both something "given" or "conceded" and at the same time some reservation or hesitation.

Rise–fall ⌃yes ⌃no

This is used to convey rather strong feelings of approval, disapproval or surprise. It is not usually considered to be an important tone for foreign learners to acquire, although it is

still useful practice to learn to distinguish it from other tones. Here are some examples:

A: *You wouldn't do an awful thing like that, would you?*
B: ˰*no*
A: *Isn't the view lovely!*
B: ˰*yes*
A: *I think you said it was the best so far.*
B: ˰*yes*

Level _yes _no

This tone is certainly used in English, but in a rather restricted context: it almost always conveys (on single-syllable utterances) a feeling of saying something routine, uninteresting or boring. A teacher calling the names of students from a register will often do so using a level tone on each name, and the students are likely to respond with *'yes'* when their name is called. Similarly, if one is being asked a series of routine questions for some purpose – such as applying for an insurance policy – one might reply to each question of a series (like *'Have you ever been in prison?'*, *'Do you suffer from any serious illness?', 'Is your eyesight defective?'*, etc.) with *'no'*.

A few meanings have been suggested for the five tones that have been introduced, but each tone may have many more such meanings. Moreover, it would be quite wrong to conclude that in the above examples only the tones given would be appropriate; it is, in fact, almost impossible to find a context where one could not substitute a different tone. This is not the same thing as saying that any tone can be used in any context: the point is that no particular tone has a unique "privilege of occurrence" in a particular context.

We can now move on from examples of *'yes'* and *'no'* and see how some of these tones can be applied to other words, either single-syllable words or words of more than one syllable. In the case of polysyllabic words, it is always the most strongly

stressed syllable that receives the tone; the tone mark is equivalent to a stress mark. Examples:

Fall   (usually suggests a "final" or "definite" feeling)
               ＼stop   ＼eighty   a＼gain

Rise   (often suggesting a question)
               ／sure   ／really   to／night

When a speaker is giving a list of items, they often use a rise on each item until the last, which has a fall, for example:

You can have it in ／red, ／blue, ／green or ＼black

Fall–rise (often suggesting uncertainty or hesitation)
               ∨some   ∨nearly   per∨haps

Fall-rise is sometimes used instead of rise in giving lists.

Rise–fall (often sounds surprised or impressed)
   ∧oh   ∧lovely   i∧mmense

The change in the pitch of the word which is most important semantically, is called a **nuclear tone.** It may be preceded or followed by stressed and unstressed syllables. Stressed syllables preceding the nucleus together with the intervening unstressed syllables form **the head of a tone unit.** Initial unstressed syllables make the **pre-head.** Unstressed and half-stressed syllables following the nucleus are called **the tail.**

Usually a nucleus will be present in a tone unit; other elements may not be realised, i. e. the possibilities for combining the elements of a tone unit may be as follows:
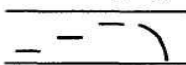
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Pre-head	Head	Nucleus	Tail
1.		**Do.**	
2.		**Do**	something.
3.	What shoud I	**do?**	
4. I'l	ask what to	**do.**	
5. I'l	ask what to	**do**	about it.
6. I		**do**	
7. I		**do**	it.

The pre-nuclear part can take a variety of pitch patterns. Variation within the prenucleus does not usually affect the grammatical meaning of the utterance, though it often conveys meanings associated with attitude or phonetic styles. There are three common types of pre-nucleus: a descending type in which the pitch gradually descends (often in "steps") to the nucleus; an ascending type in which the syllables form an ascending sequence, and a level type when all the syllables stay more or less on the same level:
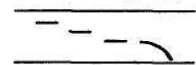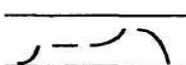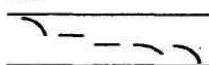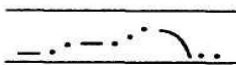
Descending type	Ascending type	Level type

or:

For example:

ˇWhy are you 'making such a ₁mess of it?

₁Why are you 'making such a ˇmess of it?

→Why are you 'making such a ₁mess of it?
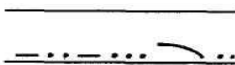
Variations in **pitch range** (мелодійних діапазонів) occur within the normal range of the human voice, i. e. within its upper and lower limits. Three pitch ranges are generally distinguished: normal, wide, narrow:
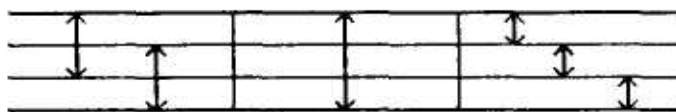
Normal   Wide   Narrow
                      (of low, medium
                      and high levels)

Pitch levels (мелодійні рівні) may be high, medium and low.

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The **tempo** of speech as the third component of intonation implies **the rate of the utterance and pausation.**

The rate of speech can be **normal, slow** and **fast.** The parts of the utterance which are particularly important sound slower. Unimportant parts are commonly pronounced at a greater speed than normal.

Any stretch of speech can be split into smaller portions, i.e. phonetic wholes, phrases, intonation groups by means of **pauses.** By pause here we mean a complete stop of phonation. It is sufficient to distinguish the following three kinds of pauses:

a) short pauses which may be used to separate intonation groups within a phrase;

b) longer pauses which normally manifest the end of the phrase;

c) very long pauses, which are approximately twice as long as the first type, are used to separate phonetic wholes.

Functionally, there may be distinguished **syntactic, emphatic** and **hesitation** pauses. Syntactic pauses separate phonopassages, phrases, intonation groups.

Emphatic pauses serve to make especially prominent certain parts of the utterance,

e. g. *She is the most … charming girl I've ever seen.*

Hesitation pauses are mainly used in spontaneous speech to gain some time to think over what to say next. They may be silent or filled,

e. g. *She is rather a ... good student.*

The functions of intonation summarized as follows:

Function	Its explanation
1. Emotional	To express a wide range of attitudinal meanings – excitement, boredom, surprise, friendliness, reserve, etc. Here,

	intonation works along with other prosodic and paralinguistic features to provide the basis of all kinds of vocal emotional expression.
2. Grammatical	To mark grammatical contrasts. The identification of such major units as clause and sentence; and several specific contrasts such as question and statement, or positive and negative, may rely on intonation. Many languages make the important conversational distinction between 'asking' and 'telling' in this way, e.g. *She's here, isn't she!* (where a rising pitch is the spoken equivalent of the question mark) vs *She's here, isn't she!* (where a falling pitch expresses the exclamation mark).
3. Information structure	To convey what is new and what is already known in the meaning of an utterance − what is referred to as the 'information structure' of the utterance. If someone says *I saw a BLUE car,* with maximum intonational prominence on *blue,* this presupposes that someone has previously asked about the colour; whereas if the emphasis is on *I*, it presupposes a previous question about which person is involved. It would be very odd for someone to ask ***Who** saw a blue car!,* and for the reply to be: *I saw a **BLUE** car!*
4. Textual	To construct larger than an utterance stretches of discourse. Prosodic

	coherence is well illustrated in the way paragraphs of information are given a distinctive melodic shape, e. g. in radio news-reading. As thenews-reader moves from one item of news to the next, the pitch level jumps up, then gradually descends, until by the end of the item the voice reaches a relatively low level.
5. Psychological	To organize language into units that are more easily perceived and memorized. Learning a long sequence of numbers, for example, proves easier if the sequence is divided into rhythmical 'chunks'.
6. Indexical	To serve as markers of personal identity – an 'indexical' function. In particular, they help to identify people as belonging to different social groups and occupations (such as preachers, street vendors, army sergeants).

9.2. Sentence Stress

In a sentence or an intonation group some words are of greater importance than the others. Words which provide most of the information are called **content/notional words,** and those words which do not carry so much information are called **function/structure/form words.** Content words are brought out in speech by means of **sentence-stress (or utterance-level stress).**

Sentence stress/utterance-level stress is a special prominence given to one or more words according to their

relative importance in a sentence/utterance. The general rule in all languages is that the most important information in a phrase or longer utterance will be highlighted, that is will receive prominence through some kind of accentuation of a particular word or a group of words.

Under normal, or unmarked, conditions, it is the **content words** (nouns, verbs, adjectives, adverbs) that are accentuated by pitch, length, loudness or a combination of the prosodic features. **Function words** (prepositions, articles, pronouns) and affixes (suffixes and prefixes) are **deemphasized** or **backgrounded** informationally by destressing them. When any word receiving stress has more than one syllable, it is only the word's most strongly stressed syllable that carries the sentence stress.

Function words usually have strong forms when they are:

a) at the end of the sentence, e. g. *What are you looking **at?** Where are you **from**?*

b) used for emphasis, e. g. *Do you want this one? No. Well, which one **do** you want? **That** one.*

c) used for contrast, *He is working so hard. **She** is but not **he**.*

In ordinary, rapid speech such words can occur much more frequently in their weak form than in their strong form.

The main function of sentence stress is to single out **the focus/the communicative centre** of the sentence which introduces new information.

Sentence Focus. Within a sentence/an intonation unit, there may be several words receiving sentence stress but only one main idea or prominent element. Speakers choose what information they want to highlight in an utterance/sentence. The stressed word in a given sentence which the speaker wishes to highlight receives prominence and is referred to as the (information) focus/the semantic center.

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When a conversation begins, **the focus/the semantic center** is usually **on the** last **content** word, e. g. *Give me a HELP. What's the MATTER? What are you DOING?*

Words in a sentence can express **new information** (i. e. something mentioned for the first time (**rheme**)) or **old information** (i. e. something mentioned or referred to before (**theme**)). Within an intonation unit, words expressing old or given information (i. e. semantically predictable information) are unstressed and are spoken with lower pitch, whereas words expressing new information are spoken with strong stress and higher pitch. Here is an example of how prominence marks **new** versus **old** information. Capital letters signal new information (strong stress and high pitch):

A. *I've lost my HAT.*
B. *What KIND of hat?*
A. *It was a SUN hat.*
B. *What COLOR sun hat?*
A. *It was YELLOW. Yellow with STRIPES.*
B. *There was a yellow hat with stripes in the CAR.*
A. *WHICH car?*

In sum, sentence stress **stress** helps the speaker emphasize the most significant information in his or her message.

9.3. Rhythm

Speech rhythm is traditionally defined as recurrence of stressed syllables at more or less equal intervals of time in a speech continuum. We also find a more detailed definition of speech rhythm as the regular alternation of acceleration and slowing down, of relaxation and intensification, of length and brevity, of similar and dissimilar elements within a speech event. In the present-day linguistics rhythm is analysed as a system of similar adequate elements.

To acquire a good English speech rhythm, the learner should: 1) arrange sentences into intonation groups; 2) then

into rhythmic groups; 3) link every word beginning with a vowel to the preceding word; 4) weaken unstressed words and syllables and reduce vowels in them; 5) make the stressed syllables occur regularly at equal periods of time.

Maintaining a regular beat from stressed syllable to stressed syllable and reducing intervening unstressed syllables can be very difficult for Ukrainian learners of English. Their typical mistake is not giving sufficient stress to the content words and not sufficiently reducing unstressed syllables. Giving all syllables equal stress and the lack of selective stress on key/content words actually hinders native speakers' comprehension.

The more organized the speech is the more rhythmical it appears, poetry being the most extreme example of this. Prose read aloud or delivered in the form of a lecture is more rhythmic than colloquial speech. On the other hand, rhythm is also individual – a fluent speaker may sound more rhythmical than a person searching for the right word and refining the structure of his phrase while actually pronouncing it. It should be also noted that there are many factors which can disrupt the potential rhythm of a phrase. The speaker may pause at some points in the utterance, may be interrupted, may make false starts, repeat a word, correct oneself and allow other hesitation phenomena.

The ability to process, segment, and decode speech depends not only on the listener's knowledge of lexicon and grammar but also on being able to exploit knowledge of the phonetic means. It has been proved that the incoming stream of speech is not decoded on the word level alone. There are the following four strategies (holding the stream of speech in short-term memory) which the speakers employ to process incoming speech:

1) listeners **attend to stress** and **intonation** and **construct a metrical template** – a distinctive pattern of strongly and weakly stressed syllables – **to fit the utterance;**

2) they **attend to stressed vowels** (it should be noted, however, that errors involving the perception of the stressed vowels are rare among native speakers);

3) they **segment the incoming stream of speech** and **find words** that **correspond to the stressed vowels** and their **adjacent consonants;**

4) they **seek a phrase** – with grammar and meaning – compatible with the metrical template identified in the first strategy and the words identified in the third strategy.

These exemplified strategies suggest that in decoding speech listeners perform the following processes related to pronunciation:

1) discerning intonation units;

2) recognizing stressed elements;

3) interpreting unstressed elements;

4) determining the full forms underlying reduced speech.

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QUESTIONS

1. Define prosody.
2. Define intonation pattern.
3. What is nucleus? What other synonymic terms do you know?
4. What is a level tone?
5. What is a falling tone?
6. What is a rising tone?

7. What are the components of the intonation pattern in English?

8. What are the types of pre-nucleus?

9. What pitch ranges are distinguished?

10. What pitch levels are there in English?

11. Define the tempo of speech.

12. What kind of pauses are there in English?

13. What functions of intonation are distinguished by P. Roach?

14. Define sentence stress/utterance-level stress?

15. What is its main function ? What does deictic mean?

16. Discuss cases when function words are used in their strong and weak forms.

17. What is the sentence focus and where is it located in unmarked utterances?

18. How can a speaker place special emphasis on a particular element in anutterance?

19. How would you define the role of sentence stress/utterance-level stress?

20. What is necessary for a learner to acquire a good English speech rhythm?

PRACTICAL TASK

1. Mark the nuclear tone you think is appropriate in the following responses.

Verbal context	Response-utterance	Nuclear tone
It looks nice for a swim.	It's rather cold *(doubtful)*	
I've lost my ticket.	You're silly then *(stating the obvious)*	

You can't have an ice-cream.	Oh, please *(pleading)*	
What times are the buses?	Seven o'clock, seven thirty, ...*(listing)*	
She won the competition.	She did! *(impressed)*	
How much work have you gotto do?	I've got to do the shopping *(and morethings after that)*	
Will you go?	I might. (*uncertain*)	

2. Define the sentence focus in every case.

Mary told John all the secrets. (Not just a few secrets)

Mary told John all the secrets. (She didn't tell Richard, or Harold or...)

Mary told John all the secrets. (She didn't hint, imply them...)

Mary told John all the secrets. (It wasn't Angela, or Beatrice or...)

Mary told John all the secrets. (She told him not the news, or the story...).

3. Divide the sentences into rhythmic groups attaching the unstressed syllable to the preceding stressed syllable rather than the following one.

Thank you for the **pre**sent**.**

Somebody **called** you when you were **out.**

I would have **tried** to **see** his **point** of **view.**

Per**haps** we might **go** to the movie to**gether** for once.

I should **think** it would be **bet**ter to **wait** till tomorrow.

UNIT 10. VARIETIES OF ENGLISH PRONUNCIATION

10.1. The Study of Variety

Differences between accents are of two main sorts: **phonetic** and **phonological.** When two accents differ from each other only phonetically, we find the same set of phonemes in both accents, but some or all of the phonemes are realised differently. There may also be differences in stress or intonation, but not such as would cause a change in meaning. As an example of phonetic differences at the segmental level, it is said that Australian English has the same set of phonemes and phonemic contrasts as BBC pronunciation, yet Australian pronunciation is so different from that accent that it is easily recognised.

Many accents of English also differ noticeably in intonation without the difference being such as would cause a difference in meaning; some Welsh accents, for example, have a tendency for unstressed syllables to be higher in pitch than stressed syllables. Such a difference is, again, a phonetic one. An example of a phonetic (non-phonological) difference in stress would be the stressing of the final syllable of verbs ending in *'-ise'* in some Scottish and Northern Irish accents (e. g. 'realise' [riə'laiz]).

Phonological differences are of various types: again, we can divide these into segmental and suprasegmental. Within the area of segmental phonology, the most obvious type of difference is where one accent has a different number of phonemes (and hence of phonemic contrasts) from another. Many speakers with northern English accents, for example, do not have a contrast between [ʌ] and [ʊ], so that *'luck'* and *'look'* are pronounced identically (both as [lʊk]); in the case of consonants, many accents do not have the phoneme [h], so that there is no difference in pronunciation between *'art'* and *'heart'*.

The phonemic system of such accents is therefore different from that of the BBC accent. On the other hand, some accents differ from others in having more phonemes and phonemic contrasts. For example, many northern English accents have a long [e:] sound as the realisation of the phoneme symbolised [ei] in BBC pronunciation (which is a simple phonetic difference); but in some northern accents there is both an [ei] diphthong phoneme and also a contrasting long vowel phoneme that can be symbolised as [e:]. Words like *'eight'*, *'reign'* are pronounced [eit], [rein] , while *'late'*, *'rain'* (with no [g] in the spelling) are pronounced [le:t], [re:in].

A more complicated kind of difference is where, without affecting the overall set of phonemes and contrasts, a phoneme has a distribution in one accent that is different from the distribution of the same phoneme in another accent. The clearest example is [r], which is restricted to occurring in pre-vocalic position in BBC pronunciation, but in many other accents is not restricted in this way. Another example is the occurrence of [j] between a consonant and [u:], [ʊ] or [ʊə]. In BBC pronunciation we can find the following: *'pew'* [pju:], *'tune'* [tju:n], *'queue'* [kju:]. However, in most American accents and in some English accents of the south and east we find that, while *'pew'* is pronounced [pju:] and *'queue'* as [kju:], *'tune'* is pronounced [tu:n]; this absence of [j] is found after the other alveolar consonants; hence; *'due'* [du:], *'new'* [nu:]. In Norwich, and other parts of East Anglia, we find many speakers who have no consonant + [j] clusters at the beginning of a syllable, so that *'music'* is pronounced [mu:zik] and *'beautiful'* as [bu:tifl].

We also find another kind of variation: in the example just given above, the occurrence of the phonemes being discussed is determined by their phonological context; however, sometimes the determining factor is lexical rather than phonological. For example, in many accents of the Midlands

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and north-western England a particular set of words containing a vowel represented by *'o'* in the spelling is pronounced with [ʌ] in BBC but with [ɒ] in these other accents; the list of words includes *'one', 'none', 'nothing', 'tongue', 'mongrel', 'constable'*, but does not include some other words of similar form such as *'some'* [sʌm] and *'ton'* [tʌn]. One result of this difference is that such accents have different pronunciations for the two members of pairs of words that are pronounced identically (i. e. are homophones) in BBC – for example, *'won'* and *'one'*, *'nun'* and *'none'*.

It would be satisfying to be able to list examples of phonological differences between accents in the area of stress and intonation but, unfortunately, straightforward examples are not available. We do not yet know enough about the phonological functions of stress and intonation, and not enough work has been done on comparing accents in terms of these factors. It will be necessary to show how one accent is able to make some difference in meaning with stress or intonation that another accent is unable to make. Since some younger speakers seem not to distinguish between the noun *'protest'* and the verb *'protest'*, pronouncing both as ['prəʊtest], we could say that in their speech a phonological distinction in stress has been lost, but this is a very limited example.

10.2. Geografical Variation

For a long time, the study of variation in accents was part of the subject of **dialectology,** which aimed at identification of all the ways in which a language differed from place to place. Dialectology in its traditional form is therefore principally interested in geographical differences; its best-known data-gathering technique was to send researchers (usually called "field workers") mainly into rural areas (where the speakers were believed to be less likely to have been influenced by other accents), to find elderly speakers (whose speech was believed

to have been less influenced by other accents and to preserve older forms of the dialect) and to use lists of questions to find information about vocabulary and pronunciation, the questions being chosen to concentrate on items known to vary a lot from region to region. Surveys of this kind have provided the basis for many useful generalisations about geographical variation, but they have serious weaknesses: dialectology concentrated too much on rural varieties, tended to be interested in archaic forms of the language and took little notice of variation due to social class, education and other such factors. More recent research has tended to be carried out within the framework of **sociolinguistics,** and has tried to cover urban speech with a balanced coverage of ages and social classes.

Studies of different accents often concentrate on small communities, but for our purposes it will be more useful to look briefly at differences between some of the largest

groups of speakers of English. A word of caution should be given here: it is all too easy to talk about such things as "Scottish English", "American English", and so on, and to ignore the variety that inevitably exists within any large community of speakers. Each individual's speech is different from any other's; it follows from this that no one speaker can be taken to represent a particular accent or dialect, and it also follows that the idea of a standard pronunciation is a convenient fiction, not a scientific fact.

American. In many parts of the world, the fundamental choice for learners of English is whether to learn an American or a British pronunciation, though this is by no means true everywhere. Since we have given very little attention to American pronunciation in this course, it will be useful at this stage to look at the most important differences between American accents and the BBC accent. It is said that the majority of American speakers of English have an accent that is often referred to as **General American (GA);** since it is the

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American accent most often heard on international radio and television networks, it is also called **Network English.** Most Canadian speakers of English have a very similar accent (few British people can hear the difference between the Canadian and American accents, as is the case with the difference between Australian and New Zealand accents). Accents in America different from GA are mainly found in New England and in the "deep south" of the country, but isolated rural communities everywhere tend to preserve different accents; there is also a growing section of American society whose native language is Spanish (or who are children of Spanish speakers) and they speak English with a pronunciation influenced by Spanish.

The most important difference between GA and BBC is the distribution of the [r] phoneme, GA being rhotic (i. e. [r] occurs in all positions, including before consonants and at the end of utterances). Thus where BBC pronounces *'car'* as [kɑ:] and *'cart'* as [kɑ:t], GA has [kɑ:r] and [kɑ:rt]. Long vowels and diphthongs that are written with an *'r'* in the spelling are pronounced in GA as simple vowels followed by [r]. We can make the following comparisons:

	BBC	**GA**
'car'	[kɑ:]	[kɑ:r]
'more'	[mɔ:]	[mɔ:r]
'fear'	[fiə]	[fir]
'care'	[keə]	[ker]
'tour'	[tʊə]	[tʊr]

American vowels followed by [r] are strongly "r-coloured", to the extent that one often hears the vowel at the centre of a syllable as a long [r] with no preceding vowel. The GA vowel in *'fur'*, for example, could be transcribed as [ɜ:r] (with a transcription that matched those for the other long vowels in the list above), but it is more often transcribed ɝ with a

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diacritic ˞ to indicate that the whole vowel is "r-coloured". Similarly, the short "schwa" in GA may be r-coloured and symbolised [ə˞] as in *'minor'* [mainrə˞] . It would be wrong to assume that GA has no long vowels like those of the BBC accent: in words like *'psalm', 'bra', 'Brahms'*, where there is no letter 'r' following the 'a' in the spelling, a long non-rhotic vowel is pronounced, whose pronunciation varies from region to region.

One vowel is noticeably different: the [ɒ] of *'dog', 'cot'* in BBC pronunciation is not found in GA. In most words where the BBC accent has [ɒ] we find [ɑ:] or [ɔ:], so that *'dog'*, which is [dɒg] in BBC, is [dɑ:g] or [dɔ:g] in American pronunciation. In this case, we have a phonological difference, since one phoneme that is present in BBC pronunciation is absent in American accents. Other segmental differences are phonetic: the [1] phoneme is almost always pronounced as a "dark 1" in American English: the sound at the beginning of *'like'* is similar to that at the end of *'mile'*.

The pronunciation of [t] is very different in American English when it occurs at the end of a stressed syllable and in front of an unstressed vowel. In a word like *'betting'*, which in BBC pronunciation is pronounced with a [t] that is plosive and slightly aspirated, American speakers usually have what is called a "flapped r" in which the tip of the tongue makes very brief contact with the alveolar ridge, a sound similar to the [r] sound in Spanish and many other languages. This is sometimes called "voiced t", and it is usually represented with the symbol [ɾ].

There are many other differences between American and English pronunciation, any of them the subject of comic debates such as "You say tomato [tə'meiɾəʊ] and I say tomato [tə'mɑ:təʊ]".

Scottish. There are many accents of British English, but one that is spoken by a large number of people and is radically different from BBC English is the Scottish accent. There is much variation from one part of Scodand to another; the accent of Edinburgh is the one most usually described. Like the American accent described above, Scottish English pronunciation is essentially rhotic and an 'r' in the spelling is always pronounced; the words *'shore'* and *'short'* can be transcribed as [ʃɔr] and [ʃɔrt]. The Scottish [r] sound is usually pronounced as a "flap" or "tap" similar to the [r] sound in Spanish.

It is in the vowel system that has the most important differences between BBC pronunciation and Scottish English. As with American English, long vowels and diphthongs that correspond to spellings with 'r' are composed of a vowel and the [r] consonant, as mentioned above. The distinction between long and short vowels does not exist, so that *'good', 'food'* have the same vowel, as do *'Sam', 'psalm' and 'caught', 'cot'*. The BBC diphthongs [ei], [əʊ] are pronounced as pure vowels [e], [o], but the diphthongs [ei], [ai], [ɔi] exist as in the BBC accent (though with phonetic differences).

This brief account may cover the most basic differences, but it should be noted that these and other differences are so radical that people from England and from parts of lowland Scotland have serious difficulty in understanding each other. It often happens that foreigners who have learned to pronounce English as it is spoken in England find life very difficult when they go to Scotland, though in time they do manage to deal with the pronunciation differences and communicate successfully.

10.3. Other Sources of Variation

Age. Everybody knows that younger people speak differently from older people. This seems to be true in every society, and many people believe that younger people do this

specially to annoy their parents and other people of the older generation, or to make it difficult for their parents to understand what they are saying to their friends. We can look at how younger people speak and guess at how the pronunciation of the language will develop in the future, but such predictions are of limited value: elderly professors can safely try to predict how pronunciation will change over the coming decades because they are not likely to be around to find themselves proved wrong.

The speech of young people tends to show more elisions than that of older people. This seems to be true in all cultures, and is usually described by older speakers as "sloppy" or "careless". A sentence like the following: *'What's the point of going to school if there's no social life?'* might be pronounced in a careful way as (in phonemic transcription) [wɒts ðə pɔint əv gəʊiŋ tə skuːl if ðəz nəʊ səʊʃl laif], but a young speaker talking to a friend might (in the area of England) say it in a way that might be transcribed phonetically as s pɔ̃ɪʔ gæʊʔ skɔʊ f s næʊ sæʊʃ lɔɪf.

There is an aspect of intonation that has often been quoted in relation to age differences: this is the use of rising intonation in making statements, a style of speaking that is sometimes called "upspeak" or "uptalk". Here is a little invented example:

I was in Marks and Spencer's. In the food section. They had this chocolate cake. I just had to buy some.

A typical adult pronunciation would be likely to use a sequence of falling tones, like this:

I was in 'Marks and ＼Spencers | In the ＼food section | They had this ＼chocolate cake | I just 'had to ＼buy some

But the "upspeak" version would sound like this:

I was in 'Marks and ⁄Spencers | In the ⁄<u>food</u> section | They had this ⁄<u>choc</u>olate cake | I just 'had to \<u>buy</u> some

It has a falling tone only on the last tone-unit. It is widely believed that this style of intonation arose from copying young actors in Australian and American soap operas. One thing that keeps it alive in young people's speech is that older people find it so intensely irritating. It is believed to be a passing fashion that will not last long.

Social and class differences. We can find differences in pronunciation (as well as in other fields of linguistic analysis) resulting from various factors including (in addition to geographical origin) one's age and sex, social class, educational background, occupation and personality. In addition, various situational factors influence pronunciation, such as the social relationship between speaker and hearer, whether one is speaking publicly or privately, and the purposes for which one is using language. Some people (who usually turn out to do well in phonetic training) find that in speaking to someone with a different accent their pronunciation gets progressively more like that of the person they are speaking to, like a chameleon adapting its colour to its environment.

Style. Many linguists have attempted to produce frameworks for the analysis of style in language. There is not space for us to consider this in detail, but we should note that, for foreign learners, a typical situation – regrettably, an almost inevitable one – is that they learn a style of pronunciation which could be described as careful and formal. Probably their teachers speak to them in this style, although what the learners are likely to encounter when they join in conversations with native speakers is a "rapid, casual" style. We all have the ability to vary our pronunciation to suit the different styles of speech that we use. Speaking to one's own children, for example, is a very different activity from that of speaking to

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adults that one does not know well. In broadcasting, there is a very big difference between formal news-reading style and the casual speech used in chat shows and game shows. Some politicians change their pronunciation to suit the context: it was often noticed that Tony Blair, when he was prime minister, would adopt an "Estuary English" style of pronunciation when he wanted to project an informal "man of the people" style, but a BBC accent when speaking on official state occasions. In the former style, it was not unusual to hear him say something like

'We've got a problem' with a glottal stop replacing the [t] in *'got'*:

wiv gɒʔ ə prɒbləm.

Rhythm forms an important part of style: careful, deliberate speech tends to go with regular rhythm and slow speed. Casual speech, as well as being less rhythmical and faster, tends to include a lot of "fillers" – such as hesitation noises (usually written *'um'* or *'er'*) or exaggeratedly long vowels to cover a hesitation. It should now be clear that the pronunciation described in this course is only one of a vast number of possible varieties. The choice of a slow, careful style is made for the sake of convenience and simplicity; learners of English need to be aware of the fact that this style is far from being the only one they will meet, and teachers of English to foreigners should do their best to expose their students to other varieties.

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QUESTIONS

1. Characterise the differences between accents.

2. What is the characteristic feature of some Welsh accents?

3. What is the most obvious type of accent difference within the area of segmental phonology?

4. Give the examples when a phoneme has a distribution in one accent that is different from the distribution of the same phoneme in another accent.

5. What happens with a particular set of words containing a vowel represented by a letter *'o'* in Midlands and north-western England?

6. What is dialectology?

7. What is the difference between dialectology and sociolinguistics?

8. Characterise General American English.

9. Characterise Scottish English.

10. Describe age variations of English.

11. What are social and class differences of English?

PRACTICAL TASK

Phonological differences between accents are of various types. For each of the following sets of phonetic data, based on non-BBC accents, say what you can conclude about the phonology of that accent.

1) *'sing'* [siŋ]   *'finger'* [fiŋgə]
   'sung' [sʌŋ]   *'running'* [rʌnin]
   'singing' [sirŋin]   *'ring'* [riŋ]

2) *'day'* [de:]   *'you'* [ju:]
   'buy' [bai]   *'me'* [mi:]
   'go' [go:]   *'more'* [mɔ:]
   'now' [naʊ]   *'fur'* [fɜ:]
   'own' [o:n]   *'eight'* [e:t]

3) *'mother'* [mʌvə]   *'father'* [fɑ:və]
   'think' [fiŋk]   *'breath'* [bref]
   'lip' [lip]   *'pill'* [piw]
   'help' [ewp]   *'hill'* [iw]

4) *'mother'* [mʌðər]   *'father'* [fɑ:ðər]
   'car' [kɑ:r]   *'cart'* [kɑ:rt]

'area'	[e:riəl]	*'aerial'*	[e:riəl]
'idea'	[aidiəl]	*'ideal'*	[aidiəl]
'India'	[indiəl]	*'Norma'*	[nɔ:məl]
5) *'cat'*	[kat]	*'plaster'*	[pla:stər]
'cart'	[kɑ:rt]	*'grass'*	[grɑ:s]
'calm'	[kɑ:m]	*'gas'*	[gas]

Навчальне видання

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ВСТУП ДО ТЕОРЕТИЧНОЇ ФОНЕТИКИ АНГЛІЙСЬКОЇ МОВИ

Навчальний посібник

(Англійською мовою)

Художнє оформлення обкладинки Н. В. Таценко
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Комп'ютерне верстання: Н. В. Таценко, І. Л. Ткаченко