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ТЕОРЕТИЧЕСКАЯ ФОНЕТИКА АНГЛИЙСКОГО ЯЗЫКА

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В пособии рассматриваются основные проблемы современной фонетики *английского языка: фонологический анализ звуков, слогообразование* и слогоделение, фонетическая природа и характерные особенности английского словесного ударения, интонация, вариативность произносительной нормы английского языка. Введены разделы, освещающие принципы акустической классификации звуков, фоностилистические особенности английской речи, вопросы фонетической интерференции при двуязычии, а также способы графического изображения интонации.

Предназначается студентам факультетов английского языка.

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FOREWORD

The book is designed for students of English who have undertaken the study of a theoretical course in English phonetics at Pedagogical Institutes and Faculties of Foreign Languages.

The authors of the book had two objects in view: firstly, to give the prospective teachers of English necessary information on theoretical problems of English phonetics and, secondly, to acquaint them with some of the diverse views of Soviet and foreign linguists. The authors have put forward the opinions of the foremost linguists on the points at issue and expressed their own attitude to them. An endeavour has been made to treat the main problems of theoretical and experimental phonetics with due reference to the latest findings in this field, and to draw the readers' attention to phonetic phenomena which are in the forefront of modern linguistics, such as phonetic styles and prosodic interference. An attempt has also been made to show the relevance of theoretical studies in solving practical problems connected with language teaching.

Every chapter is followed by exercises. Their purpose is not so much to control understanding as to encourage further reading. The exescises contain questions which stimulate independent decisions, contraversial views which are to be refuted or supported, and assignments which require reference to pronouncing dictionaries and analysis of the phonetic features of speech.

Although this book is intended primarily for students, it may be of interest to teachers and to all those concerned with English phonetics.

The authors make grateful acknowledgement to Prof. V.V. Artyomov, Prof. V.A. Vassilyev and the late Prof. K.K.Baryshnicova who have inspired and encouraged this work.

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CHAPTER 1. THE ROLE OF SOUND PHENOMENA IN COMMUNICATION

THE PHONETIC SYSTEM OF A LANGUAGE

Language – *"the immediate actuality of thought"* [46] *and "the most* important means of human intercourse" [47] exists in two main speech forms: oral and written. Speech is a manifestation of language. It is a process of communication by means of language. Both the oral and written speech forms have a material substance. In oral speech the substance is phonic*, it is the *sound substance or the sound matter. In written speech the substance is* graphic.

A substance is not in itself language, but it is what forms patterns of language. The sound substance gives shape to a spoken message in communication, it forms units of the phonetic system of a concrete language.

The phonetic system of a language is a set of phonetic units arranged in an orderly way to replace each other in a given framework. In fact it contains two systems (or *levels*) – *segmental and suprasegmental, or prosodic, each of* which is a specially organized language system with a certain number of its units. Segmental units are elementary sounds, vowels and consonants which form the vocalic and the consonantal subsystems. Prosodic units are syllables, accentual (rhythmic) units, intonation groups, utterances, which form the *subsystems of pitch, stress, rhythm, tempo, pauses.*

The sound substance is a medium in which the whole system of language is embodied. Segmental and prosodic units serve to form and differentiate units of other subsystems of language, the lexical and grammatical units. The modifications of words and their combination into utterances (sentences) are first of all sound phenomena. The grammatical form of a verb or a noun can be changed only by changing the sounds which compose them. By changing the prosodic structure (intonation) of an utterance one changes the meaning of the utterance. It is clearly seen from the utterances of identical lexical and grammatical structures. For example, "Well ˊdone?" pronounced with the rising tone, is a question, expressing the speaker's uncertainty and desire to get further information. "Well ˋdone!", pronounced with the falling tone, wide *pitch range and greater loudness, is an exclamation, expressing the speaker's* evaluation. The rising–falling tone in the utterance "Well ˆdone" may express a challenging or quizzical attitude on the part of the speaker.

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*The terms *"phonic", "phonetic", "phonetics" come from the Greek word* φωνη (fo:ne:) – sound.

To underline the importance of the sound medium of language H. Gleason notes that to speak any language a person must know nearly all the 100% of its phonetics, while only 50–90% of its grammar and 1% of the vocabulary may be sufficient [24].

ASPECTS OF SOUND PHENOMENA

The ability to form language units is not the only property of the sound medium. In addition to it, the sound medium has its own independent properties as a physical phenomenon. Moreover, it is a product of human activity. Being created by the speaker, the sound medium indicates the speaker's personality (sex, age, individual features) and reveals his physiological and emotional state, geographical origin, education, social status and so on.

Every act of speech presupposes the presence of a person who speaks and a person who listens. The speaker produces sounds, the sounds travel through the air to the listener in the form of complex combinations of sound waves, the listener hears and interprets them. Communication is possible only because the speaker and the listener interpret the sounds as units of the same language.

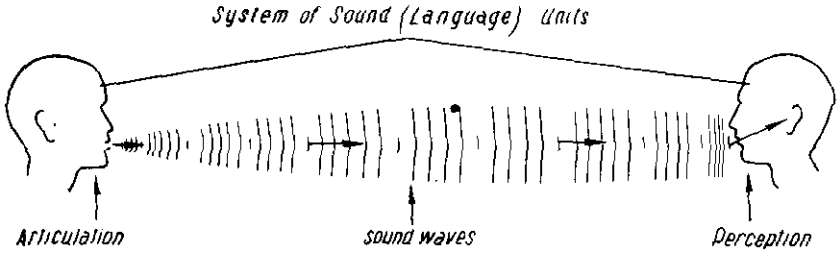

Fig. 1. Stages in the passing of a spoken message.

Consequently, sound phenomena have different aspects, which are closely interconnected: the articulatory aspect, the acoustic, the auditory and the linguistic aspect.

The articulatory (sound–production) aspect. Speech sounds are products of human organs of speech. They result from the activities of the diaphragm, the lungs, the bronchi, the trachea, the larynx with the vocal cords in it, the pharynx, the mouth cavity with the speech organs situated in it and the nasal cavity.

Sound production is impossible without respiration, which consists of two alternating phases – inspiration and expiration. Speech sounds are based chiefly on expiration, though in some African languages there are sounds produced by inspiration.

Expiration, during which speech sounds are produced is called phonic expiration as distinct from quiet breathing. In phonic expiration the air co–

mes from the lungs not freely but in spurts, because during speech the air–passage is periodically blocked by the speech organs. Therefore in speech, expiration lasts much longer than inspiration, whereas in quiet breathing inspiration and expiration each take about the same period of time.

The lungs supply the necessary air–pressure and regulate its force, thus producing variations in the intensity of speech sounds. For example, the air pressure is greater on the peak of the syllable and it is less on its margins.

Sound production actually takes place in the larynx, the pharynx and the oral and nasal cavities. The air–stream coming from the lungs undergoes important modifications in them.

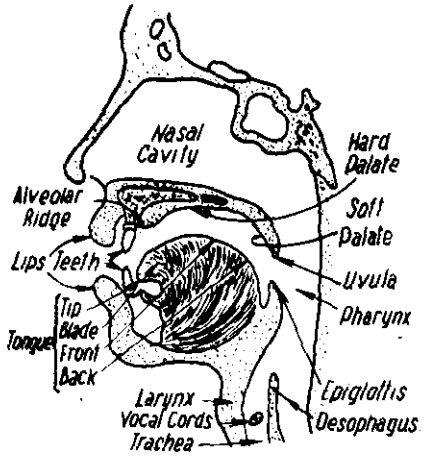

Fig. 2. Organs of speech.

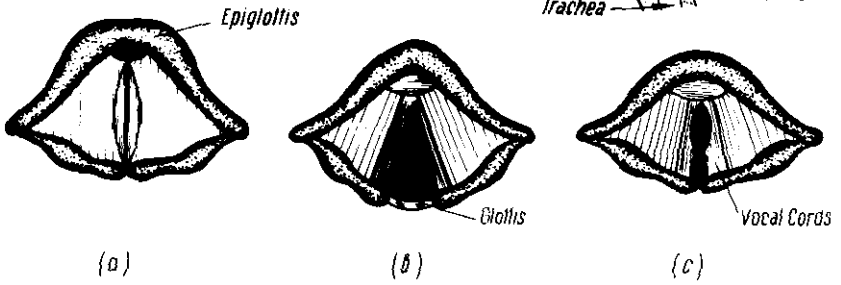

Fig. 3. Diagrams of the vocal cords: (a) tightly closed as for [ʔ]; (b) wide open as for breath ; (c) loosly together and vibrating as for voice.

One part of sound production is phonation, or voice–production.

When the vocal cords, situated in the larynx, are tensed and brought loosely together, the air–pressure below the vocal cords becomes very high and the air comes from the lungs in regular puffs making the vocal cords vibrate. Their vibrations are complex, though mainly regular or periodic. The regular vibrations of the vocal cords are transmitted to the air–stream and the acoustic effect perceived by the human ear is that of a vocal tone. This is what we call voice.

The other part of sound–production *is articulation* which comprises all the movements and positions of the speech organs necessary to pronounce a speech sound. The movements of speech organs modify the shape, size and volume of the supralaryngeal cavities (the pharynx, the mouth and the nasal cavity) thus modifying the voice which comes from the lungs. As a result, a vowel sound of a certain quality is produced.

When in the supralaryngeal cavities there is an obstruction to the airstream, a noise is produced. The character of the noise (friction or plosion), depends on the type of obstruction (a constriction or a complete closure) and determines the particular quality of a consonant. When an *obstruction is* created and the vocal cords vibrate, a voiced consonant is produced. When the vocal cords do not vibrate, the result is a voiceless consonant.

Thus there are two main sources of vibration in the production of speech sounds – the vocal cords and various kinds of obstruction.

The acoustic aspect. *Like any other sound* of nature speech sounds exist in the form of sound waves and have the same physical properties – frequency, intensity, duration and spectrum.

A sound wave is created by a vibration which may be periodic or nonperiodic, simple or complex.

The vocal cords vibrate in such a way that they produce various kinds of waves simultaneously. The basic vibrations of the vocal cords over their whole length produce *the fundamental tone of voice.* The simultaneous vibrations of each part of the vocal cords produce partial tones (overtones or harmonics).

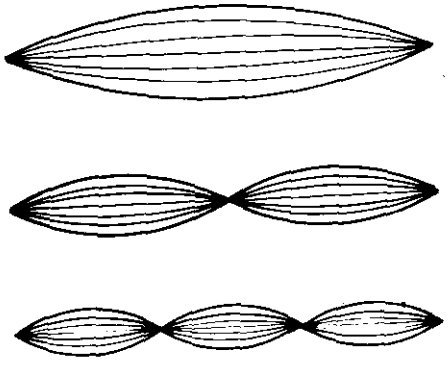

Fig. 4. Vibrations (a) of entire cord; (b) of its parts.

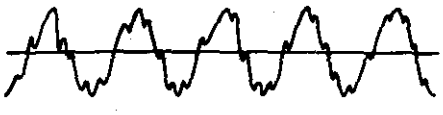

Fig. 5. Complex vibrations.

The number of vibrations per second is called frequency. Frequency is measured in hertz or cycles per second (c/s). Frequency of the basic vibrations of the vocal cords *is the fundamental frequency (marked by Fo). The* fundamental frequency determines the pitch of the voice and forms an acoustic

basis of speech melody. It is relatively low, about 40–400 c/s in the total range of voice. The frequencies of the overtones are much higher.*

The superposition of the fundamental and partial vibrations results in a complex tone.

The complex tone is modified in the oral and nasal resonators. Due to the particular changes in their shape, size and volume the oral and nasal cavities function as an acoustic filter: they intensify certain frequencies contained in the complex tone and weaken the others. Thus the specific qualities of vowel sounds are achieved.

The complex range of intensified frequencies which form the quality of a sound is called the acoustic spectrum of the sound. The intensified frequencies in the spectrum which characterize the quality of a sound and distinguish it from other sounds of different quality are called formants.

Vowel sounds have at least two formants marked by F_1 and F_2, which are together responsible for the particular quality of each vowel type. F_1 is characterized by lower frequencies, F_2 – by higher frequencies. Thus, F_1 of the vowel /a:/ is equal to 800 Hz and F_2 – to 1100 Hz. The formants of /i:/ are equal to 380 Hz and 2500 Hz, respectively.

The formant of the fundamental tone (Fo) is irrelevant to vowel differention. F_0 is present in the spectra of vowels, sonants and voiced conconants because these sounds are formed with voice and it is absent in the spectra of voiceless consonants.

Intensity of speech sounds depends on the amplitude of vibration. Changes in intensity are associated with stress in those languages which have dynamic stress. Intensity is measured in decibels (dB**).

Like any other form of matter, sound exists and moves in time. Any sound has a certain duration. The duration of a sound is the quantity of time during which the same vibrations continue. For this reason the duration of a sound is often referred to as its quantity. The duration of sounds is measured in milliseconds (ms).

The auditory (sound–perception) aspect. Speech sounds may also be analysed from the point of view of perception. The perception of speech sounds involves the activity of our hearing mechanism, which can be viewed in two ways.

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*Each half of the cord vibrates at a frequency twice as great as that of the cord as a whole. Each third vibrates three times faster, each quarter – four times faster, and so on.

**The decibel is one tenth of a bel. The bel is so named after Alexander Graham Bell (1847–1922), inventor of the magnetic telephone.

On the one hand, it is a physiological mechanism which reacts to acoustic stimuli: the human ear transforms mechanical vibrations of the air into nervous stimuli and transmits them to the brain. The listener hears the acoustic features of fundamental frequency, formant frequency, intensity and duration in terms of four perceptible categories of pitch, quality, loudness and length.

On the other hand, it is also a psychological mechanism which selects from the great amount of acoustic information only that which is linguistically significant. The human brain interprets acoustic phenomena in terms of a given language system. In this way, different acoustic stimuli may be interpreted as being the same sound unit. Thus for a Russian the open / ɛ / as in "шэст" and the mid–open / e / as in "дети" are one and the same sound unit, as the difference between them is not singificant in distinguishing words or grammatical forms in Russian. An Englishman would consider these sounds as different sound units since in the English language the former resembles the open / æ /as in "had" and the latter is very much like the mid–open / e /as in "head" which serve to differentiate words. So a listener's reactions are conditioned by his experience of handling his own language.

Our physiological capabilities in perception are limited. The human ear does not perceive all the acoustic features present in a sound wave. Thus, the lower limit of frequency which we can perceive is 16 Hz, the hinger limit is 20 000 Hz. In ideal conditions we can perceive even a difference in 3 Hz, but such small distinctions are not usable in speech.

It should be remembered that perceptible features of sounds are not fully conditioned by the related articulatory and acoustic ones. Our perception of the pitch of the voice depends largely (but not solely) on the fundamental frequency generated by vocal cord vibration. The greater is the frequency, the higher is the pitch of the voice and vice versa. But the perceived pitch variation may also be affected by variations of intensity on the same frequency. By reducing the intensity of a sound we can achieve a high pitch in perception.

Changes in intensity are perceived by our ear as variataions in the loudness of a sound. The greater is the intensity of a sound, the louder is the sound. But our perception of loudness does not depend on intensity alone. A sound or a syllable may be perceived as louder, in comparison with neighbouring sounds or syllables, because of a marked pitch change on it or because it is longer than the others.

Moreover, some sounds, owing to their nature, are louder or more sonorous than others. Thus /a:/ is more powerful than /i:/, and vowels generally have more carrying power than consonants.

Our judgements relating to loudness are not as fine as those relating to either quality or pitch.

Different duration of speech sounds is perceived as a difference in their length. But our perception of length does not always correspond to the actual duration of speech sounds or other units. For example, the length of rhythmic units in an English utterance is considered to be approximately the same since it is a characteristic feature of English rhythm that stressed syllables occur at more or less equal intervals of time. But the actual duration of rhythmic units is far from being equal. This is an example of how our brain interprets from the acoustic material only that which is linguistically significant.

Our hearing mechanism acts as a monitor of what we ourselves are saying. The process of communication would be impossible if the speaker himself did not hear the sounds he pronounces. If the link between listening and pronouncing is disturbed, disturbances in the production of speech sounds are likely to appear. The better we hear the differences between the sounds, the better we pronounce them. Therefore in learning to pronounce the sounds of a foreign language one should bear in mind the importance of ear–training.

The linguistic aspect. Segmental sounds and prosodic features are linguistic phenomena. Representing language units in actual speech, they perform certain linguistic functions. They constitute meaningful units – morphemes, words, word–forms, utterances. All the words of a language consist of speech sounds which are grouped and arranged in the way specific for the language and which are unified by stress. All the utterances consist of words, and, consequently, of sounds; they are characterized by certain pitch–and–stress patterns, temporal features, rhythm.

Most of the meaningful distinctions of the language are based on distinctions in sound.

Sounds and prosodic features serve to differentiate the units they form since communication by means of language is possible only because sound phenomena can be opposed to one another for purposes of differentiating words, word–forms and utterances.

Simultaneously, the sound phenomena enable the listener to identify them as concrete words, word–forms or utterances.

Thus, segmental sounds and prosodic features of speech perform constitutive, distinctive and identificatory functions.

The linguistic aspect of speech sounds is also called the functional or social aspect, because of the role which sound matter plays in the functioning of language as a social phenomenon.

The relations between the articulatory, acoustic, auditory and linguistic aspects of speech sounds can be presented roughly in the following way:

Articulatory characteristics	Acoustic properties	Auditory (perceptible) qualities	Linguistic phenomena
vibrations of the vocal cords	fundamental frequency	pitch	prosody (melody, stress)
different positions and movements of speech organs	formant frequencies	quality (timbre)	phoneme, prosody (stress)
the amplitude of vibrations	intensity	loudness	prosody (stress)
the quantity of time during which the sound is pronounced	duration	length	prosody (tempo, rhythm)

PHONETICS AS A SCIENCE

The study of the sound phenomena of language, in all their aspects and varieties, constitutes the subject of the phonetic science.

Phonetics as a branch of linguistics studies sounds in the broad sense, comprising segmental sounds (vowels and consonants) and prosodic phenomena (pitch, stress, tempo, rhythm, pauses). Phonetics occupies itself with the study of the ways in which the sounds are organized into a system of units and the variation of the units in all types and styles of spoken language. It also studies the acoustic properties of sounds, the physiological basis of sound production and the sound phenomena that reveal the individual peculiarities of the speaker.

Thus the sound medium has a special science all to itself because of the exclusive importance of oral speech as compared with written speech. Oral speech is primary, whereas written speech is secondary (it is constructed on the basis of oral speech). The sound medium needs special attention also because of the complex character of its production and perception. Besides, further development of such technical means of sound transmission as the telephone, the radio, recording and speaking machines, speech recognizers, deaf aids raises a great number of primarily phonetic problems.

Phonetics as a science is a branch of linguistics. Being a science in its own right, it is at the same time closely connected with other linguistic sciences –

grammar, lexicology, stylistics and the history of the language, since the phonetic system of a language, its vocabulary and grammar constitute one indivisible whole. It is also closely interconnected with physiology, biology, physics, pedagogy, psychology, mathematics, cybernetics.

Phonetics has a long history. It was known to the ancient Greeks and Hindus. But as a science in its own right it began to develop in Russia and in Western Europe only in the second half of the 19th century.

BRANCHES OF PHONETICS

Depending on which of sound phenomena is studied, phonetics is subdivided into four main branches.

Articulatory phonetics is concerned with the study of sound as a result of the activities of speech organs. It deals with our voice-producing mechanism and the way we produce sounds, and prosodic phenomena. It studies respiration, phonation (voice-production), articulation and also the mental processes necessary for the mastery of a phonetic system.

Methods employed in articulatory phonetics are experimental. They involve palatography, laryngoscopy, photography, cinematography, X-ray photography, X-ray cinematography, electromyography, and various kinds of technique to study sound-perception.

Besides these objective methods articulatory phonetics uses its oldest, subjective method – the method of direct observation. This method involves observation of the movements of speech organs when pronouncing sounds and analysis of one's muscular sensations during the articulation of speech sounds.

Perceptual (auditory) phonetics occupies itself with the study of man's perception of segmental sounds, pitch variation, loudness and duration. It studies the ways in which sound perception is determined by the phonetic system of a language.

The methods used in perceptual phonetics are also experimental. They include various kinds of auditory tests.

Since sound production and sound perception are physiological processes, articulatory and perceptual phonetics are generally termed physiological phonetics.

Acoustic phonetics is concerned with the acoustic aspect of speech sounds. It studies speech sounds with the help of experimental (instrumental) methods. Various kinds of apparatus are applied for analysing the acoustic structure of segmental sounds and prosodic phenomena. For example, we use a spectrograph to analyse the acoustic spectra of sounds, an oscillograph and an intonograph to analyse frequency, intensity and duration. With the help of an electro-acoustic synthesizer synthetic speech is produced which is a good means of testing the results of the electro-acoustic analysis.

Phonology, or functional phonetics is a purely linguistic branch of phonetics. It deals with the functional aspect of sound phenomena. Phonology sets out to discover those segmental and prosodic features that have a differential value in a language, and it establishes the system of phonemes and prosodemes. It also sets out to determine the frequency of occurrence of these units in syllables, words, rhythmic units and other sequences which form the utterance. The distribution and grouping of phonemes in syllables and words in a particular language are dealt with in an area of phonology which is called phonotactics.

The basis of phonology is the phoneme theory, created in Russia by I. Baudouin de Courtenay and developed by his pupils and followers L.Shcherba, N. Krushevsky and, later, by other Soviet and foreign linguists. Phonology was founded in Prague by a group of linguists (N. Trubetzkoy, R. Jakobson and others).

Phonology of segmental units is often called phonemics, whereas phonology of intonation (prosody) is termed intonology (or prosodemics).

The methods employed by phonology are linguistic.

All the above branches of phonetics are closely connected since the object of their study – speech sounds – is a close unity of acoustic, articulatory, auditory and linguistic aspects. But not all linguists are of the opinion that phonology is an integral part of phonetics.

N. Trubetzkoy [40] claims that phonology should be separated from phonetics. According to the Prague School, established by him, phonetics and phonology are independent sciences: phonetics is a biological science and is concerned with physical and physiological characteristics of speech sounds, phonology is a linguistic science and is concerned with the social function of phonetic phenomena. This point of view is supported by the Danish linguist L.Hjelmslev who advocated total separation between phonetics and phonology. But the vast majority of Soviet phoneticians do not consider it logical to separate function from form and to exclude phonetics from the linguistic sciences [80]. A great number of phoneticians abroad adhere to the same point of view. For instance, B. Malmberg, a Swedish phonetician, writes as follows: "It was a grave error on the part of the Prague School to want to establish a strict separation between phonetics and phonology... The two types of studies are interdependent and condition each other. Consequently it seems preferable to group them together under the traditional general heading of phonetics" [97, p. 97].

Besides the four branches given above, there are other branches of phonetics, such as special, general, historical, descriptive, comparative, applied.

Special phonetics is concerned with the study of the phonetic system of a concrete language. When the phonetic system is studied in its static form at a particular period (synchronically), we deal with

descriptive phonetics. When the system is studied in its historical development (diachronically) we speak about historical, or evolutionary phonetics. Historical phonetics uses the philological method of investigation. It studies written documents and compares the spelling and pronunciation of one and the same word in different periods of the history of the language.

General phonetics is concerned with the study of man's sound-producing possibilities and the functioning of his speech mechanism. It establishes the types of speech sounds which exist in various languages, the way they are produced and the role they play when forming and expressing thoughts. General phonetics is based on the extensive material which is provided by the special phonetics of a number of languages and on the material of other sciences. As a result of this, general phonetics has been able to make a number of general conclusions concerning the complex nature of speech sounds and to formulate a number of theories: the phoneme theory, the theory of syllable formation, theories of stress, intonation, etc.

Theoretical phonetics of a particular language applies those theories to the language it analyses.

Comparative phonetics is concerned with the comparative study of the phonetic systems of two or more languages, especially kindred ones.

By practical, or applied phonetics we mean all the practical applications of phonetics. Phonetics is of considerable importance for other fields of language study, which have made use of the approaches and the linguistic methods worked out by phonetics.

All the branches of phonetics are of great use and importance in teaching the pronunciation of foreign languages. Phonetic data is also made use of in teaching children to read and write their mother tongue; in creating orthographies for unwritten languages.

Phonetics is of great practical importance in the teaching of diction to actors, singers, radio-announcers and other public speakers. In order to speak well and to teach others the proper way of speaking one must understand the mechanism of articulation and the mechanism of phonation. Young teachers should bear it in mind that to teach efficiently they must learn to speak efficiently.

Phonetics is applied in logopedics, i.e. in correcting speech defects and in curing pathological phenomena of speech, such as aphasia. To correct deviations from the pronunciation norm, one must have a good knowledge of normal phonetics.

Phonetics is of great importance in surdo-pedagogics, i.e. teaching normal oral speech to deaf-mutes. The deaf people can, in most cases, use only muscular sensation to control and guide their articulation. Therefore, to teach to speak one must know thoroughly the articulatory aspect of speech sounds.

Phonetics is widely used in the field of sound transmission: in telephony, broadcasting, speech recognition. To build a microphone, a tape recorder, a

spectrograph, a speech synthesizer or any other apparatus capable of transmitting the spoken language, the sound engineer must know acoustic phonetics and, very often, solve the same problems as the linguist does.

Close interaction and collaboration between phonetics and other sciences has given birth to new scientific branches such as technical acoustics, psychophonetics and other phonetic sciences which contributed considerably to the formation of speechology – the science of speech.

EXERCISES

A. Think about the following questions for class discussion:

1. What are the relations between language and speech?
2. Define the phonetic system of a language. What units does it include?
3. What are the two main sources of sound?
4. How does the frequency of the vocal cord vibrations change in the production of the falling tone? (the rising tone?)
5. Why do the sounds of the violin, the guitar and other musical instruments differ? What affects their specific qualities? Is there any analogy in the production of speech sounds?
6. In what way does the listener perceive the acoustic properties of speech sounds? What does perception of pitch and loudness depend on?
7. How would you explain the difference between the physiological and psychological aspects of our hearing mechanism? Which of them is responsible for "hearing the message"? Which is responsible for "understanding the message"? Which of them is involved when we listen to a foreign language that we don't know?
8. Why is it important to train one's hearing abilities in foreign language learning?
9. Why is phonetics placed amog linguistic sciences and not among physiological or physical?

B. Select some examples:

1) to illustrate articulatory and functional distinctions between English and Russian (or Byelorussian) sounds;
2) to illustrate the distinctions in sounds which express distinctions in meaning;
3) to illustrate that an utterance, an act of oral speech, is a concrete manifestation of the whole system of language at work.

CHAPTER 2. ARTICULATORY AND ACOUSTIC ANALYSIS OF ENGLISH SPEECH SOUNDS

PRINCIPLES OF CLASSIFICATION OF SPEECH SOUNDS

In all languages speech sounds are traditionally divided into two main types – vowels and consonants.

From the articulatory point of view the main principles of the division are as follows: the presence or absence of obstruction; the distribution of muscular tension; the force of the air stream coming from the lungs.

Vowels are speech sounds based on voice which is modified in the supra–laryngeal cavities. There is no obstruction in their articulation. The muscular tension is spread evenly throughout the speech organs. The force of the air stream is rather weak.

Consonants are speech sounds in the articulation of which there is an obstruction, the removal of which causes noise – plosion or friction. The muscular tension is concentrated at the place of obstruction. The air stream is strong.

The articulatory boundary between vowels and consonants is not well marked. There exist speech sounds that occupy an intermediate position between vowels and consonants and have common features with both the vowels and consonants. These are sonorants /m, n, ŋ , j, l, w, r/. There is an obstruction in their articulation and the muscular tension is concentrated at the place of obstruction as in the production of consonants. Like vowels they are largely based on voice. The air passage in their production is rather wide and the force of the air is weak as in the case of vowels. The wide passage for the air stream in the articulation of sonorants means that the oral and nasal cavities are active. It results in greater audibility (sonority, carrying power, or perceptibility) of the sounds – a feature characteristic of vowels. Because of their strong vocalic characteristics sonorants /w, j, r/ are often referred to as semivowels. Due to their great sonority some sonorants can be syllabic in some particular positions (e.g. teɪ – bl̩; gɑ: –dn̩). But generally sonorants do not perform the function of syllable formation. That is why they are attri–buted to consonants. Thus, consonants can be subdivided into sonorants and noise consonants (or contoids, after K.Pike [103]).

From the acoustic point of view vowels are complex periodic vibrations – tones. They are combinations of the main tone and overtones intensified by the supralaryngeal cavities.

Consonants are non–periodic vibrations – noises. Voiceless consonants are pure noises. Voiced consonants are actually a combination of noise and tone. And sonants are predominantly sounds of tone with an admixture of noise.

Thus, the acoustic boundary between vowels and consonants is not well marked either.

Numerous experiments show that the criterion which justifies the division of speech sounds into vowels and consonants is the physiological criterion put forward by V. Bogoroditzky [13]. It is the distinction in the groups of muscles, which operate in vowel and consonant production, and the resulting different articulatory energy in vowel and consonant production.

THE ARTICULATION BASIS OF ENGLISH

Due to the identical structure of speech organs of people of different races and nationalities, all languages have sounds of identical types (e.g. Russian /Н/ and English /n/). But being identical typologically, the sounds are not identical articulatorily. Their articulatory distinctions are explained by the fact that each language has its own tendencies and modes of articulation. These articulatory habits characteristic of all the native speakers of a language are called the articulation basis of the language.

The articulation basis of English differs from that of Russian: voiced consonants are less energetic, whereas voiceless consonants are much more energetic, the lips do not protrude for / ɔ:, u:/ as they do for /o, y/, the tongue is slightly drawn back.

The following quotation from Webster's New International Dictionary of the English language presents some marked peculiarities of the English articulatory basis: "Every language has certain characteristics of pronunciation which give it distinctive phonetic character. In English, the tongue, when articulating, is characterized by laxity. It is not made so tense as in many other languages, as the French, for instance. In articulating the front vowels it is not pushed so far forward, nor in the back vowels drawn so far back. There is also a constant tendency to lower and flatten the tongue, hollow the front of it more or less, like a spoon, and to draw it away from the teeth, the lips are inactive... English articulation may, in general, be characterized as sluggish or muffled, the French and German, for example, as vigorous and clear" [112, p. xlvii].

The notion of the articulation basis of a language can be broadened if we analyse not only the articulation part in sound production but phonation as well. The phonational habits of the native speakers of different languages may differ depending on the character of sounds (such as clicks and suction which are pronounced during inspiration, checked vowels in English which require a great force of utterance at the end of their articulation). The phonational habits may also be dependent on the amount of consonants that occur in consonantal clusters, and on the character of sound transitions in connected speech.

The articulation basis, therefore, comprises both the articulatory and phonational habits of the native speakers of a language.

The peculiarities of the articulation basis of English determine the specific articulatory characteristics of its sound system, the character of sound modifications in connected speech and the physiological mechanism of syllable formation.

THE ARTICULATORY CLASSIFICATION OF ENGLISH SPEECH SOUNDS

A. Vowels

The various qualities (timbres) of English vowels are determined by the *oral resonator – its size, volume and shape. The resonator is modified* by the most movable speech organs – the tongue and the lips. Moreover, the quality of a vowel depends on whether the speech organs are tense or lax and whether the force of articulation weakens or is stable.

The position of the speech organs in the articulation of vowels may be kept for a variable period of time.

All these factors predetermine the principles according to which vowels *are classified:*

– according to the horizontal movement of the tongue:

– according to the vertical movement of the tongue;

– according to the position of the lips;

– according to the degree of the muscular tension of the articulatory organs;

– according to the force of articulation at the end of a vowel;

– *according to the stability of articulation;*

– according to the length of a vowel.

1. According to the horizontal *movement* of the tongue, English vowels are classified into f r o n t: /i:, e, æ / and the nuclei of the diphthongs /eɪ , ɛə , ɑɪ /, f r o n t – r e t r a c t e d: /I/ and the nucleus of the diphthong /Iə /, m i x e d: / ɜ:, ə /, b a c k–a d v a n c e d: / ʊ , ʌ , ɔ:/ and the nuclei of the diphthongs /oʊ , ʊə / and b a c k: /u:, ɔ:, ɒ /.

2. According to the vertical movement of the tongue, English vowels have been traditionally subdivided into c l o s e (h i g h), m i d and o p e n (l o w). *It is insufficient, however, to define the articulatory features of vo*wels in terms of these 3 degrees of opening of the mouth cavity, since functionally different vowels / i:–ɪ /, /u:–ʊ /, / ɔ:–ɒ / are not described from the point of view of their articulation.

Soviet phoneticians G. Torsuyev [35], A. Trakhterov [39], V. Vassilyev [110] classify these sounds in a more precise manner subdividing each class (close, mid, open) into a n a r r o w and a b r o a d variation. Thus, ac*cording to the height* of the tongue, vowels can be classified as high–narrow

ɪ:, u:/, high–broad / ɪ , ʊ /, mid–narrow /e, ɜ :, o(ʊ)/, mid–broad / ə,ɛ (ɵ)/, low–narrow / ʌ , ɔ:/, low–broad /æ , ɑ(ɪ , ʊ), ɑ:,ɒ /.

Their classification reflects the distinctive differencies in the quality of the historically long and historically short vowels.

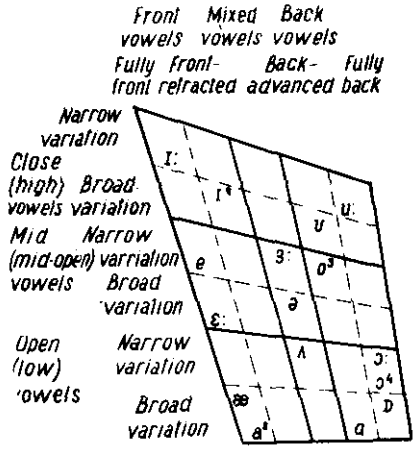


Fig. 6. Table of English vowels:
[1] [ɛ] – the nucleus of the diphthong [ɛ ə],
[2] [ɑ] – the nucleus of the diphthongs [ɑɪ] and [ɑʊ],
[3] [ɔ] – the nucleus of the diphthong [ɔ ʊ],
[4] [ɔ] – the nucleus of the diphthong [ɔɪ].

3. According to the position of the lips, i.e. whether they are rounded, spread or neutral, English vowels are classed into r o u n d e d / ɔ :, ɒ , u:, ʊ / and u n r o u n d e d / ɪ :, ɪ , e, æ , ʌ , ɑ :, ɜ :, ə /. The subdivision of vowels into lipspread and lip–neutral is unnecessary for a phonological analysis, but may be useful in describing concreate realizations of the phonemes.

4. According to the degree of muscular tension, English vowels are classified into t e n s e and l a x. Thus, for instance, English /i:/ and /u:/ are characterized as tense, because the speech organs that participate in their formation (the tongue and the lips) are considerably tensed. In the articulation of short / ɪ / and / ʊ / these organs are relatively relaxed, so these vowels are characterized as lax.

All the long vowels are believed to be tense, while short vowels are lax [35]. This is due to the long period of time for which the speech organs are kept in a certain position and this, in its turn, requires greater muscular tension of the speech organs. Not all phoneticians share this opinion. According to D.Jones [84] only the long /i:/ and /u:/ may be considered as tense. D. Jones applies the terms "tense" and "lax" only to close vowels, because in the case of open vowels it is difficult to define whether there is any tenseness or not. This point should be clarified with the help of special electromyographic investigations.

5. According to the force of articulation at the end of the vowel (the character of the end), English vowels are subdivided into f r e e and c h e c k e d. Free vowels are pronounced in an open syllable with a weakening in the force

of articulation towards their end, i.e. they have a fading character. These are all the English long monophthongs and diphthongs and unstressed short vowels.

Checked vowels are those in the articulation of which there is no weakening of the force of articulation. They are pronounced abruptly at the end, immediately followed by a consonant that checks them. These are historically short vowels under stress.

6. According to the stability of articulation, English vowels are classed into monophthongs / iː , ɪ , e , æ , ɑː , ʌ , ɔː , ɒ , uː , ʊ /, diphthongs (eɪ , aɪ , ɒɪ , aʊ , oʊ , ɪə , ɛə , oə , ʊə / and diphthongoids, or diphthongized vowels / iː , uː /.

The stability of articulation as in the case of monophthongs or its instability as in the case of diphthongs and diphthongoids is, actually, the stabitity (or instability) of the shape of the oral resonator. When the position of the tongue and the lips during the pronunciation of a vowel is altered to some extent, a new vowel quality is produced. In diphthongs two vowel elements are distinguished – the nucleus and the glide. The nucleus is stronger, more definite in timbre, more prominent and syllabic.

In different languages the nucleus of a diphthong may be either the first or the second element. Diphthongs that consist of a nucleus followed by a glide are falling diphthongs, because the total amount of articulatory energy falls towards the second element. Those consisting of a glide followed by a nucleus are rising diphthongs, since the articulatory energy rises towards second element. English diphthongs are falling. Rising diphthongs are common in Italian.

In some phonetic contexts English diphthongs / ɪə , ʊə / may be pronounced with the second element stronger and more prominent than the first, and are, consequently, rising.

When the diphthong /oʊ / is pronounced as an exclamation with the high rising tone, the /ʊ/ element in it is as strong and prominent as /o/. So /oʊ / can be called a level diphthong.

D. Jones points out that in unstressed syllables the / ɪ / and / ʊ / elements in / ɪə /, / ʊə / may be weaker than the second element / ə /. E.g. /sˋɪərĭəs/ "serious", /ˋpɪərĭəd / "period", / ɪnflŭəns/ "influence", /ˋkɒŋgrŭənt/ "congruent".

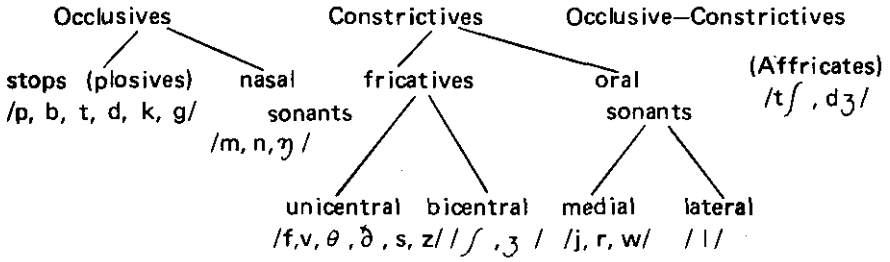
7. Closely connected with the quality of vowels is their quantity, or length. Any speech sound must have certain duration to display its quality, to be perceived as such. According to their length, English vowels are divided into long /iː , ɑː , ɔː , uː , ɜː / and short / ɪ , ʌ , ɒ , e , ʊ , ə , æ /. This length is historical. It differs from the positional length of the same vowels. In connected speech historically long vowels may be of the same length as historically short ones and even shorter. Cf. /biːt/ – /b ɪ d/, /siːt/ – /s ɪ t/. (See Chapter 3).

B. Consonants

An indispensable constituent of a consonant is noise. The source of noise is an obstruction. There are the following types of obstruction in the production of consonants: 1) complete occlusion (closure), 2) constriction (narrowing) and 3) occlusion–constriction (closure immediately followed by a constriction).

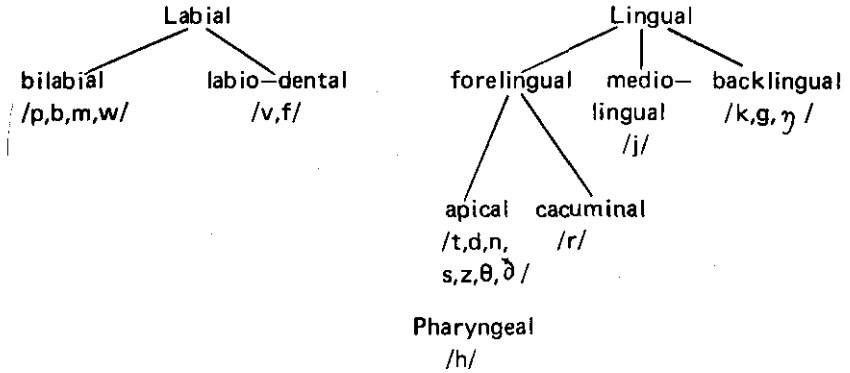
The noise produced by the removal of a closure is that of a plosion, the noise resulting from the movement of the air stream in the narrowing is that of friction. The two effects are combined when closure is followed by a narrowing.

1. According to the type of obstruction and the manner of the production of noise, English consonants are classified in the following way:



Obstructions may be formed either by two active speech organs or by one active speech organ (articulator) and a passive organ of speech (point or place of articulation).

2. According to the active speech organ which forms an obstruction, English consonants are classed into:



3. According to the place of obstruction, consonants are classified into dental (/θ,ð/, alveolar /t, d, n, l, s, z/, post–alveolar /r/, palatal /j/, palato–alveolar /ʃ , ʒ , tʃ , dʒ/, velar /ŋ/.

4. According to the presence or absence of voice, English consonants are subdivided into voiced /b, d, g, v, z, ð, ʒ, dʒ/ and voiceless /p, t, k, f, s, θ, ʃ, tʃ/.

5. According to the force of articulation, English consonants are classified as lenis and fortis.

In the articulation of English voiced consonants the muscular tension is weak – lenis articulation. In the articulation of English voiceless consonants the muscular tension is strong – fortis articulation.

6. According to the position of the soft palate, English consonants are subdivided into oral /p, b, t, d, k, g, f, v, ʃ, ʒ, s, z, θ, ð, tʃ, dʒ, w, l, r, j/ and nasal /m, n, ŋ/.

In this description of the sounds of the English language we have considered the articulatory characteristics of the sounds, pronounced in isolation. But in connected speech isolated sounds are rather unusual. Sounds are grouped together to form larger units and in the process of grouping they influence one another (the stages of their articulation merge and interpenetrate), and their articulatory features are modified in various ways. Nevertheless, those characteristics of a sound, which are significant for differentiating meaningful units, are preserved in all positions and combinations.

THE ACOUSTIC CLASSIFICATION OF ENGLISH SPEECH SOUNDS

A. Vowels

The acoustic classification of speech sounds is based on the analysis of the spectra of the sounds.

The spectra of vowels have a sharply defined formant structure and high total energy. The formants in the spectrum of a vowel are determined by certain articulatory positions and movements of the tongue and the lips. Thus, F_1 is conditioned by the vertical position of the tongue. When the tongue is high in the mouth, F_1 is low, when the tongue is low, F_1 is high. E.g. /i:/ and /u:/ have F_1 in the region of 280–300 Hz, whereas /ɑ:/ and /ɒ/ have F_1 in the region of 600–800 Hz. The second formant (F_2) is conditioned by the horizontal position of the tongue and by the position of the lips. F_2 is high in the case of a front vowel and it is low in the case of a back vowel. *Thus, /i:/ has F_2 at about 2500 Hz whereas /u:/ has F_2 at about 900 Hz.* F_2 of rounded vowels is lower than that of unrounded vowels, e.g. F_2 of /ʌ/ is 1320 Hz whereas F_2 of /ʊ/ is 940 Hz.

If the formants F_1 and F_2 are in the middle of the spectrum, i.e. close to each other as for /ɑ:, ɒ, æ/, the vowels are classified as compact. If the formants are at each of the extremities of the spectrum as for /u:, ʊ, i:, ɪ/ the vowels are diffuse (see the spectrogram). Open vowels are compact, close vowels are diffuse.

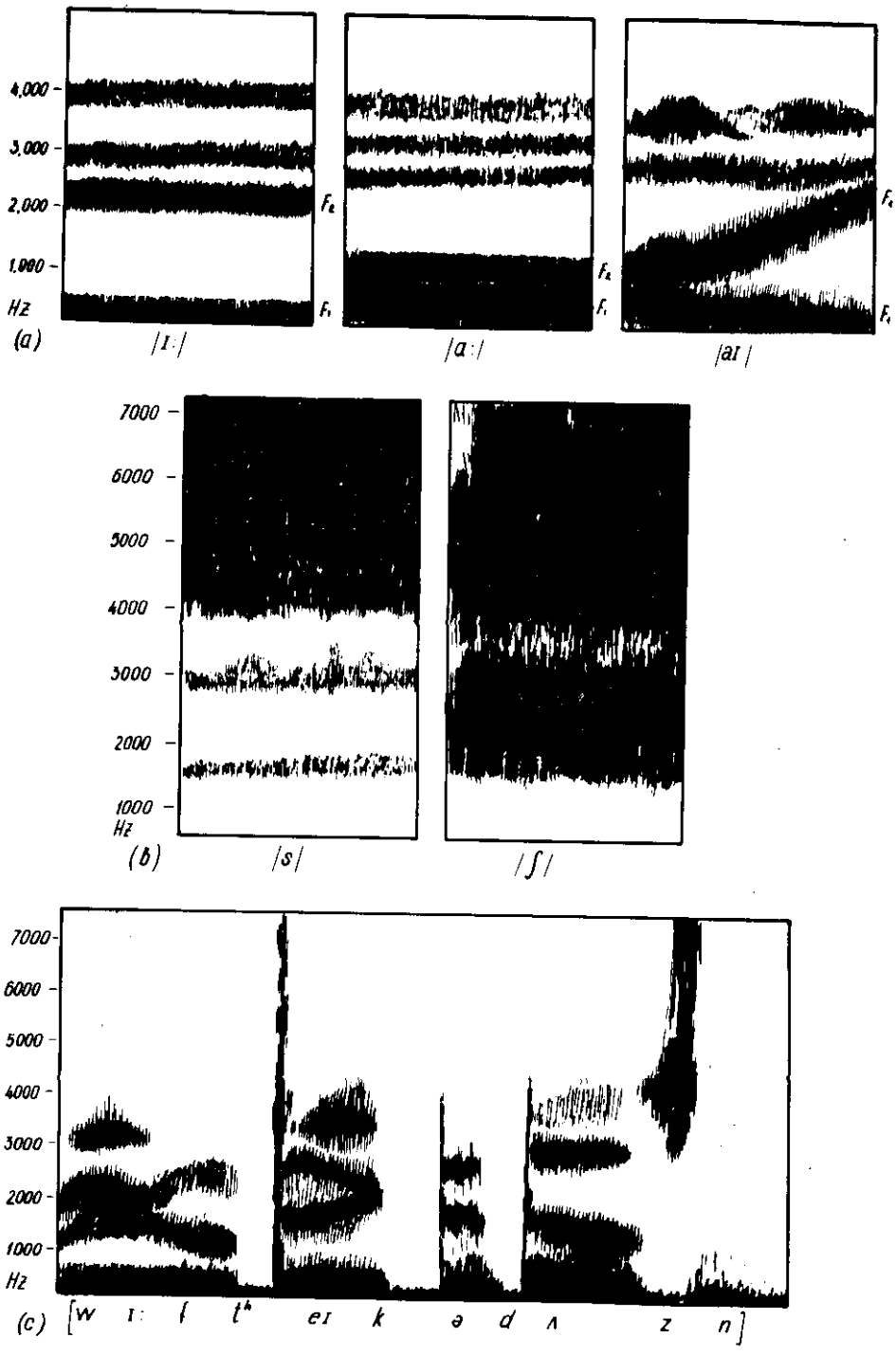


Fig. 7. Spectrograms of / iː /, / ɑː /, / ɑɪ /, /s/, / ʃ / and "We'll take a dozen".

If the second formant is high, as for /i: , e/. the vowels are of a clear or acute timbre. If it is low, so that both F_1 and F_2 are in the low section of the spectrum (as for /u:, ʊ , ɔ :/)a vowel has a dark or grave timbre. Front vowels are acute, back vowels are grave. F_2 is lower in rounded vowels (as ɒ,ɔ :, ʊ, u:) than it is in unrounded (as i:, ɪ , e, æ , ʌ , ɑ :) . Acoustically, rounded vowels are opposed to unrounded as flat to plain.

Thus, from the point of view of their acoustic characteristics, the vowel /e/, for instance, is described as acute, compact, plain. The vowel /ɒ/is compact, grave and flat, and /u:/ is diffuse, grave, flat.

B.Consonants

The formant structure in the spectrum of a consonant is not so sharply defined and the total energy is not so high as in the spectrum of a vowel. The characteristic feature of the spectrum of a consonant is the presence of a formant of noise.

Fricatives /f, v, s, z, θ, ð , ʃ , ʒ/ are characterized by the presence of a noise formant throughout the spectrum.

Plosives and affricates (e.g.t, d, tʃ , dʒ / have a formant of noise only in that part of the spectra which corresponds to plosion and friction. There is no noise in that part of the spectra which corresponds to the articulatory "stop".

Hence fricatives are classed as continuant noises, whereas plosives and affricates are classed as discontinuous.

Voiceless consonants (fortis) are characterized acoustically as tense whereas voiced consonants (lenis) as lax, since the burst of noise in voiceless plosives and the formant of noise in voiceless fricatives are stronger than those in voiced plosives and fricatives.

The noise peculiar to alveolar and dental consonants /t, d, s, z, n, l, θ, ð / is contrasted with that of labial and labio–dental ones /p, b, m, f, v/ because it is sharper in character. This means that in the spectra of /t, d, s, z, n, l, θ, ð/ the formant of noise is higher and in the spectra of /p, b, m,f, v/ the formant of noise is lower.

The fricatives (alveolar and dental) /s, z, θ, ð / have the highest formant of noise in the spectrum. The frequencies of the noise formant in the spectrum of /f, v/ are low. Therefore, /t, d, s, z, θ, ð , n/ are characterized as acute and /p, b, m, v/ as grave. The consonants /k, g, ʃ , ʒ , tʃ , dʒ / are intermediate in this contrast.

The spectrum of velar and palatal consonants /k, g, ŋ , ʃ , ʒ , tʃ, dʒ/ is compact while the spectrum of alveolar, labial and dental ones /t, d, n, s, m, p, b, f, v, θ, ð , s, z/ is diffuse. Consequently, the former are classified as compact noises and the latter as diffuse ones.

The sonants /m, n, ŋ / are opposed to all the other consonants as nasal to oral, because in their spectrum there is a special nasal formant.

The sonants /l, r/ are characterized by a sharply defined formant structure (like vowels), but the total energy is low in their spectra (like in consonants). That is why they are classed as vocalic and consonantal.

The sonants /w, j/ are non–vocalic and non–consonantal, because in their spectra the formant structure is not well defined and the total energy is high.

The consonants /s, z/, which have a round narrowing, are opposed to /θ, ð/, which have a flat narrowing, and the affricates /t∫, dʒ/ are opposed to the plosives /t, d/ as strident to mellow. In the spectrum of strident consonants the intensity of the noise formant is greater than in the spectrum of mellow consonants.

The acoustic characteristics of the sound types of language described above are preserved in the isolated pronunciation of the sounds. But in connected speech the acoustic features of the sounds are considerably modified. The acoustic information about a definite sound is often found not only in the spectrum of this sound but also in the spectrum of the neighbouring sound.

The first attempt to classify speech sounds on the basis of their acoustic distinctions was made by a group of phoneticians R.Jakobson, G.Fant and M.Halle [45]. The scholars established 12 binary distinctive oppositions with the help of which, as they claim, it is possible to classify the phonemes of any language. For the English language, the following 9 binary oppositions are sufficient: 1) vocalic – non–vocalic; 2) consonantal – non–consonantal; 3) compact – diffuse; 4) grave – acute; 5) flat – plain; 6) nasal – oral; 7) tense – lax; 8) discontinuous – continuant; 9) strident – mellow.

The traditional vowel – consonant opposition is divided into two oppositions to define the sounds /r, l, w, j,/. /r, l/ are vocalic and consonantal, because the air passage is free as in vowels and there is an obstruction as in consonants, whereas /w, j/ are non–vocalic and non–consonantal.

In comparison with the articulatory classifications, which have a very long history, the acoustic classification of speech sounds, based on discoveries of modern electro–acoustics, is quite original. The classification worked out by R.Jakobson, G.Fant and M.Halle is of great theoretical importance to linguists. The principle of binary oppositions on which their classification is based is being used not only in phonetics but in other branches of linguistics as well.

Acoustic definitions and classifications of speech sounds are also of great practical importance. They are indispensable in technical acoustics for the solution of the problem of speech synthesis and sound transmission, for the construction of speech recognizers as well as machines capable of putting out information in spoken words.

EXERCISES

A. Think about the following questions for class discussion:

1. What are the articulatory distionctions between vowels and consonants?
2. What are the acoustic distinctions between vowels and consonants? How do their acoustic spectra differ?
3. What articulatory and acoustic features testify to the intermediate position of sonants between vowels and consonants?
4. Does the articulation basis of a language condition the phonetic system of the language? In what way?
5. On what factors does the quality of a vowel sound depend?
6. What are the factors determining the quality of a consonant?
7. How are the formants in the spectrum of a vowel related with its articulation? Can the acoustic engineer do without the knowledge of the articulatory features of speech sounds?

B. Study the table of English vowels:

1) to describe the articulatory characteristics of each vowel;

2) to find out the articulatory distinctions between the pairs of long and short vowels /ɪ:—ɪ , u:—ʊ , ɑ:—ʌ , ɔ:—ɔ /.

C. Study the classification of English consonants:

1) to describe the articulatory characteristics of the sounds /ŋ, n, m, w, h, r, w, j/ ;

2) to find out the articulatory distinctions between the following pairs of consonants /p—b, t—d, k—g, f—v, s—z/, /g—h/.

CHAPTER 3. PHONOLOGICAL ANALYSIS OF ENGLISH SPEECH SOUNDS

THE PHONEME

In connected speech a sound is generally modified by its phonetic environment, (i.e. by the neighbouring sounds), by the position it occupies in a word or an utterance; it is also modified by prosodic features, such as stress, speech melody, and tempo of speech.

Compare /p/ in "pill" (i.e. in initial position), in "spill" (i.e. after /s/), in "slip" (i.e. in final position), in "slipper" (i.e. between vowels, the first of which is stressed). These various /p/ sounds differ in manner of articulation and in acoustic qualities. But they do not differ phonologically, if one of the various /p/ sounds is substituted for another, the meaning of the word will not change. That is why for the English speaking people it is of no linguistic importance to discriminate the various /p/ sounds. But it is linguistically important for English speakers to discriminate between /p/ and /b/ (as in "pill" and "bill") or /p/ and /m/ (as in "pill" and "mill"), though the differences in their production might not be much more notable than the differences in the production of the various /p/ sounds. That is why /p, b, m/ are different elements of the English sound system (different English phonemes). The substitution of one for another affects communication.

Every language has a limited number of sound types which are shared by all the speakers of the language and are linguistically important because they distinguish words in the language. In English there are 20 vowel phonemes and 24 consonant phonemes; in Russian there are 6 vowel and 35 consonant phonemes.

All the actual speech sounds are allophones (or variants) of the phonemes that exist in the language. Those that distinguish words, when opposed to one another in the same phonetic position, are realizations of different phonemes. E.g. /v/ and /w/ in English are realizations of two different phonemes because they distinguish such words as "vine" and "wine", "veal" and "wheel" etc.

Those sounds that cannot distinguish words in a definite language and occur only in certain positions or in combination with certain sounds are realizations of one and the same phoneme, its allophones (or variants). In English for example, the "dark" / ɫ / and the "clear" /l/ are variants, or allophones of the same phoneme.

Therefore, the p h o n e m e may be defined as the smallest linguistically relevant unit of the sound structure of a given language which serves to distinguish one word from another.

A l l o p h o n e s (or variants) of a certain phoneme are speech sounds which are realizations of one and the same phoneme and which, therefore, cannot distinguish words. Their articulatory and acoustic distinctions are conditioned by their position and their phonetic environment.

Allophones of a phoneme which never occur in identical positions are said to be in complementary distribution. For example, an RP* speaker pronounces a "dark" allophone of /l/ before consonants in final position, whereas he usually pronounces a "clear" allophone of /l/ only before vowels and /j/. It means that in English both the "dark" and the "clear" allophones of /l/ are in complementary distribution as they are never opposed to each other in identical phonetic positions. In spite of their acoustic and articulatory differences they are not perceived by English speakers as different sounds.

Allophones of a phoneme which do occur in the same phonetic position, but can never distinguish words, are said to be in free variation. For example, /t/ in "Good night" may be either a plosive or a non-plosive sound. Though these sounds differ acoustically, they do not distinguish words in English. Therefore, they are allophones of the same phoneme and are in free variation.

On the one hand, the phoneme is an abstraction and a generalization. It is abstracted from its variants that exist in actual speech and is characterized by features that are common to all its variants (e.g. /b/ is an occlusive, bilabial, lenis consonant, as these features are common to all its allophones).

On the other hand, the phoneme is material, real and objective, because in speech it is represented by concrete material sounds. In other words, the phoneme exists in speech in the material form of speech sounds.

The phoneme correlates with its allophones as the universal correlates with the individual.

"Общее существует лишь в отдельном, через отдельное. Всякое отдельное есть (так или иначе) общее. Всякое общее есть (частичка или сторона или сущность) отдельного. Всякое общее лишь приблизительно охватывает все отдельные предметы. Всякое отдельное неполно входит в общее..." [1, с.318].

The phoneme can therefore be regarded as a dialectical unity of its two aspects: the material and the abstracted aspects. None of these aspects of the phoneme can be neglected or disregarded. That is the materialistic view of the phoneme.

There exist other views of the phoneme. Some linguists consider the phoneme to be but an abstraction and deny its material character. This viewpoint is expressed by linguists of the Prague Phonological School, for whom a phoneme is but an abstract concept.

Other linguists overestimate the material, real and objective character of the phoneme. For example, D.Jones considers a phoneme to be a family of sounds [84], others consider it to be a class of sounds. The /p/ phoneme, for example, is said to 'consist' of its various allophones.

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*RP stands for "Received Pronunciation", which is generally considered to be the orthoepic norm of British English.

The linguistic role of the phoneme is clearly seen from the three linguistic functions of the phoneme, namely, the constitutive, the distinctive, and the identificatory functions [110].

Though the phonemes themselves, in isolation, have no meaning, they are linguistically important, since, in their material form (i.e. in the form of speech sounds) they constitute morphemes, words, all of which are meaningful. Hence, the *constitutive* function of the phoneme.

Besides the constitutive function, the phoneme performs the *distinctive* function, because phonemes distinguish one word from another.

On account of the fact that native speakers identify definite combinations of phonemes as meaningful linguistic units (words, word combinations, or phrases), linguists distinguish a third function of the phoneme – the *identificatory (or recognitive) function* of the phoneme. It appears that when identifying linguistic units the use of the right phoneme is not the only significant factor, the use of the right allophone is not much less important. Thus, in English it is the aspiration of /p/ rather than its voicelessness, and the non-aspirated character of /b/, that make clear the opposition of /p/ and /b/ in words like "pie" and "buy". This is why an Englishman will often hear "bride" for "pride" when a foreigner uses a non-aspirated /p/.

We may now summarize by saying that the phoneme is a linguistically relevant unit that exists in speech in the material form of its allophones. The phoneme is, therefore, a phonological unit which is represented in speech by phonetic units (the speech sounds). In analysing speech we constantly carry out a phonetic and a phonological analysis. The analysis is primarily phonetic when we describe the articulatory and acoustic characterictics of particular sounds and their combinations; but when we determine the role of those sounds in communication, it is mainly phonological analysis. Thus both phonemes and sounds are simply two sides of one and the same phenomenon – the sound substance of language, which can be analysed on either the phonemic (functional) level or the allophonic (variational) level.

MODIFICATIONS OF PHONEMES IN SPEECH

Every phoneme displays a vast range of variation in connected speech. Among the different types of variation we distinguish idiolectal, diaphonic and allophonic variation.

Idiolectal variation embraces the individual peculiarities of articulating sounds, which are caused by the shape and form of the speaker's speech organs and by his articulatory habits. For instance, a speaker may mumble, or lisp (say "thish ish" for "this is"), or stammer (say "a f-f-f-fine d-d-d-day"). Idiolectal variation may cause a lot of difficulties in communication. At the same time it enables people to identify the speech of definite individuals.

D i a p h o n i c variation affects the quality and quantity of particular phonemes. It is caused by concrete historical tendencies active in certain localities. For example, the diaphonic variation of / æ / involves significant changes in its length, because in some dialects / æ / is much longer than the standard sound. As to its quality, it ranges from a front open /æ / in the southern part of England to /a/ in Northern England. Diaphonic variants do not affect intelligibility of speech, yet they inform the listener about the speaker's origin (i.e. the region he comes from) and his social standing.

The listener easily notices both idiolectal and diaphonic variants, but it does not take him much time to 'tune in' to the speaker's manner of speech and understand him.

The less noticeable variation of phonemes is a l l o p h o n i c variation, which is conditioned by phonetic position and phonetic environment. It has already been mentioned that in connected speech the sounds undergo various modifications under the influence of neighbouring sounds and the intonation patterns they occur in. When viewed linguistically, it means that in a speech continuum there appear a variety of realizations of one and the same phoneme, its allophones. The number of allophones of each phoneme is, therefore, no less than the number of phonetic positions and environments in which the phoneme occurs.

In every language there are positions in which a phoneme can be easily identified because its features are fairly obvious. There are other positions in which the characteristic features of a phoneme are less obvious.

Cf. /oʊ/ in "Oh!" / ^ oʊ/, "So–so" /soʊsoʊ/, "So late" /so`leɪt/ and in "Not so late" /nɒt sə ,leɪt/.

Or again, note the differences in /d/ in "Oh, dear" (where its features are obvious), "Good!" (where it generally loses its plosive and voiced character) and in "Good–bye" (where it actually loses all its features).

English vowels are considerably modified in unstressed syllables. The weakening of articulation and shortening of the duration of unstressed vowels results in modification of their quality and quantity. This phonetic phenomenon is known as r e d u c t i o n. Vowels in unstressed syllables are sometimes partially reduced, as in /so `leɪt/, or reduced to /ə/, as in /`nɒt sə, leɪt /.

The obscuring of vowels owing to lack of stress on certain syllables in an utterance is the result of a perfectly normal linguistic development of English. It is the artificial departure from this characteristic of English that is a corruption of the actual pronunciation of the cultivated people.

J. Kenyon remarks that when the schoolboy writes "I wouldn't of gone" he is not making a mistake in grammar, the mistake is merely in spelling. The two expressions "I wouldn't have gone" and "I wouldn't of gone" are exactly alike in standard pronunciation. He says that to pronounce "have" and "of" differently in sentences that require the unstressed forms, would be a worse blunder than to misspell "have". [87]

Apart from that, English vowels are also modified by the neighbouring consonants, mainly by the following consonant. There is always an overlapping of articulatory movements of neighbouring sounds. An illustration of that is the nasalization of /e/ in "men", "ten", the shortening of /i:/ in "cease" (as compared to "seize" or "see"). The process of adapting the articulation of a vowel to a consonant, or a consonant to a vowel, is known as a c c o m o d a – t i o n.

As for the quality of an English consonant, it depends mainly on its po– sition in the intonation group.

Spectrographic analysis makes it evident that the modifications a conso– nant undergoes in the final position of an intonation group radically differ from those in the initial position. For example, in the final position voiced consonants lose their plosive and voiced character (as in "Good!"), whereas in the initial position they retain those features but are modified in another manner by the following vowel. For example, /ʃ, ʒ, tʃ, dʒ, l/ are slightly pa– latalized when followed by mid and close vowels or by /j/, as in "shirt", "cheese", "leap" or "June". The palatalization of these sounds is caused by the anticipatory upward movement of the bulk of the tongue for the next sound.

Or again, the height of the central part of the tongue for /j/ fully depends upon the following vowel. Thus before /i:/ (as in "yield") the central part of the tongue is raised higher than for /i:/; in the word "yes" it is as high as when articulating /j/, while in "yard" it reaches but the height of /e/.

When a consonant is a component of a consonant cluster, it is partially or completely assimilated by the neighbouring sounds. A consonant may be voiced (as in /traːnzˈleɪt/) or devoiced (as in /aː ʃt ˈθɪŋk soʊ/), it may lose its plosion (as in "that time"), or the plosion may become restricted (as in "please, "great"), there may even occur coalescent assimilation which results in a new phoneme (as in /haʊ dʒə ˈduː/ or /woʊntʃə ˌduːɪt/). All English phonemes in various pronouncing conditions undergo a s s i m i l a t i o n.

To state that assimilation, accomodation, reduction depend only on tempo and style, that they occur only in rapid careless speech, would be wrong and would simplify the problem. One should admit that these phenomena occur more obviously in rapid and careless speech, but they are also observed in ca– reful speech with moderate tempo and even when the tempo is slow.

The analysis of the phonetic modifications that occur in the speech conti– nuum reveals the phonetic tendencies of a language. Neglect of these tenden– cies results in foreign accents and unintelligible speech. This is one of the main reasons why there is a need for further investigation of this problem.

It is generally considered that allophonic modification is caused by "eco– nomy of effort". The speaker avoids articulatory movements which are not absolutely necessary for intelligibility of speech. This process is to some extent regulated by the orthoepic norm, by the system of phonemes in the

language, and by the system of phonologically relevant features of phonemes in the language.

Thus, English lenis consonants /b, d, g/ in final position can be voiceless, but they cannot be replaced by fortis /p, t, k/, as in English the fortis and lenis consonants distinguish words (e.g. "cab"—"cap", "had"—"hat", "bag"—"back"). It has been noted that /ʃ/ may be "clear" or "dark" in one and the same phonetic position; but the "clear" allophone of /l/ does not occur in the positions in which the "dark" allophone of /l/ is used, if the latter is used instead of the former, it is immediately detected by the native speakers as a local accent.

M.Grammont claims that the different phenomena of combinatory phonetics are regulated by what he calls "the law of the stronger" [74]. According to it, the stronger phoneme influences the weaker one. The stronger phoneme assimilates, or accomodates the neighbouring phoneme because of its articulatory strength and stability, or by its position in the syllable. That can be easily illustrated by an example from the English language: in "of course" / ə f ˈk ɔ :s/ the /v/ is assimilated by /k/ (and not vice versa), because /v/ here is at the end of an unstressed syllable and is therefore weaker than the initial /k/. M. Grammont considers that the analysis of combinatory phenomena in every particular language should aim at revealing the phonemes that resist modifications. But the inventory of the strong and stable phonemes has not as yet been established for any particular language.

Some scholars consider that frequency of occurrence of phonemes and phonemic clusters may be a factor of stability in language in the sense that frequent phonemes resist modifications and modify the rare ones. Analysis of relative frequency of occurrence of English speech sounds shows that the most frequent consonants are /t, n, s, ð, l, d/. [68] Whether they really are the most stable sounds in English requires thorough analysis.

Whatever are the causes, the fact that speech is comprised of a great variety of allophones complicates the identification of phonemes in connected speech. It also accounts for the existence of controversial views on phonological problems. For instance, some phoneticians treat /j/ and /w/ as allophones of /i:/ and /u:/; there are differences in the opinion on the phonological status of /ʊ/, /ʌ/ and /ɒ/, some scholars treat them as allophones of /u:/, /ɑ:/, and / ɔ :/ respectively.

Consequently, the main problems of phonological analysis are as follows:

a) the identification of the phonemic inventory for each individual language;

b) the identification of the inventory of phonologically relevant (distinctive) features of a language;

c) the interrelationships among the phonemes of a language.

THE PHONEMIC INVENTORY OF ENGLISH

The first problem of phonological analysis is to establish the phonemes in a definite language. This can be carried out only by phonological analysis based on phonological rules. There are two methods to do that: the distributional method and the semantic method.

The distributional method is based on the phonological rule that different phonemes can freely occur in one and the same position, while allophones of one and the same phoneme occur in different positions and, therefore, cannot be phonologically opposed to each other. For example, as /p/ and /b/ can freely occur in the same phonetic context (as in "pea" – "bee", "rope" – "robe"), they are consequently different phonemes. But one cannot find [p] aspirated and [p] non-aspirated in the same phonetic position in English. Therefore in English they are allophones of one and the same phoneme, whereas in Chinese the aspirated and non-aspirated stops are regarded as different phonemes, because they occur in the same phonetic positions.

The distributional method of analysis is a purely formal method of identifying the phonemes of a language. This is why the distributional method of identification of the phonemes in a language works even when one does not know the language at all. The method is widely used by the American linguists who study the languages of the Red Indians. But it appears to be complicated and the investigators very often cannot do without native speakers to confirm their conclusions concerning the phonemic status of certain speech sounds.

The semantic method, in its turn, is based on the phonological rule that a phoneme can distinguish words when opposed to another phoneme or zero in an identical phonetic position.

The opposition /z/ versus /t/ is called a phonological opposition. The opposition /z/ versus /–/ is called a zero (phonological) opposition. The pairs of words which differ only in one speech sound are called minimal pairs.

The semantic method of identification of the phonemes in a language attaches great significance to meaning. The investigator studies the function of sounds by collecting minimal pairs of words in the language. If two speech sounds distinguish words with different meanings, they form a phonological opposition and are realizations of two different phonemes. If not, they are allophones of one and the same phoneme. Thus, it is clearly evident that in English [s] and [t] are realizations of two different phonemes ("sea"–"tea", "so"–"toe"), while [t] aspirated and [t] non-aspirated are allophones of one and the same phoneme, as they cannot distinguish words. Such analysis is sometimes referred to as "minimal pair test".

The semantic method is widely used by scholars all over the world. It was mainly with the help of the semantic method that Soviet scholars identified

the phonemes in the languages of the numerous peoples inhabiting our multi-national country. That made it possible to create written languages for them.

But to identify all the phonemes of a language is not always a simple thing to do. Time and again there emerge difficulties as to the phonemic status of certain sounds. Such difficulties arise when one deals with weakened vowels occurring in unstressed position. It primarily concerns the schwa vowel /ə/ in English which occurs only in unstressed position.

The problem is whether there is a schwa vowel / ə / phoneme in English. Scholars are not in agreement on this point. Though /ə/ can be opposed only to weakened vowel phonemes, which are partially reduced due to their position in unstressed syllables, it can form phonological oppositions with a number of other phonemes and can distinguish words.

E.g., / ə / vs. / ɪ / accept – except; armour – army
officers – offices; allusion – illusion

/ə/ vs. /oʊ/ temper – tempo
solar – solo

/ə/ vs. / ɜ :/ forward – foreword

It is sometimes considered that /ə / is an allophone of /ʌ/, because /ʌ/ is almost exclusively used in stressed syllables (as in "comfort" /ˈkʌmfət/, "abundant" / əˈbʌndənt/), whereas /ə / occurs only in unstressed syllables.

There are controversial views on whether /j/ and /w/ in English are allophones of / ɪ / and /u/ or they are separate phonemes. R.Jakobson and other American linguists treat them as allophones of / ɪ / and /u/ on account of their weakness and unstable articulatory features. [82] Whereas other scholars treat /j/ and /w/ as phonemes, because as they say /j/ and /w/ can form phonological oppositions with each other and with other phonemes (e.g. "yell" – "well", "yet" – "met", "wheat" – "meat"). We support the second viewpoint not only for the reason mentioned above. One ought to mention the fact that /j/ and /w/ in English occur in phonetic positions that are generally occupied by consonant phonemes; consequently, they cannot be considered to be allophones of vowel phonemes.

There are cases when the establishment of phonological oppositions is not sufficient to determine the phonemic status of a sound, especially when the sound is of a complex nature.

In the English language the sounds /tʃ /, /dʒ /, /tr/, /dr/, /ts/, /dz/ form phonological oppositions and distinguish such words as "eat – each", "head – hedge", "tie – try", "die – dry", "hat – hats", "buzz – buds". But does that mean that all of them are monophonemic and should be included into the phonemic inventory?

N. Trubetzkoy worked out a number of rules which help to determine whether a sound of a complex nature is monophonemic. The main rules state that, firstly, a phoneme is indivisible, as no syllabic division can occur within a phoneme. Secondly, a phoneme is produced by one articulatory effort.

Thirdly, the duration of a phoneme should not exceed that of other phonemes in the language . [40]

Consequently, /tʃ / and /dʒ / in words like "cheese, each, jail, hedge" are monophonemic, because both acoustic and physiological analysis provide sufficient evidence that these sounds are produced by one articulatory effort, their duration does not exceed the duration of either /t/ (as in "tear"), or /ʃ / (as in "share"), or /d/ (as in "dare"). Besides that, in words like "cheese, chair, each, hedge, John, jail", no syllabic division occurs within the sounds /tʃ/ and /dʒ/.

/ts/, /tz/ are obviously biphonemic combinations (i.e. combinations of two phonemes), because their duration exceeds the average duration of either /t/, /d/, /s/ or /z/.

As for /tr/, /dr/ (as in "tree, dream") their phonemic status will remain undecided until special acoustic and physiological analysis is made. As /t/ and /r/, on the one hand, and /d/ and /r/, on the other, are so closely linked in the pronunciation of Englishmen, D.Jones calls them affricates alongside of /tʃ/ and /dʒ /. [102] (He distinguished them from sequences /t/ + /r/ and /d/ + /r/ as in "rest–room, hand–writing".) Most phoneticians regard /tr/ and /dr/ as biphonemic clusters.

There appears to be another analogical problem. It concerns the phonemic status of the English diphthongs and the so–called "triphthongs". Are they monophonemic or biphonemic clusters in English?

The syllabic and articulatory indivisibility of English diphthongs* and their duration which does not exceed the duration of English historically long vowels /i:, u:, ɔ :, ɑ :, ɜ :/, clearly determine their monophonemic character in English.

As for /aɪə /, /aʊə /, it has been proved acoustically and physiologically that in English they cannot be considered monophonemic. They are not produced by a single articulatory effort, as there is an increase in the force of articulation and intensity not only for the first element, but for the last element as well. The syllabic division generally occurs in between the diphthong and the schwa vowel (/ aɪ–ə/ , /aʊ–ə / as in "flier", "flower"). On account of that they should be regarded as biphonemic clusters of a diphthong with the schwa vowel.

In such a way it has been established that in RP there are 12 vowel phonemes: /i:, ɪ , e, æ , ɒ , ɑ :, ʊ , u:, ə :, ʌ , ɜ :, ə /, 8 diphthongs:

3 glides to /ɪ/ – (eɪ , aɪ , ɒɪ/,

2 glides to /ʊ/ – /oʊ, aʊ/,

3 glides to /ə/ – /ɪə , ɛə , ʊə/;

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*Cf. /bloʊ–ɪŋ/ "blowing", /pleɪ–ə/ "player" and [нó–йу] "пою", [ус–пэ–йу] "успею".

24 consonant phonemes: /n, t, d, s, l, ð, v, m, k, w, z, r, b, f, p, h, ŋ, g, ʃ, j, dʒ, tʃ, θ, ʒ/.

As the diphthong /ɒə/ and the labiovelar fricative /ʍ/ are not used by all RP speakers (only some RP speakers differentiate words as "pour – paw", "which – witch") they are generally called facultative phonemes. But since they are used by many RP speakers as phonemes, V.A. Vassilyev includes them into the phonemic inventory and states that in RP there are 21 vowel phonemes and 25 consonant phonemes. [110]

THE SYSTEM OF PHONOLOGICAL OPPOSITIONS IN ENGLISH

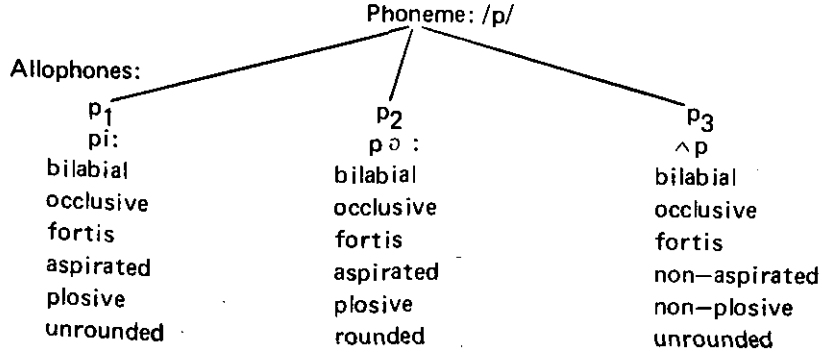
The second problem of phonological analysis is the identification of the inventory of distinctive features on which all the phonological oppositions in the language are based.

Every sound is characterized by a number of features, not all of which are equally important for communication. If one compares some of the allophones of /p/, it appears that all of them have common features and features which characterize only a few of them. The problem is to decide which of the features of a group of common sounds in a certain language are phonologically relevant and which of them are irrelevant, or incidental. This is important not only for a detailed characterization of the phonemic systems of languages and the identification of their typology. It is also most essential for teaching purposes, since the phonologically relevant features require special attention in pronunciation teaching.

We primarily need to explain the following:

Each phoneme is characterized by a certain number of p h o n o l o g i c a l l y r e l e v a n t f e a t u r e s, which are its constant distinctive features (as they distinguish the phoneme from all the other phonemes of the language).

Each allophone of a certain phoneme is characterized by definite phonologically relevant features (which are common to all its allophones) plus a number of i r r e l e v e n t, or incidental, f e a t u r e s (which distinguish the allophone from all the other allophones of the phoneme).



The phonologically relevant features that characterize the phoneme /p/ are, therefore, bilabial, occlusive and fortis. Aspiration, plosiveness, labialization, etc. are phonologically irrelevant features.

Phonologically irrelevant does not necessarily mean useless for communication. It has already been mentioned that the aspiration of /p/ helps the listener to distinguish it from /b/ (as in "pride" – "bride", "pie" – "buy").

The point is that if the speaker substitutes one phonologically relevant feature (say, bilabial) for any other relevant feature (say, forelingual), the phoneme ceases to be the phoneme it was and becomes a different phoneme (in this case /p/ is replaced by /t/). Such a substitution is easily perceived by any native speaker whether he had been trained in phonetics or not. (Cf. "pie" – "tie", "cap" – "cat").

The substitution of one irrelevant feature for another (say, aspirated for non–aspirated) results in a different allophone of one and the same phoneme ([p] aspirated and [p] non–aspirated). Such a substitution does not affect communication.

When interpreted phonologically, it means that not all the articulatory features of actual sounds are equally important for the identification of the phonemes of a language and the words they constitute. Some of the features are phonologically relevant, others are irrelevant.

The phonologically relevant features are normally identified by opposing one phoneme to every other phoneme in the language. But there often occur difficulties, which can be overcome with the aid of physiological and acoustic analyses.

Thus, until recently it was considered that the oppositions /p–b/, /t–d/, /k–g/, /f–v/, /θ–ð/, /s–z/, /ʃ–ʒ/, /tʃ–dʒ/ were based on the presence and absence of voice. But it has been proved that the presence or absence of voice in these oppositions is not a constant distinctive feature, because the so–called "voiced" consonants in many phonetic positions are actually not voiced throughout. (/d/ in "Do that" is voiceless in its initial stage, while /d/ in final position is voiceless either in its last phase or throughout, as in "Yes, I did". Ch. Barber states that the so–called "voiced"/b, d, g/ are actually voiceless after diphthongs and historically long vowels, as in "rogue", "feed"). [54] Consequently, their voiced character cannot be considered to be a phonologically relevant feature. Yet, the oppositions /p–b/, /t–d/, etc. exist in the English language, and "cob" is never pronounced as "cop", "had" can never be substituted for "hat", and so on. So there must be at least one phonologically relevant feature on which such oppositions are based.

Acoustic and physiological analyses have proved that the so–called "voiced" consonants in English are always l e n i s (lax, weak) irrespective of their phonetic environment and position, as compared to the so–called "voiceless" consonants in English which are always f o r t i s (energetic, strong) in all phonetic positions. Compare /p ɪ k/ and /b ɪ g/. /p/ and /k/ are pronounced with

the lips quite tense, with aspiration (especially in the initial /p/) and with the vocal cords not vibrating: the /b/ and /g/ are pronounced with the lips more relaxed, with no aspiration, and with the vocal cords vibrating only in the initial /b/.

Therefore, the phonological oppositions /p–b/, /t–d/, /k–g/, /f–v/, /θ–ð/, /s–z/, /ʃ–ʒ/, /tʃ–dʒ/ are primarily based on fortis vs.lenis articulation, which are their phonologically relevant features. Besides the energy difference, the fortis/lenis correlation also implies that the lenis sounds are regularly shorter than the fortis ones. Thus /z/ is a good deal shorter and much less energetic than /s/ (cf. "lose" – "loose", "as" – "ass"). The presence of voice in /b, d, g, v, z, ʒ, dʒ/ is an incidental feature that can be neutralized in certain phonetic positions. That is why, when teaching English pronunciation, the importance of the voiced character of these sounds should not be overestimated, whereas special attention should be drawn to their lenis character.

Or again, until recently duration in the English language was regarded as a phonologically relevant feature capable of distinguishing /i:–ɪ/, /u:–ʊ/, /ɔ:–ɒ/, /ɑ:–ʌ/, /ɜ:–ə/. But in English the quality of the historically long and short vowels differs, so length is not the only feature that distinguishes them. Besides, length differences are conditioned, they therefore cannot be distinctive. Acoustic analysis shows that the length of vowels varies in different phonetic environment and in different positions.

/si: – si:d – si:t/

It is a well known fact that /i:/ in /si:/ is longer than the same sound in /si:d/, and that /i:/ in /si:t/ is the shortest: it is almost as short as /ɪ/ in /sɪd/.

It has also been established that a vowel is longer in front of a fricative than in front of a stop. Thus, /æ/ is longer in /æs/ than in /æt/. Besides that, vowel length depends on whether the syllable it occurs in is stressed. Stressed vowels are generally longer than the unstressed vowels. Vowel length also depends on the number of syllables in a word. Compare the duration of /ɑ:/ in "arm" – "disarm" – " disarmament".

As length varies and does not characterize all the allophones of a historically long vowel, length cannot be considered its phonologically relevant feature. But there are perceptual features which constantly distinguish all the English vowels: these are distinctions in their quality, which are based on the slight differences in the tongue positions when producing these vowels, i.e. their articulatory differences.

Thus, the opposition /i:–ɪ/ is based on the following phonologically relevant features: high–narrow vs. high–broad, fully–front vs. front–retracted. The opposition /ɔ:–ɒ/ is based on the following phonologically relevant features: back–advanced vs. fully back, low–narrow vs. low–broad.

Duration, though it is an incidental feature and therefore cannot be considered phonologically relevant, is nevertheless a very important feature that serves as an additional means of identifying English sounds. For example, the

shortening of a vowel generally signals that the following consonant is fortis and voiceless (cf. "seed"—"seat", "had—"hat").

When a monophthong is opposed to a diphthong, there is one extra distinctive feature that differentiates them: it is absence vs. presence of a glide.

Therefore, in the system of English vowel phonemes there are oppositions of

monophthongs between themselves and diphthongs between themselves — these oppositions are based on differences in the movements and positions of the tongue and the lips.

monophthongs vs. diphthongs — these oppositions are based on both the above mentioned differences and the absence or presence of a glide.

There are no phonological oppositions in the system of English vowel phonemes based on length alone.

In the system of English consonant phonemes there are oppositions based on the force of articulation:

fortis vs. lenis (two — do, back — bag, etc.)

There are oppositions based on the active organ of speech:

bilabial vs. forelingual (pen — ten, mat — sat, wet — let)
bilabial vs. mediolingual (wail — Yale)
bilabial vs. backlingual (bay — gay)
forelingual vs. mediolingual (less — yes)
forelingual vs. backlingual (take — cake)
forelingual vs. pharyngal (they — hay, see — he)
labiodental vs. forelingual (fat — sat, van — than)

There are oppositions based on the type of obstruction:

plosive vs. fricative (pen — when, berry — very)
plosive vs. affricate (till — chill, do — Jew)
plosive vs. sonorant (bad — mad, deck — neck)
fricative vs. sonorant (vine — wine)
fricative vs. affricate (share — chair)
constrictive sonorant vs. occlusive sonorant (we — me, low — no)
flat narrowing vs. round narrowing (thing — sing)
unicentral vs. bicentral (see — she, thigh — shy)

THE INTERRELATIONSHIPS AMONG THE PHONEMES OF A LANGUAGE

Once the phonemes of a language are established and their phonologically relevant features are determined, there arises another phonological problem: to describe the interrelationships among the phonemes of a language.

Can different phonemes have common allophones? Can allophones of a phoneme lose any of their phonologically relevant features in certain phonetic positions?

There are three views on the problem.

Scholars who support the morphonological viewpoint (R. Avanesov [20], P. Kuznetsov [29], A. Reformatsky [33] and others) claim that a phoneme in a "weak" position may lose one of its distinctive (phonologically relevant) features and, therefore, lose its distinctive function. For example, Russian voiced consonants lose their voiced character and are pronounced as voiceless in final position (as in "луг" /k/ "глаз" /c/, etc.). This leads to the loss of the distinction between /к/ and /г/, /с/ and /з/. Therefore, in word final position the phonological oppositions based on the phonologically relevant features "voiced vs. voiceless" are neutralized in Russian. Scholars term this phenomenon n e u t r a l i z a t i o n of phonological oppositions.

Neutralization of phonological oppositions is the loss of a distinctive (phonologically relevant) feature by one of the phonemes of an opposition.

Those who support this view consider that a phoneme is morphemically bound and, therefore, in all the derivatives of "луга" (луговв, луг) we deal with the allophones of one and the same phoneme /г/, and in all the derivatives of "лука" (луком, лук) we deal with the allophones of the phoneme /к/.

Consequently, different phonemes may have common allophones and sometimes a sound may be assigned to either of two phonemes. In the case of [k], it may either be considered an allophone of the phoneme /к/ (as in "лук") or an allophone of the phoneme /г/ (as in "луг").

But the Russian language is the only language in which the phenomenon of neutralization has been examined more or less in depth.

The supporters of the phonological viewpoint (L. Shcherba [44], D.Jones [86], K.Pike [104] and others) reject the notion of "neutralization of phonological oppositions". They consider that an allophone cannot lose any of its distinctive features. If it does, it becomes an allophone of the phoneme the distinctive features of which it acquires. Thus, [к] in "луг" is an allophone of /к/, [ə] in "addition" is an allophone of the schwa vowel phoneme /ə/ (and is not an allophone of /æ/, as in "add"); [t] in "walked" is an allophone of /t/.

The third viewpoint is that of N. Trubetzkoy [40], R. Jakobson [82], and some other linguists who consider that there are phonological units higher than a phoneme – the archiphonemes.

The archiphoneme is an abstraction which combines the distinctive features common to two phonemes. According to this viewpoint both [k] and [г] in "лук" and "луг" are assigned to the archiphoneme /K/ which is neither voiced, nor voiceless.

We assume that for teaching purposes the most suitable viewpoint is that of L. Shcherba and his followers. Accordingly, the phoneme is characterized by definite articulatory and acoustic characteristics and can be easily described

as a separate unit of the sound system of language. Whereas the other viewpoints treat the phoneme as a phonological unit which is actually devoid of articulatory and acoustic characteristics, because even its phonologically relevant features appear to be unstable (they can be neutralized). Moreover, the phoneme in that sense embraces sounds that can be assigned to other phonemes as well (the so-called "common" allophones). Such an approach hinders the practical application of phonology to teaching pronunciation.

The existence of a number of viewpoints on phonological problems can be explained by the well-known fact that language is too complicated for all its features to be described in terms of any one theory.

TYPES OF TRANSCRIPTION

Besides the problems of phonological analysis of speech sounds discussed above, phonology deals with the problem of representing speech visually. This problem is closely connected with the problems of phonological analysis already discussed, because any system of writing is not a simple record of speech utterances, it is always a generalization about them. Be it ideographic writing (with a different symbol for each word, as in Chinese writing), or syllabic writing (with a symbol for each syllable, as in Japanese writing), or alphabetic writing (with a symbol for each phoneme or combination of phonemes, as in English), writing systematizes and provides a distinctive symbol for each class of sounds it represents.

A t r a n s c r i p t i o n, which is a visual system of notation of the sound structure of speech, is also a generalization of a great variety of sounds that are uttered by speakers of a given language.

The extent of the generalization may vary. One can classify the sounds into phonemes disregarding the different degrees of aspiration, labialization, length, palatalization and other phonologically irrelevant features of the sounds. On the other hand, one can differentiate between all those features and classify them as well. Consequently, there may be different types of transcriptions depending upon the degree of exactness required.

If it is accuracy only in the representation of the phonemes of the language that is required, the transcription should provide each phoneme with a distinctive symbol to avoid ambiguity. Such a transcription is generally called p h o n e m i c, or b r o a d, transcription. It contains as many symbols as there are phonemes in the language. The phonemic data is usually enclosed between virgules (also called diagonals): /t/.

If it is exactness in the differentiation of the allophones of each phoneme that is required, the transcription should provide either different symbols for each allophone, or introduce special marks to represent the different features of the allophones. The former would increase the number of symbols considerably, and that would cause great difficulties for those who use it. The

latter is more economical, although it makes the notation rather complicated. Scholars usually make use of both ways: they provide some of the typical allophones with distinctive symbols and introduce special marks (called "diacritic marks") to denote the different features the allophones are characterized by. Such a transcription is called a p h o n e t i c, or n a r r o w transcription. The phonetic data is customarily enclosed in square brackets: [t].

It has always been one of the main concerns of the phonetic science to work out a transcription. A phonetic transcription is essential for scientific and practical use. One can hardly do without it in foreign language teaching, in studying spoken languages, dialects, accents. The first attempts to represent speech sounds visually by means of special symbols were made as far back as the 16th century.

The modern phonetic transcription that is most widely used now is the International Phonetic Transcription devised by the International Phonetic Association in 1904. This transcription is a phonetic alphabet which may be applied to most of the languages. That is why it contains symbols that stand for phonemes in different languages. E.g. /æ / (as in "bag"), /y/ (close lip rounded/ i/in German "u"), /o/ (close lip rounded/e/in French "peu"), etc. For this reason the transcription is often referred to as the "u n i v e r s a l t r a n s c r i p t i o n" of the IPA (International Phonetic Association).

One of the principles of this transcription is to use the fewest possible symbols of the simplest possible shape. Most of the symbols it uses are letters of the Latin alphabet. Besides, it contains a series of diacritic marks.

The broad type of the International Phonetic Transcription was first used by D.Jones in his "English Pronouncing Dictionary", published in 1917. These are the symbols that he selected for English: /i:, i, e, æ , ɑ:, ɔ :, ɔ , u: ,u, ʌ , ə :,ə , ei, ou, ai, au, ɔ i, iə , ɛə , uə /.

The narrow type of the transcription makes use of extra symbols /ɒ , ʋ, ɜ , ɪ / and diacritic marks, such as

~ nasalization; ɛ̃ = nasalized ɛ .

˳ devoicing; n̥, l̥, ʒ̊ = unvoiced n, l, ʒ .

ˬ voicing; s̬ = z , t̬ = American "voiced" t.

\+ advanced variety; u + or u̟ = sound between u and ʉ.

− retracted variety; a− or a̠ = sound between a and ɑ .

˔ raised variety; a ˔ or a̝ = ạ = æ .

˕ lowered variety; e ˕ or e̞ = ę .

ʿ slight aspiration after p, t, etc.

ˌ under a letter (or over it if the letter has a tail below) means that the sound is syllabic; n̩ = syllabic n.

: length mark.

ˑ half length. [86]

The American linguists use what is often called the "linguistic alphabet". L. Bloomfield [55] was the first to use it, later it was expanded by B.Bloch, G.Trager [56] and other American linguists. The "linguistic alphabet" includes new symbols:

/ɨ/ for /ʌ/ (e.g. "just" /j͡ɨst/),
/ih/ for /ɪə/ (e.g. "near" /nih/),
/iy/ for /i:/ (e.g. "mean" /miyn/).
/s͡/ for /ʃ/,
/z͡/ for /ʒ/,
/c͡/ for /tʃ/,
/j͡/ for /dʒ/.

If the symbols / s͡, z͡, c͡, j͡ / suggest that the sounds are really monophonemic consonants, it is doubtful whether the postvocalic glides /w, h/ in /aw, ow, uw, ih/ are really allophones of the initial /w, h/.

The "linguistic alphabet" is widely used by those who study American English pronunciation.

Phonology has developed rapidly and made a profound study of the functions of sounds in most of the living languages. But so far it has not as yet fully examined the functions of most of the prosodic features, such as speech melody, tempo of speech, rhythm and others. Scholars are beginning to tackle these and similar problems of intonology.

EXERCISES

A. Think about the following questions for class discussion:

1. Every language contains an immense amount of actual speech sounds. What helps the listener to cope with what he hears? Why is the phoneme concept essential to the phonetic science?
2. Why can't allophones of one and the same phoneme be in contrast with each other? Can they occur in exactly the same phonetic environment? Can they distinguish differences of meaning?
3. Why isn't it possible to make any rigid separation of phonetics and phonology? Does phonetic analysis necessarily involve phonological considerations? Are phonological considerations always based on the analysis of the relevance of phonetic features?
4. All the similarities and differences between the phonemes of a language can be reduced to a comparatively small number of distinctive features. These features have been presented in articulatory terms. Can they also be presented as oppositions between acoustic features, e.g. grave and acute, compact and diffuse, etc? Which of the two presentations is preferable for making comparisons between the phonemes of

different languages? Which of the two presentations is preferable for teaching purposes?

5. Why isn't there unanimous agreement among the phonologists as to the system of English phonemes? Why can /tr/ and /ju/ be treated as single-unit phonemes? Are there any other problems which have no single solution?

6. *It is a characteristic* feature of many RP speakers and non-RP speakers to pronounce the glottal stop [ʔ] before /p/, particularly when /p/ is followed by a pause. For instance, in "What a hope!" the vowel /oʊ / is cut off by a complete closure of the vocal cords, the /p/ is exploded only after the glottal stop is released. The glottal stop is used instead of /t/ when the following consonant is a stop, as in "Not good enough". The glottal stop is also used in other phonetic positions. Why isn't the glottal stop included into the system of English phonemes in spite of the fact that it is so widely used? Can it be regarded as an allophone of /t/?

7. In every language there are certain regularities in the modifications of sounds in connected speech. Is it important to be well aware of these regularities to identify easily the words and phonemes of the language? What peculiarities of English combinatory phenomena should the learner's attention be directed at?

8. Why isn't it possible to develop an orthography for an unwritten language without an adequate phonemic analysis of the language?

B. Provide some evidence to prove that in English

(a) aspirated and non-aspirated /t/ are allophones of one and the same phoneme;

(b) /ŋ/ and /n/ are realizations of two different phonemes;

(c) /aɪ/, /aʊ/, /ɔɪ/ are single-unit phonemes.

C. English spelling is by no means a reliable guide to correct pronunciation, as it uses the same letter or letters for different sounds and it gives the same sound different spellings. Compare, for example, the pronunciation of the "ough" combination in "cough", "tough", "thought", "through", "though", "thorough". Or again, compare the spelling of / ɪ / in "little", "busy", "enough", "women". Find more examples to show how essential a phonetic transcription is for practical purposes.

D. Compare /si:d/ and /si:t/. The phonemic transcription suggests that the only perceptual difference between the two words lies in the final consonants. What else contributes a great deal to our recognition of one word or the other? Is there any difference in the length of /i:/ which is conditioned by the lenis /d/ vs. fortis /t/ consonants?

Find other examples to illustrate that a phonemic transcription

does not symbolize conditioned differences.

E. Transcribe the words "spend", "peace", "life", "choose", "joy" using
   (a) the broad (phonemic) transcription of the IPA;
   (b) the narrow transcription of the IPA;
   (c) the American transcription (the "linguistic alphabet").

CHAPTER 4. THE SYLLABLE AS A PHONETIC AND PHONOLOGICAL UNIT

GENERAL NOTES ON THE SYLLABLE

Sounds (phonemes) are the smallest segments into which the speech continuum is generally divided for purposes of analysis, because these units serve to differentiate words. But in connected speech sounds are not pronounced separately, by "themselves". It is practically impossible to draw articulatory boundaries between them. If we slow down the tempo of utterance and articulate the sounds distinctly we shall see that the smallest units, into which the speech continuum is divided, are s y l l a b l e s [27].

When we pronounce a syllable, the speech organs, while producing a consonant, take all the positions necessary for the following vowel, for example note the movements of the tongue and the lips in /su:n/ "soon", /lu:z/ "lose". That is why the boundaries between the consonant and the vowel are not clearly marked. On the contrary, boundaries between syllables are marked by the alternation of openings and closings in sound production and, as a result, by the alternation of increases and decreases in articulatory tension. So the smallest pronunciation (articulatory) unit is the syllable.

It has been proved experimentally that the syllable is also the smallest perceptible unit. A number of experiments, carried out by Soviet linguists L.Chistovitch, V. Kozhevnikov [41], Z. Dzhaparidze [25], show that the listener can recognize the preceding sound only after he has analysed the whole syllable. And it takes less time to identify a syllable than the isolated sounds contained in it.

The syllable can be considered as both a phonetic and a phonological unit. As a phonetic unit the syllable is defined in articulatory, auditory (perceptual) and acoustic terms with universal application for all languages.

As a phonological unit the syllable can be defined and described only with reference to the structure of one particular language. The very term "syllable" denotes particular ways in which phonemes are combined in a language. (Cf. the Greek syllabē, "something taken together", from syn–, "together", and labein, "take").

Each language has its own rules of combining its phonemes into syllables. Some combinations are permissible in a language, others are not. Therefore, without any reference to morphology (to the meaning), it is possible to say that such nonsense words as "bulling", "mimsy", "slithy", "wabe", "toves" etc. from Lewis Carol's "Alice in Wonderland", are English and "kpo", "fsple" cannot be English as far as the combinations of phonemes are concerned [64]. And because of the specific grouping and distribution of phonemes in different languages one and the same word may, with certainty, be interpreted as

bisyllabic by a speaker of one language, and as trisyllabic by a speaker of another language. For example, a German pronounces the word "Knabe" as bisyllabic, whereas an Englishman would make it trisyllabic – /k ə n ɑ:b ə /, because the English language does not permit /kn/ as an initial sound combination [99].

The ancient Greak scholars noticed that the two main phonological types of sounds – vowels and consonants fulfil different functions in speech. The function of a vowel is to occupy the central position in certain combinations of sounds, whereas consonants serve as the margins of the sound combinations. (Hence the term "consonant", which means "sounding with something" – con+sonant.) In other words, vowels are always syllabic and consonants are incapable of forming syllables without vowels.

But in a number of languages some sonorous consonants, such as /n, l, r, m/, can also be syllabic because of their strong vocalic features, for instance, in Czeck – "krk" (neck) and in English "garden" /g ɑ : –d̩n/, "needn't" /n ɪ : –d̩nt/, "castle" /k ɑ : –s̩l/, "lighten" /l ɑɪ –t̩n/.

So, phonologically, the syllable is a structural unit, which consists of a vowel alone or of a vowel (or a syllabic sonorant) surrounded by consonants in the numbers and arrangements permitted by a given language.

THE PHONETIC ASPECT OF THE SYLLABLE

Phoneticians are not always in agreement in their definition of the syllable because in their analysis they proceed from either articulatory or acoustic aspects of the unit.

One of the phonetic theories – t h e e x p i r a t o r y, or c h e s t p u l s e t h e o r y – defines the syllable as a sound or a group of sounds that are pronounced in one chest pulse, accompanied by increases in air pressure. According to this definition, there are as many syllables in a word as there are chest pulses (expirations) made during the utterance of the word. Each vowel sound is pronounced with increased expiration. Consequently, vowels are always syllabic. Boundaries between syllables are in the place where there occur changes in the air pressure. But it is impossible to explain all cases of syllable formation on the basis of the expiratory theory, and therefore, to determine boundaries between syllables. A.Gimson notes that it is doubtful whether a double chest pulse will be evident in the pronunciation of juxtaposed vowels as, for instance, in "seeing" / s ɪ : – ɪŋ/, though such words consist of two syllables [71].

The r e l a t i v e s o n o r i t y t h e o r y, or the prominence theory, created by the Danish phonetician O. Jespersen, considers that sounds tend to group themselves according to their sonority.

Pronounced with uniform force, length and pitch, speech sounds differ in sonority (prominence, audibility or carrying power). The most sonorous

sounds are vowels, less sonorous are sonorants /w, j, r, m, n, ŋ / and the least sonorous are noise consonants. O. Jespersen classifies sounds according to the degree of sonority in the following way (beginning with the most sonorous):

1. Open vowels /æ, ɒ, ɑ:, ɔ :/
2. Mid–open vowels /e, ɜ :, ə , ʌ/
3. Close vowels / ɪ:, ɪ , ʊ , u:/
4. Sonants /r, l, m, n, ŋ , w, j/
5. Voiced fricatives /v, ð , z, ʒ/
6. Voiced stops /b, d, g/
7. Voiceless fricatives /f, θ , s, ʃ /
8. Voiceless stops (p, t, k/

Sounds are grouped around the most sonorous ones, i.e. vowels (and sometimes sonants) which form the peak of sonority in a syllable. One peak of sonority is separated from another peak by sounds of lower sonority, i.e. consonants. The distance between the two points of lower sonority is a syllable, e.g. / ɒk–ˈtoʊ –bə / "october". The number of syllables is determined by the number of peaks of prominence. Thus in the word / melt / "melt" there is one peak of sonority /e/ and the word is monosyllabic. In the word / metl / "metal" there are two peaks of sonority – /e/ and /l/, separated by the least sonorous /t/, and consequently, there are two syllables.

Here are some more examples to illustrate the sonority theory: /wʊdn/ "wooden". /fild/ "filled", /fidl/ "fiddle".

In Czeck words like "vlk", "krk" and in English "pst" the sounds /l, r, s/ are sonorous peaks.

But there are cases that contradict Jespersen's theory.

e.g. /stɑ:/ "star", / skeɪt/ "skate", /nekst/ "next".

In these words the sound /s/ is more sonorous than /t/ and /k/ and forms the second peak of sonority. Yet, the words are monosyllabic.

It is evident that the relative sonority theory does not explain the mechanism of syllable formation. It only makes an attempt at explaining our perception of a syllable. Neither does it explain syllable division, as it does not say to which syllable the less sonorous sounds belong, e.g. / ən ˈaɪsmæn/ "an iceman" and /əˈnaɪsˈmæn/ "a nice man", / ə n ˈeɪm/ "an aim" and /əˈneɪm/ "a name", /sʌm ədresɪz/ "some addresses" and /sʌməˈdresɪz/ "summer dresses"

Nevertheless, the relative sonority theory has been accepted by D.Jones and some other phoneticians.

The most widespread among Soviet linguists is the m u s c u l a r t e n – s i o n (or the articulatory effort) t h e o r y which is known as Shcherba's theory.

According to this theory a syllable is characterized by variations in muscular tension. The energy of articulation increases at the beginning of a

syllable, reaches its maximum with the vowel (or the sonant) and decreases towards the end of the syllable. So, a syllable is an arc of muscular tension. The boundaries between syllables are determined by the occurrence of the lowest articulatory energy.

There are as many syllables in a word as there are maxima of muscular tension in it. Cf. /t͡ɑ:/ "tar" and /tɑ:/ "tower" (a reduced variant of /tɑʊə/). The sound / ɑ:/ in the second example is pronounced with two articulatory efforts, so there are two arcs of muscular tension and, therefore, two syllables.

Consonants within a syllable are characterized by different distribution of muscular tension. In accordance with this, L. Schherba distinguished the following three types of consonants.

1) Initially strong consonants, in the articulation of which the beginning is stronger while the end is weaker. They occur at the end of a closed syllable.

E.g. i͡t, ʌ͡s, p i͡n, s æ͡d, p ɑ:͡t*

2) Finally strong consonants, in the articulation of which the beginning is weak while the end is more energetic. They occur at the beginning of a syllable.

E.g. m͡i , t͡ai , p͡ɑ:t , s͡æd

3) Double-peaked consonants, in the articulation of which both the beginning and the end are energetic whereas the middle is weak. Acoustically they produce the impression of two consonants. These consonants occur at the junction of words or morphemes.

E.g. pe͡inn͡ɑɪf , ðæ͡t t͡ɑɪm, mɪ͡dd͡eɪ .

The type of consonant is therefore a cue for syllable division. If in /əneɪs haʊs/ the sound /n/ is initially strong, the syllabic boundary is after the /n/ — /ə n aɪs haʊs/. If the sound /n/ is finally strong, the boundary is before it — /ə naɪs haʊs/. In other words, if there is a new onset of muscular tension on the sound /n/, the latter belongs to the second syllable, and if the new onset of muscular tension is on /aɪ/ , the sound /n/ belongs to the first syllable.

The above theories define the syllable on either the production or perception level.

N. Zhinkin has worked out the so-called loudness theory [26], which takes into account both the levels. On the perception level the syllable is defined as an arc of actual loudness. The experiments carried out by N.Zhinkin, showed that the organ immediately responsible for the variations in loudness of a syllable is the pharynx. The narrowing of the pharyngeal passage and the resulting increase in muscular tension of its walls reinforce the actual loudness of the vowel thus forming the peak of the syllable, while the loudness of the

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* / ¦ / is used to isolate the consonant out of the syllable.

marginal consonants is weakened. In the production of loudness variations of all the speech mechanisms are involved. So on the speech production level the correlate of "the arc of loudness" is "the arc of articulatory effort".*

The acoustic aspect of the syllable has been studied by E.Zwirner, R.Jakobson and M.Halle. According to the results obtained, the peak of the syllable (a vowel or a sonant) has a higher intensity than its consonants, and in many cases a higher fundamental frequency. Perceptually, the peak is louder and higher in pitch. These acoustic features easily agree with the physiological definition of the syllable as an arc of articulatory effort (or muscular tension).

In analysing the above theories of the syllable, we cannot but agree with the scholars who point out that each of the existing theories is correct to a certain extent, but none of them is able to explain reliably all the cases of syllable boundaries.

It seems that the phonetic definition of the syllable should also take into account the peculiarties of the articulatory basis of a concrete language, the characteristic tendencies in articulatory transitions from a consonant to a vowel (CV transition), from a vowel to a consonant (VC transition) and from a consonant to a consonant (CC transition).

In English CV transitions are loose, and, therefore the voiceless plosives /p, t, k/ before stressed vowels are aspirated. So the presence of aspiration can indicate that the consonant and the vowel belong to the same syllable, e.g. "plum pie" / plʌm paɪ /. The absence of aspiration shows that they belong to different syllables, i.e. there is a syllable boundary after the consonant, e.g. in "plump eye" /plʌmp aɪ/.

VC transitions are often close in English, because of the checked character of short vowels under stress. Such a VC combination forms one syllable. In unstressed position a short English vowel is not checked and because of the loose VC transition it may form one syllable and the following consonant may belong to another one, e.g. "positive" / pɒz-ɪ-tɪv/.

However the syllabic boundaries are not always well marked in connected speech (e.g./ ə n ɑ is hɑ ʊ s/) which leads to controversial views on syllbble division.

THE STRUCTURAL ASPECT OF THE ENGLISH SYLLABLE

To study the syllable as a phonological unit of English is to describe the structure**of the syllable by stating the functions of the phonemes in it and the relations between the phonemes [99].

*The term is suggested by V.A.Vassilyev [110].

**The term "structure" denotes the relations between elements of a system. Applied to the syllable, it refers to the relationship between the phonemes constituting the syllable.

Syllable formation in English, as in other languages, is based on the phonological opposition of vowels and consonants. Vowels are always syllabic, they occupy a central position in the syllable. Consonants are non-syllabic and marginal. The sounds /w, r, j/, despite their strong vocalic features, function as consonants, occurring only before the vowel, e.g. /ˈwɪn- tə /, /ˈrɪ :-də /, /ja:d/. The sounds /l, m, n/ normally function as consonants, in various sound combinations before the vowel. But in unstressed final position, when preceded by a noise consonant, they are syllabic, e.g. /petl̩/ "petal", /blɒ sm̩/ "blossom", /laɪtn̩/ "lighten".

It should be noted specially, that historically short English vowels /i, e, æ, ʌ , ɒ , ʊ, ə / never occur in stressed final position without the following consonant. In unstressed position the vowels /ɪ, ə/ can occur as final.

Consonants present particular interest in the study of the syllable, because it is due to the number and arrangement of consonants that the structure of the syllable varies. And it is largely due to consonants that we understand the utterance.

Depending on the position of consonants (C) in relation to the vowel (V), there are 4 types of syllables: 1) open syllables (CV), when there is no consonant after the vowel, e.g. /fa:/ "far", /taɪ/ "tie", /si:/ "sea"; 2) closed syllables (VC), when the vowel is followed by a consonant, e.g. /ɑ:t/ "art", /sɪt/ "sit", /laɪf/ "life"; 3) covered syllables (CV(C), when the vowel is preceded by a consonant, e.g. /seɪ/ "say", /laɪk/ "like", / ʃɔ:/ "shore"; 4) uncovered syllables (V(C), then there is no consonant before the vowel, e.g. / æpt/ "apt", /ɪ :t/ "eat", /eɪt/ "eight". The fundamental syllable type in English is the closed syllable, whereas in Russian it is the open syllable.

As to the presence, number and arrangement of consonants there are 23 syllable patterns in English [36], such as V, VC, CVC, CV, CCVC, CCVCC, CCCVC, CCCVCC, etc. The vowel may occur alone in a syllable or it may have up to 3 consonants before it and up to 4 consonants after it. The most frequent and fundamental pattern in English is CVC.

It is a feature of English that in initial position, i.e. before the vowel, there can be any consonant except / ŋ /; no consonant combinations are possible with / ð , z, tʃ, dʒ /, and such consonant clusters as /mh, sr, sʃ, spw, fs, hr, stl/ cannot occur initially either.

J. O'Connor notes that final clusters are much more complex in English than initial ones. This is due to the fact that final clusters are used to express grammatical meanings of plurality, tense, ordinal number, e.g. "texts" /-ksts/, "mixed" /-kst/, "glimpsed"/-mpst/. In Russian initial clusters are more complex and more numerous than the final ones, because they represent grammatical prefixes, e.g. /fskr-, fspl-, vzr-, kst-/. [99]

Phonotactic possibilities of English phonemes predetermine the rules of syllable division.

English historically short vowels under stress (checked vowels) occur only in a closed syllable. Checked vowels are always followed by a consonant. So the syllabic boundary never occurs after these vowels.

It lies after the following consonant, as in /ˈlʌv-lɪ/ "lovely", /ˈtwen–tɪ/ "twenty", /ˈkwɪk–lɪ/ "quickly", /ˈhɒ t–lɪ/ "hotly", /gʊ d–nɪs/ "goodness" or within it, if it is the only consonant between the checked vowel and the succeeding vowel. E.g. /ˈlet͡ə / "letter", /ˈbɪg͡ə / "bigger", /ˈhɒt͡ə / "hotter", /ˈʃɪl͡ɪŋ/ "shilling".

The preceding and following vowels attract this consonant and the consonant is split into two. In speech the consonant forms a close link between the two syllables. If a checked vowel is separated by one consonant from a syllabic sonant the boundary between the two syllables is also within the consonant. E.g. ˈɪt͡l, ˈkɒt͡n, ˈfæt͡n, ˈbɪt͡n, ˈrɪð͡m.

Historically long monophthongs, diphthongs and unstressed short monophthongs (free vowels) can occur both in the open and in the closed syllable. E.g. /k ɑ:/ "car", /k ɑ:t/ "cart", /ˈtɑɪ–nɪ/ "tiny".

When a free vowel is separated from a succeeding vowel by only one consonant sound, the syllable in which such a vowel occurs , is always open. E.g. /aɪ–ˈdɪə / "idea", /kaː–ˈtuːn/ "cartoon", /ɪ–ˈrekt/ "erect".

When a post–stressed short vowel is separated from a succeeding vowel by a single consonant, the boundary is most probably, before the consonant, because the short vowel is free in unstressed position. E.g. /ˈf æ mɪlɪ/ "family", /ˈpɒl–ɪ–sɪ/ "policy", /ˌpɒs–ɪ–ˈbɪl–ɪ–tɪ/ "possibility".

When there is a cluster of consonants between two vowels, the place of the syllabic boundary is conditioned by whether this cluster is permitted at the beginning of words or not. If it does occur in initial position in English the syllabic boundary is before it. If it doesn't, the boundary is between the consonants. For instance the cluster /gr/ is used word–initially in English, therefore it can occur at the beginning of a syllable and the syllabic boundary is before the cluster. E.g. / ə –ˈgrɪː/ "agree", /rɪ–ˈgret/ "regret".

The clusters /dm/, /dv/ do not occur word–initially and cannot occur at the beginning of a syllable. The syllabic boundary is therefore between the consonants constituting the clusters. E.g. / ə͡dˈmɪt/ "admit", / ə͡dˈmɑɪə / "admire", /ə͡dˈvɑɪs/ "advice", /ə͡dˈmɪʃ n/ "admission".

When two vowels are separated by more than two consonants as for example in /ˈekstrə / the boundary may be both before /s/ and /t/ because both /str/ and /tr/ occur at the beginning of words and /ks/ can occur in final position.

The so–called triphthongs in English are disyllabic combinations, because they contain two vowel phonemes. E.g. /ˈsɑɪ– ə ns/ "science", /ˈflɑʊ – ə / "flower", /ˈvɑʊ–əl/ "vowel"

The structure of an English syllable depends on whether it is stressed or not. The peak of the stressed syllable is always a vowel. In the unstressed syl–

lable the peak may be a vowel or a sonant. When the peak of the stressed syl–lable is a short vowel, the syllable must be "closed" by a consonant.

FUNCTIONS OF THE SYLLABLE

As a phonological unit the syllable performs several functions, that may be combined into the main three: constitutive, distinctive and identificatory.

The c o n s t i t u t i v e function of the syllable manifests itself in the fact that the syllable forms higher–level units – words, accentual or rhythmic groups, utterances. Two aspects of this function can be emphasized. On the one hand, the syllable is a unit in which segmental phonemes are realized. L. Bondarko has proved experimentally that the relations between the distinctive features of the phonemes and their acoustic correlates can be revealed only within the syllable [14]. On the other hand, within a syllable or a sequence of syllables prosodic (or suprasegmental) features of speech are also realized. These are distinctive variations in loudness (stress) in pitch (tone), and in duration (tempo, lenght). Thus syllables may be stressed and unstressed, high, mid or low, rising or falling, long or short. All these prosodic features are significant for constituting the stress–pattern of a word and the tonal and rhythmic structures of an utterance.

So we can say, that the syllable is not a mere sum of sounds; it is a specific minimal structure of both phonemic and prosodic features. In the taxanomical scale of language units the syllable occupies the position between the phoneme and the word [64].

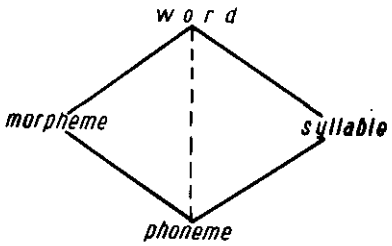

Fig. 8. Relations of language units.

In forming words and utterances the syllable performs the delimitative function which is inseparable from the constitutive function. Some syllables can occur only word–initially (/gr/, /str/) and others only word–finally; /tn/, /dn/, /stl/ thus making the boundaries between words.

The d i s t i n c t i v e function of the syllable is to differentiate words and word combinations. It has been mentioned that phonemes exist and function within the syllable. Therefore words are actually differentiated by the syllable as one articulatory and perceptible unit. For instance, the mono–syllabic words /bi:t/ "beat" and /bɪ:d/ "bead" differ not only in their conso–nant phonemes /t/ and /d/, but also in the length of /i:/, which is conditioned by

the neighbouring fortis and lenis consonants. Such words as /ga:dn/ "garden" – /ga:dz/ "guards", /bi:tn/ "beaten" – /bi:ts/ "beats" are distinguished not only by the phonemes /n/ versus /z/ and /n/ versus /s/ but also by their syllables as bisyllabic and monosyllabic words.

There are some words in English where syllabicity alone is responsible for the differenation of the words: /laɪtnɪŋ/ "lightening" (освещение) and /laɪtnɪŋ/ "lightening" (молния).

V.Vassilyev notes that the existence of such pairs of words makes it possible to consider syllabicity the only distinctive feature of the words and, on this account he distinguishes a separate phonological unit – the syllabeme [110].

Variations in the syllabic structure of one and the same word or a word combination may serve to differentiate styles of pronunciation. For example the word "national" may be pronounced with 3 and 2 syllables – /næʃnəl/ and /næʃnəl/; the word combination "little and nice" may have 4 or 3 syllables– /lɪtlənnaɪs/ and /lɪtlənnɑɪs/. The second variants are characteristic of the colloquial style.

Syllable division (syllabification) is very important too in distinguishing words and utterances.

The distinctive role of syllabification is illustrated by examples like

/naɪtreɪt/ "nitrate" – /naɪtreɪt/ night–rate,

/əneɪm/ "a name" – /əneɪm/ "an aim",

/waɪloun/ "we'll own" – /waɪloυn/ "we loan",

/aɪskrɪ:m/ "I scream" – /aɪskrɪ:m/ "ice cream",

/aɪs ɔ:hər aɪz/ "I saw her eyes"–/aɪ s ɔ:hər aɪz/ "I saw her rise".

Due to the distinctive importance of syllable division, the syllabic boundary is often regarded by the American descriptivists as a separate phonological unit – the juncture phoneme.

There are two types of juncture: open and close. Open juncture (or open transition) occurs between syllables, i.e. between two articulatory units. It may also be called intersyllabic juncture. Thus, in "we'll own" /wɪl oυn/ the open juncture is between /l/ and /o/, and in "we loan" /wɪ loυn/ it is between /ɪ/ and /l/;

Close juncture (or close transition) occurs between sounds within one syllable, i.e. within one articulatory unit. Therefore, the transitions from one sound to another are closer within a syllable than between syllables. Thus in "we loan" /wɪ loυn/ the close juncture is between /l/ and /oυ/, /oυ/ and /n/. This juncture may also be called intrasyllabic juncture.

The latest acoustic investigations of juncture show that the factors determining an open or a close juncture are the duration of the sounds, their intensity and formant transitions. Thus, according to the data obtained by

I.Lehiste [94], the initial /n/ in "a nice man" is longer than the final /n/ in "an iceman". The pre-junctural /n/ has falling intensity, while the post-junctural /n/ has rising intensity. Formant transitions of /n/ and /ai/ are different in the contrasted pairs.

While the phonetic realization of open juncture is described by different phoneticians in approximately the same terms, there is less uniformity in their phonological interpretation of the phenomena. Some phoneticians consider the open juncture to be a segmental phoneme [77], others consider it a suprasegmental phoneme [78] or a phoneme in its own right [79, 109].

K.Pike and I.Lehiste regard the juncture to be a contrastive feature of high-level units but not a phonological unit in its own right [94, 104].

The identificatory function of the syllable is conditioned by the hearer's perception of syllables as entire phonetic units with their concrete allophones and syllabic boundaries.

The listener identifies two syllables in "plum pie" and "plump eye" with the corresponding boundaries before /p/ and after /p/, because in the first example /p/ is aspirated and /m/ is as long as if it were final, whereas in the second example /p/ is unaspirated and /m/ is shorter on account of the following fortis /p/.

That is why learners of English should take care not to mispronounce English sounds and not to shift the syllabic boundary as it may cause not only a strong foreign accent, but also misunderstanding on the part of the listener.

EXERCISES

A. Think about the following questions for class discussion:

1. Why is the syllable considered to be the smallest articulatory unit? Why can't we consider the sound to be the smallest articulatory unit?
2. What makes us assert that the syllable is also the smallest perceptible unit? Don't we perceive separate sounds in connected speech?
3. Is the syllable a linguistic unit? Is it the smallest linguistic unit?
4. What are the main problems of the phonetic aspect of the syllable? Which of the theories of syllable formation do you think is the most consistent and helpful?
5. Could we describe the structure of the syllable with reference to all the languages? What universal features of the syllabic structure could you name?
6. What are typically English structural characteristics of the syllable?

B. Choose one of the nonsense words given below which can be recognized as either English or Russian due to the structural characteristics of the syllables:

vzol, mimsy, fole, strem, kpi, rzhest, pernit.

C. Transcribe the following words and divide them into syllables:

1) river, runner, petal, solid, cricket, level, sonority, specific, syllabic;
2) towel, bowl, shower, science, require;
3) express, strengthen, extraordinary, cluster, succeed, function, obstruc-tion.

E. Collect pairs of words and word combinations which are differentiated by the position of the syllabic boundary as are "plum pie" and "plump eye".

CHAPTER 5. WORD STRESS

THE NATURE OF ENGLISH WORD STRESS

A word, as a meaningful language unit, has a definite phonetic structure. The phonetic structure of a word comprises not only the sounds that the word is composed of and not only the syllabic structure that these sounds form, it also has a definite stress pattern.

The auditory impression of stress is that of prominence. And if a word contains more than one syllable, the relative prominence of those syllables differs. There may be one prominent syllable in a word as compared to the rest of the syllables of the same word (as in "im'portant"), there may be two equally prominent syllables (as in "'misbe'have"), two unequally prominent syllables (as in "ˌexami'nation") or more prominent syllables (as in "'unreˌliaˌbility" And this correlation of degrees of prominence of the syllables in a word forms *the stress pattern of the word*, which is often called *the accentual structure of a word*.

The stress patterns of different words may coincide. Thus the words "mother", "table", "happy", "after" have an identical stress pattern ⊥ — , though their sound structures have nothing in common. The stress pattern of these words differs from that of "analyse", "prominent", "syllable", "character", which is ⊥ — — .

Monosyllabic words have no stress pattern, because there can be established no correlation of prominence within it. Yet as lexical units monosyllables are regarded as stressed.

The stress patterns of words are generally perceived without difficulty. People easily distinguish between "'subject" and "sub'ject".

Actual speech does not consist of isolated words. And the stress pattern of a word is deduced from how the word is accented in connected speech. On the other hand, the stress pattern of a word is only its potential pattern in an utterance. Though English words generally retain their stress patterns in connected speech, there occur numerous instances when the stress pattern of a word is altered.

Cf. 'unhappy – He was 'so unhappy. – He 'remembered those 'unhappy 'days.

Thus, word stress may be said to be a word–level concept [61], which should not be confused with utterance stress. Word stress belongs to the word when said in isolation. Whereas utterance stress belongs to the utterance.

The placement of utterance stress is primarily conditioned by the situational and linguistic context. It is also conditioned by subjective factors: by the speaker's intention to bring out words which are considered by him to be semantically important in the situational context. As for the stress pattern of a word, it is conditioned only by objective factors: pronunciation tendencies

and the orthoepic norm. One cannot distort the stress pattern of a word on one's own, because such a distortion will make speech unintelligible.

As stated above, the auditory impression of stress is that of prominence. So a stressed syllable on the auditory level is a syllable that has special prominence. The effect of prominence may be produced by a greater degree of loudness, greater length of the stressed syllable, some modifications in its pitch and quality.

Acoustic analysis shows that the perception of prominence may be due to definite variations of the following acoustic parameters: intensity, duration, frequency, formant structure*. All these parameters generally interact to produce the effect of prominence.

In different languages stress may be achieved by various combinations of these parameters. Depending upon which parameter is the principal one in producing the effect of stress, word stress in languages may be of different types.

There are languages with dynamic word stress. Stress in such languages is mainly achieved by a greater force of articulation which results in greater loudness, on the auditory level, and greater intensity on the acoustic level. The stressed syllables are louder than the unstressed ones. All the other parameters play a less important role in producing the effect of stress in such languages.

In languages with musical word stress prominence is mainly achieved by variations in pitch level, the main acoustic parameter being fundamental frequency. Chinese, Japanese, Vietnamese are languages with musical word stress (or tonic word stress). The meaning of the words in those languages depends on the pitch levels of their syllables.

Swedish word stress is characterized as dynamic and musical, because both loudness and pitch variations are relevant factors in producing prominence. For instance, the Swedish word "Anden" with falls in pitch on both syllables means "soul", but when pronounced with a fall in pitch on the first syllable and low pitch on the second syllable means "duck" [99].

In languages with quantitative word stress the effect of stress is mainly based on the quantity of the sound, i.e. its duration. In such languages vowels in the stressed syllables are always longer than vowels in unstressed syllables. Russian word stress is considered to be mainly quantitative though it has been proved that duration is not the only parameter that produces the effect of stress in Russian [28].

Besides those types of word stress, linguists distinguish qualitative word stress,as in many languages the quality of vowels in stressed syllables is unobscur-

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*It is generally accepted that intensity, duration, frequency and formant structure are the physical correlates of loudness, length, pitch and quality correspondingly.

red and consequently differs greatly from the quality of vowels in unstressed syllables.

What type of word stress is English word stress? What is its acoustic nature?

Until recently, English word stress was considered to be dynamic, as stress was generally correlated with loudness. But numerous investigations of the acoustic nature of English word stress have made it clear that stress in English does not depend on intensity alone, and that English word stress is of a complex nature.

Thus, D.Fry synthesized pairs of words (such as "ˈobject—obˈject") on monotones, and varied the relative durations and intensities of the two vowels. His experiment showed that as long as duration and intensity were increased together, reinforcing each other, there was agreement on which of the syllables was the most prominent one; but, when increased separately, duration appeared to be more important than intensity. [70]

D. Bolinger's experiments have shown that pitch movement in English is also one of the most important cues for prominence. But it is not the pitch direction that is significant in English, it is the pitch contrast that really matters. In other words, variations in the pitch direction will not change the meaning of a word. For example, "ˆabstract", "ˏabstract", "ˇabstract" remain to be one and the same word. But a relatively wide departure from a monotone level is always perceived as a change in the degree of prominence.

A.Gimson notes that if a synthesized nonsense word /ɪbɒlæ/ is presented to English listeners, with no pitch, intensity or length variations but with vowels of different quality, the vowels which are the most sonorous (i.e. the most open vowels) will be judged most prominent. In this nonsense word /ɒ/ and / æ / are usually judged as the points of greatest prominence. [71] This shows what an important role the inherent quality of a vowel plays in producing the effect of prominence.

Thus, as far as English word stress is concerned, relative prominence in the listener's mind is created by an interaction of four acoustic parameters: intensity, fundamental frequency, duration and formant structure. The peculiarity of this interaction still remains a controversial problem and a very complicated one.

What complicates the matter is that in English a vowel in an unstressed syllable may be non—reduced and longer than in a stressed syllable (as in "ˈpillow", "ˈcompound"). Vowels differ in their intensity as well; for example, the intensity of /ɪ/ is much lower than that of / ɑ:/ or / ɔ:/. Besides that, the quantity of English vowels also differs: in identical phonetic environment an open vowel is longer than a close vowel. It is a universal rule for most languages (/a: > ɔ: > ɜ: > u: > i:> æ > ɒ > e > ɤ > ɪ/). Moreover, a

vowel following a lenis voiced consonant tends to have lower pitch than one which follows a fortis voiceless consonant (cf. "dear" – "tear", "bee" – "tea"). Yet an Englishman easily distinguishes a stressed syllable from among the unstressed despite the diversity in the acoustic characteristics of stressed syllables.

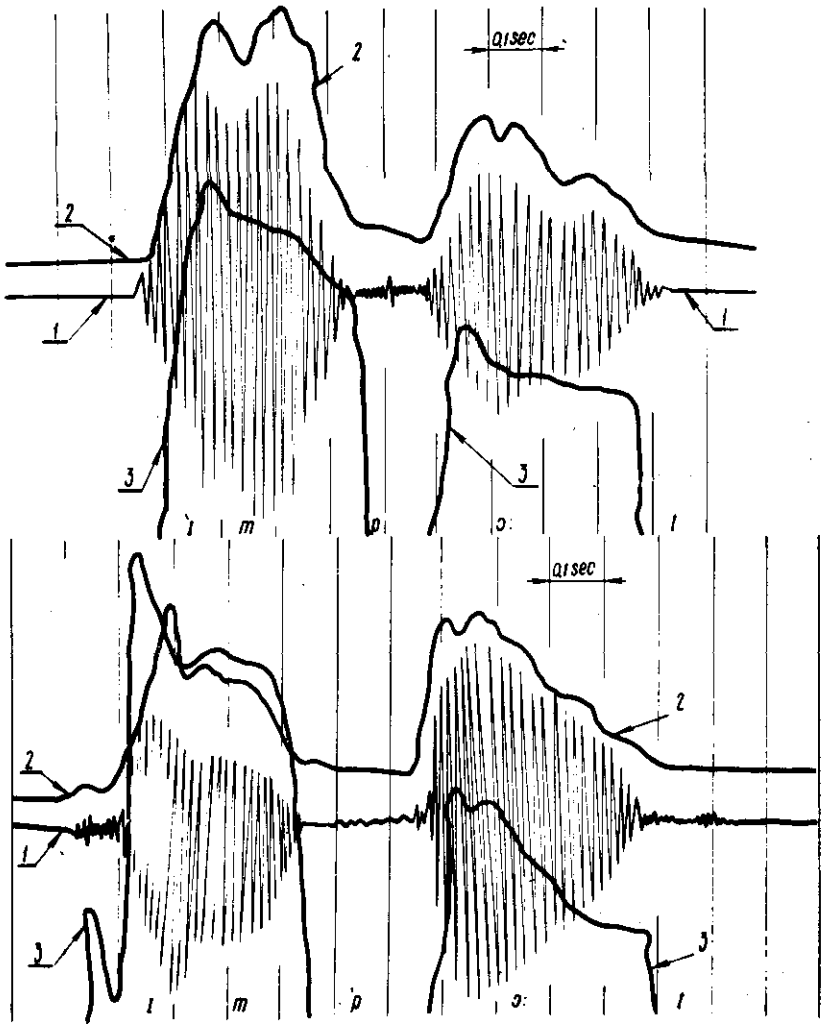

Fig. 9. Intonograms of the words "ˈimport" and "imˈport". 1 – wave forms of sounds; 2 – envelope amplitude of intensity; 3 – curve of fundumental frequency.

Therefore stress in English manifests itself in various ways, either the intensity, or duration of the stressed syllable may increase, or the spectrum of the stressed vowel may be sharpened, or the fundamental frequency may show a distinct rise (or fall). There may also be a combination of any of these parameters (see Fig.9).

As for Russian word stress, it is considered to be primarily quantitative (because in Russian a stressed syllable is about 1.5 times longer than an unstressed syllable) and, secondarily, it is qualitative and dynamic [15].

LINGUISTICALLY RELEVANT DEGREES OF WORD STRESS

One of the main questions for the linguist is to determine the number of contrastive degrees of word stress in a language.

How many contrastive degrees of word stress exist in English? How many degrees of word stress are linguistically relevant in English?

Instrumental investigations show that a polysyllabic word has as many degrees of prominence as there are syllables in it. D.Jones has indicated the degrees of prominence in the word "opportunity". The most prominent syllable is denoted by figure 1, the second degree of prominence – by figure 2, and so on.

2 4 1 5 3
ɔpətju:nɪtɪ [84]

But not all these degrees of prominence are linguistically relevant. The problem is to determine which of these degrees are linguistically relevant.

There are two views of the matter. Some (e.g. D.Jones [84], R.Kingdon [89], V.Vassilyev [110]) consider that there are three degrees of word stress in English: primary (or strong stress), secondary (or partial stress) and weak (the so–called "unstressed" syllables have weak stress). Secondary stress is chiefly needed to define the stress pattern of words containing four or more syllables, and compound words.

E.g. "ˌexamiˈnation", "ˌqualifiˈcation", "ˈhair–ˌdresser".

All these degrees of stress are linguistically relevant as there are words in English the meanings of which depend upon the occurrence of either of the three degrees in their stress patterns.

E.g. "ˈimport – imˈport", "ˌcertifiˈcation – ceˌrtifiˈcation".

But auditory analysis shows that there are certain positions in the stress patterns of English words where the vowel generally remains unobscured and its duration is considerable, though the syllable it occurs in does not actually bear primary or secondary stress. This can be clearly seen in verbs ending in "–ate", "–ize", "–y" (e.g. "elevate", "recognize", "occupy") and in such words as "portray", "canteen", "austere". Besides, this can also be observed in

GA* nouns ending in "–ary", "–ory", "–ony" (e.g., "dictionary", "territory", "ceremony"). On this account some American linguists (G.Trager [108], A.Hill [79]) distinguish four degrees of word stress:

primary stress / ˈ / (as in "cúpboard"),

secondary stress / ˆ / (as in "discrîmináti̇on"),

tertiary stress / ˋ / (as in "ánalỳse"),

weak stress / ˇ / (as in "cúpbǒard", but very often the weakly stressed syllable is left unmarked).

American phoneticians consider that secondary stress generally occurs before the primary stress (as in "exâmináti̇on"), while tertiary stress occurs after the primary stress (as in "hándbòok", "spécialìze").

Though the second view seems to be more exact, the distinction between secondary and tertiary degrees of stress is too subtle to be noticed by an untrained ear.

Linguistically, tertiary word stress can be taken for a variant of secondary word stress, as there are no words in English the meanings of which depend on whether their stress pattern is characterized by either secondary or tertiary stress.

That is why the stress pattern of English words may be defined as a correlation of three degrees of stress.

THE STRESS PATTERNS OF ENGLISH WORDS

There are languages in which stress always falls on the first syllable (as in Czech and Finnish), or on the last syllable (as in French and Turkish). Word stress in such languages is said to be fixed. The stress patterns of the bulk of English words are regular and stable (e.g. the stress pattern of "happiness" is ˈ_ _ _, and one cannot alter it to _ ˈ_ _ or _ _ ˈ_). Yet English word stress is said to be free. It is free in the sense that stress is not fixed to any particular syllable in all the words of the language.

G.Torsuyev [36], who has made a special analysis of the English stress patterns, distinguishes more than 100 stress patterns, which he groups into 11 main types. The most common among them are:

ˈ_ (words with one primary stress, as in "ˈafter"),

ˈ_ ˈ_ (words with two primary stresses, as in "ˈweek–ˈend"),

ˌ_ ˈ_ and ˈ_ ˌ_ (words with one primary and one secondary stress, as in "ˈhair–ˌdresser", "ˌmagaˈzine").

They are the most productive types of stress patterns too, as borrowings and new words that appear in English are generally stressed accordingly.

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* GA stands for General American, which is the standard pronunciation of American English.

The remaining types of stress patterns are less common in English:

⊥ ⊥ ⊥ (e.g. "USA"),
⊥ ⊥ ⊥ ⊥ (e.g. "USSR"),
⊥ ⊥ ˫ (e.g. "ˈunseaˌworthy"),
⊥ ˫ ⊥ (e.g. "ˈmisˌinˈterpret"),
⊥ ˫ ˫ (e.g. "ˈuncircumcision"),
˫ ˫ ⊥ (e.g. "ˌindiˌvidualiˈzation"),
˫ ⊥ ˫ (e.g. "ˌgingerˈbeer–ˌbottle"

Though word stress in English is called free, there are certain tendencies in English which to a certain extent regulate the accentuation of words. The linguists who have made a thorough analysis of English stress patterns have agreed upon the existence of two main accentuation tendencies in English : the r e c e s s i v e t e n d e n c y and the r h y t h m i c t e n d e n c y.

According to the recessive tendency, stress falls on the first syllable which is generally the root syllable (e.g. "ˈmother", "ˈfather", "ˈsister", "ˈbrother", "ˈready", "ˈwindow") or on the second syllable in words which have a prefix of no special meaning (e.g., "beˈcome", inˈdeed, forˈgive, beˈhind").

The recessive tendency in stressing words is characteristic of words of Anglo–Saxon origin, but the tendency has also influenced many borrowings (e.g. "ˈexcellent, ˈgarage").

In present–day English 74% of words containing two syllables have the stress pattern ⊥ _, and 26% have the pattern _ ⊥. In words of three syllables 55% have the stress pattern ⊥ _ _, whereas only 39% have the pattern _ ⊥ _ and 6% have the pattern _ _ ⊥ [75]

In the English language a considerable part of the vocabulary consists of monosyllabic words, some of which are stressed, others not*. This created the rhythmic tendency to alternate stressed and unstressed syllables. According to the rhythmic tendency, stress is on the 3rd syllable from the end("ˈintensity", ˌpossiˈbility").

It is the usual way of stressing four–syllabled words (e.g. "ˈpolitical, deˈmocracy, iˈdentify, comˈparison"). 36% of words of four syllables have the pattern _ ⊥ _ _, 33% have the pattern ⊥ _ _ _, 29% have the pattern _ _ ⊥ _, and in 2% the stress falls on the last syllable [75].

In words with more than four syllables we very often find the influence of both the rhythmic and the recessive tendencies(e.g. "ˌindiˈvisible, ˌinefˈficiency, ˌphysiˈology, ˌphonoˈlogical").

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* "In a running text of a conversational kind, the following approximate percentages ofoccurrence of words containing different numbers of syllables are to be expected: 1 syllable – 84%; 2 syllables – 12%; 3 syllables – 3%. The remaining 1% of words have 4 syllables or more..." [72, p. 301].

In rapid colloquial speech the two tendencies very often coincide as one of the vowels is elided (e.g. "ˈterit (o) ry, ˈdiction (a) ry, ˈlit (e) rature, ˈtemp (e) rature").

The rhythmic tendency remains a strong one and it affects the stress patterns of a large number of words in modern English. Thus, in some polysyllabic words there is a tendency nowadays to avoid a succession of weak syllables, especially if these have / ə / or / ɪ /. As a result, there appears a stress shift with a rhythmic alternation of stressed and unstressed syllables [72]. This tendency is clearly evident in the new pronunciation of the following words:

ˈexquisite ⊥ – –	or exˈquisite – ⊥ –
ˈprecedence	or preˈcedence
ˈsonorous	or soˈnorous
ˈcapitalist ⊥ – – –	or caˈpitalist – ⊥ – –
ˈcontroversy	or conˈtroversy
ˈhospitable	or hosˈpitable
ˌarticuˈlatory ┬ – – ⊥ – –	or arˌticuˈlatory – ┬ – ⊥ – –

The new variants of pronunciation of these words and many more English words have been accepted and included in Everyman's English Pronouncing Dictionary by D.Jones as either second or even first variants of pronunciation.

It has also been noticed that the stress of the parent word is often retained in the derivatives.

Cf. ˈpersonal – ˌpersoˈnality, ˈnation – ˌnaˈtionality.

This regularity is sometimes called the r e t e n t i v e t e n d e n c y in English.

There is one more tendency in English: the tendency to stress the most important elements in words. Such meaningful prominence is given to negative prefixes "un–", "in–", "mis–" (e.g. "unknown", "inartistic", "misbehave"), such prefixes as "ex–", "vice–", "sub–", "under–", (e.g. "ex–president' "vice–president", "sub–editor", "under–mine"), suffix "–teen" (e.g. "thirteen", "fourteen"), semantically important elements in compound words (e.g. "well–known", "red–hot", "bad–tempered").

These are the tendencies that to some extent regulate the placement of stress in English words and condition their stress patterns.

THE FUNCTIONS OF WORD STRESS

Word stress has a c o n s t i t u t i v e function, as it moulds syllables into a word by forming its stress pattern. Without a definite stress pattern a word ceases to be a word and becomes a sequence of syllables.

Word stress has a d i s t i n c t i v e function in English, because there exist different words in English with analogous sound structure which are differentiated in speech only by their stress patterns. E.g.,

Noun/Adjective	Verb
'insult	in'sult
'abstract	ab'stract or abs'tract
'accent or 'accent	,ac'cent or ac'cent

Is it the different degrees of stress or rather the stress patterns that distinguish one word from another?

There exist different views of the problem. Some linguists (G. Trager, A. Hill) regard degrees of word stress as phonological units, which can distinguish words. They consider degrees of word stress to be separate phonemes. Alongside the generally accepted phonemes they have introduced into the phonemic inventory 4 stress phonemes: primary (or loud), secondary (or reduced loud), tertiary (or medial) and weak stress phonemes [108, 79]. But it may be argued that degrees of stress can be treated as phonemes, because they are not segments into which speech may be divided. Degrees of stress are superimposed on syllables just as other prosodic phenomena.

V.Vassilyev [110] states that in minimal pairs as "'import" – "im'port" primary stress and weak stress form phonological oppositions (primary stress vs. weak stress). The distinction in the meaning of the words "'certifi'cation–certi'fication", according to V.Vassilyev, is based on the phonological opposition of secondary stress vs. weak stress. On this account he treats the degrees of stress as phonological units, which he calls "accentemes". He distinguishes three word accentemes in English: primary accenteme, secondary accenteme, weak accenteme. Accentemes differ from phonemes, because accentemes are prosodic phonological units.

Another view is expressed by G.Torsuyev [37], H.Kurath [92], A.Gimson [71] and others. They think that it is the stress patterns of words that contrast with each other rather than degrees of stress. This viewpoint appears to be well–grounded. It is evident that degrees of stress can be perceived only in stress patterns as relatively strong, medium or weak stress, i.e. one syllable has stronger stress than any other, another syllable is less strong but stronger than the weak ones. Moreover, in one stress pattern secondary stress may be stronger than primary stress in another stress pattern.

Therefore, it is the stress patterns "primary stress+weak stress" and "weak stress+primary stress" that distinguish words as "'import"–"im'port", "'insult"–"in'sult".

On this account a stress pattern can be treated as a relevant prosodic unit.

Word stress has an i d e n t i f i c a t o r y function as well, because the stress patterns of words enable people to identify definite combinations of sounds as meaningful linguistic units. A distortion of the stress patterns may hamper understanding or produce a strange accent.

Thus, it is obvious that word stress performs its linguistic functions only as a structural element of a word. It is actually the stress pattern of a word

that performs both the distinctive and the identificatory functions. And it is in the stress pattern of a word that the degrees of stress can be differentiated and opposed one to another.

EXERCISES

A. Think about the following questions for class discussion.

1. In an utterance only the more important words are accented, other words are either slurred over or are partially stressed. Are the stress patterns of English words ever altered by utterance stress?
2. Is there a single stress per word in English?
3. Is the English stressed syllable always louder, longer and higher in pitch than the unstressed syllables?
4. There are languages in which certain vowel qualities are strictly associated with either stressed or unstressed syllables. This produces a certain effect on the perception of stress. Is the connection between stress and vowel quality in English very strict? Are there particular sounds which occur only in stressed syllables and other sounds which occur only in unstressed syllables?
5. Stress is generally considered to be the result of an interaction of three acoustic parameters: intensity, fundamental frequency and duration. Why has a fourth parameter (that of formant structure) recently been included in the list? Does the inherent quality of sounds affect the perception of English stress?
6. Why can't stress in English delimit one word from another as it may in languages with fixed stress? Can stress in English signal the beginning or end of a word?
7. Since stress is free in English, it is possible for it to distinguish words like "billow" and "below", "insult" and "insult". But stress in many languages is fixed. Why isn't it possible for stress in those languages to distinguish between one word and another?

B. Provide evidence to prove the following:

1. There are hundreds of English words with unstable stress patterns. Compare "an outside blind" and "he went outside", "a Chinese lantern" and "he knows Chinese". Find more words in which stress may shift from one syllable to another in an utterance. Use Everyman's English Pronouncing Dictionary by D.Jones.
2. Linguists generally distinguish three relevant degrees of stress in English and state that there occur the following oppositions: fully stressed vs. partially stressed, partially stressed vs. unstressed, and fully stressed vs. unstressed. Find examples for each of the oppositions.
3. A large number of more or less fixed word combinations have what is called even stress, though the second stress of such groups is usually

slightly stronger than the first: ˈCharles ˈDickens, ˈMrs. ˈSmith, ˈNew ˈYork, ˈseventy–ˈfive, ˈapple ˈpie, ˈgold ˈring. Collect more examples.

C. Express your opinion of the following:

1. *The recessive tendency accounts* 1) *for the large number of* English words stressed on the first syllable, 2) for the large number of monosyllables in English, one or more syllables having been lost from the end of the word by reduction and elision, 3) for the loss of one or more syllables as in / ˈɔ:dnrɪ / ("ordinary"). [87]

2. *An examination of the stress patterns in British and American English* shows that the British have a predilection for pre–kinetic stresses and the Americans for post–kinetic ones. Cf.

Am.	Br.	Am.	Br.
ˋFebruary	ˋFebruary	ˋconsequence	ˋconsequence
reˋactionary	reˋactionary	faˋcade	ˈfaˋcade
adˋministrative	adˋministrative	aˋseptic	ˈaˋseptic [89]

3. Stress is potential, a locus within a word where the sentence, for its own purposes, may or may not confer a prominence [57].

CHAPTER 6. UTTERANCE PROSODY

INTONATION AND PROSODY

Phonemes, syllables and words, as lower–level linguistic units, are grouped by various prosodic means into a higher unit – the utterance. Every concrete utterance, alongside of its phonemic and syllabic structures has a certain prosodic structure, or intonation.

Most Soviet phoneticians [5, 35, 110] define intonation as a complex unity of speech melody , sentence stress, tempo, rhythm and voice timbre, which enables the speaker to express his thoughts, emotions and attitudes towards the contents of the utterance and the hearer. Speech melody, sentence stress, tempo, rhythm and timbre are all components of intonation. These are perceptible qualities of intonation.

Acoustically, intonation is a complex combination of varying fundamental frequency, intensity and duration (see the intonogramms, p. 70).

Speech melody is primarily related with fundamental frequency, tempo – with duration. But there is no one–to–one relation between any of the acoustic parameters and such components of intonation as stress and rhythm.

On the articulatory, or production, level intonation is also a complex phe–nomenon. In the production of speech melody the subglottal, laryngeal and supraglottal respiratory muscles regulate the subglottal air–pressure, which makes the vocal cords vibrate. An increase of subglottal pressure raises the pitch of the voice, and its decrease lowers the pitch.

There is no single mechanism to which the production of stress can be at–tributed. Electromyographic studies of the activity of the internal intercostals show that bursts of intercostal activity correlate with the nuclear stress of the utterance. But physiological correlates of different degrees of stress haven't as yet been established.

The definition of intonation given above is a broad definition. It reflects the actual interconnection and interaction of melody, stress, tempo, rhythm and timbre in speech.

A great number of phoneticians abroad, including D.Jones, L.Armstrong and I.Ward, K.Pike, R.Kingdon, A.Gimson, J.O'Connor and G.Arnold define intonation as the variation of the pitch of the voice, thus reducing it to one component – speech melody. This is a narrow approach to the definition of intonation.

Thus D.Jones writes: "Intonation may be defined as the variations which take place in the pitch of the voice in connected speech, i.e. variations in the pitch of the musical note produced by the variations of the vocal cords"[84, p. 275]. Another example of the narrow approach to intonation is the definition given by J. O'Connor and G.Arnold: "When we talk about English intona–

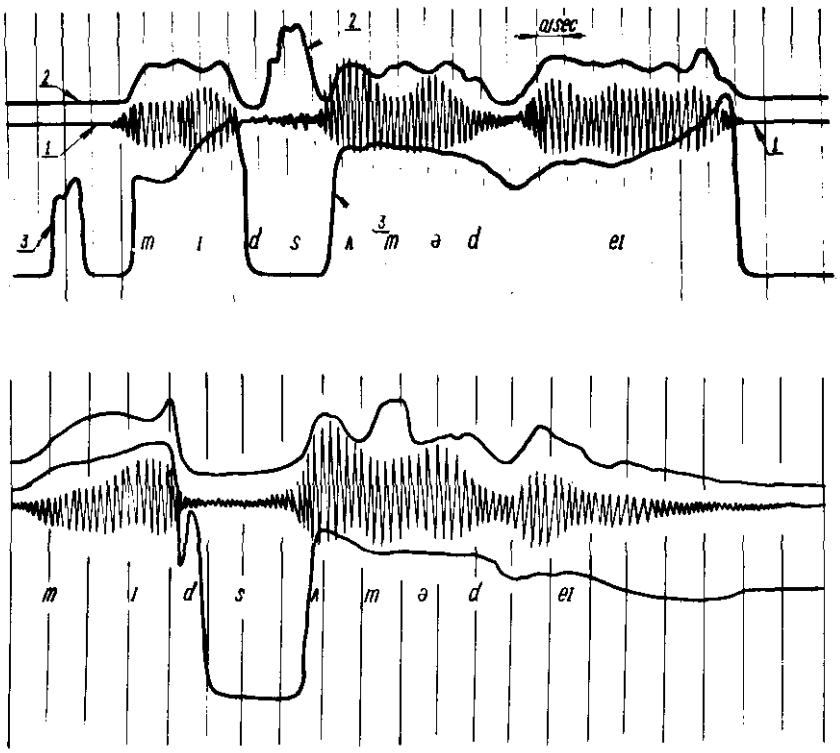

Fig. 10. Intonograms of "Midsummer day?" and "Midsummer day." 1 – wave forms of sounds; 2 – envelope amplitude of intensity; 3 – curve of fundamental frequency.

tion we mean the pitch patterns of spoken English, the pitch tunes or melodies, the musical features of English " [100, p.1].

Some foreign phoneticians give broader definitions of intonation. Thus L.Hultzen includes the variations of pitch, loudness and duration, F.Danes – the variations of pitch and intensity, D.Crystal – tone, pitch range, loudness, with rhythmicality and tempo closely related.

Alongside of the term "intonation" the term "prosody" is widely used. "Prosody" and "prosodic" denote non–segmental phenomena, i.e. those which do not enter into the system of segmental phonemes. D.Crystal defines prosodic features as "vocal effects constituted by variations along the parameters of pitch, loudness, duration and silence" [60, p. 126].

From the definition of prosody and intonation we can clearly see that both the notions include essentially the same phenomena. But the terms "intonation" and "prosody" are used differently by different linguists.

Some phoneticians apply the term "prosody" and "prosodic" only to the features pertaining to the syllable and phonetic word, or rhythmic unit

(which are regarded as meaningless prosodic units) and oppose prosody to intonation (which is a meaningful phenomenon) [5, 12].

We adhere to the point of view that prosodic features pertain not only to syllables, words and rhythmic units, but to the intonation group and the utterance as well [9, 34, 67], since the latter are constituted by these units.

The notion of prosody, consequently, is broader than the notion of intonation as it can be applied to the utterance, the word, the syllable, whereas prosody of the utterance and intonation are equivalent notions.

Whatever the views on the linguistic nature of prosodic phenomena, the phonic substance of prosody is regarded by all phoneticians as the modifications of fundamental frequency, intensity and duration. The most complicated and unsolved problems of prosody are the interaction between its acoustic properties, their functioning in speech and their systematization. R.Jakobson says that prosody is one of the most difficult and controversial problems of modern linguistic studies.

PROSODIC UNITS

One of the basic problems in the study of prosody is to determine the units in which prosodic features are actualized.

The s y l l a b l e is widely recognized to be the smallest prosodic unit. It has no meaning of its own, but it is significant for constituting hierarchically higher prosodic units. Prosodic features of the syllable (tone, stress, duration) depend on its position and function in the rhythmic unit and in the utterance.

A r h y t h m i c, or a c c e n t u a l, u n i t (or group) is either one stressed syllable or a stressed syllable with a number of unstressed ones grouped around it.

The stressed syllable is the nucleus of the rhythmic unit. There are as many rhythmic units in an utterance as there are stressed syllables in it. The unstressed syllables are clitics. Those preceding the stressed syllable are called proclitics, and those following it – enclitics.

Depending on the position of the stressed syllable and the number of proclitics and enclitics in the rhythmic group there exist various accentual-and-rhythmic patterns of it.* E.g. /⌣ ˊ —/, /⌣ ⌣ ˊ —/, /ˊ — ⌣ ⌣/, /⌣ ˊ — ⌣/, etc. Besides a definite accentual-and-rhythmic pattern, the rhythmic group is characterized by a pitch pattern (or tonal contour) and duration pattern (temporal structure). These prosodic characteristics make it possible to perceive the rhythmic unit as an actual discrete unit of prosody. The rhythmic unit may be

*These patterns are conditioned by the accentual-and-rhythmic structure of the whole utterance, and to a certain extent, by the stress patterns of the words.

singled out of an utterance also due to the meanings expressed by its prosodic features. According to D.Bolinger [57] these may be the meanings of assertiveness, separateness, newness (when the pitch falls within the stressed syllable or within the enclitics or within both) as in the first rhythmic unit of the following utterance: But nobody knew about it; the meaning of connectedness and incompleteness (when the pitch rises within the stressed syllable, or the pitch of the stressed syllable is higher than that of the proclitics) as in the second and the first rhythmic units of the utterance:

The brighter | they are the better.

The rhythmic unit should, therefore, be considered a meaningful one, though this viewpoint is not unanimously accepted.

The i n t o n a t i o n g r o u p is hierarchically higher than the rhythmic unit. It has also been termed "syntagm", "sense–group", "breath–group", "intonation contour", "divisible accentual unit", "tone–group", "tune", "tone–unit".

The term "syntagm" has a drawback: it is often used with different meanings which have nothing to do with the prosodic unit under consideration. I.Baudouin de Courtenay applied the term "syntagm" for a word used in a sentence in contradistinction to a word taken as a lexical unit ("a lexeme"). F. de Saussure used this term to mean two or more linguistic elements joined together: two successive morphemes or two elements of a compound word or a noun with an attribute. L.V. Shcherba defined the syntagm in the following way: "The phonetic entity, which expresses a semantic entity in the process of speaking (and thinking) and which may consist either of one rhythmic group or of a number of such groups is what I call a syntagm" [44, p.86].

The term "sense–group" calls attention to the fact that it is a group of words that make sense when put together. But it doesn't indicate its intonational character.

The term "breath–group" emphasizes the physiological aspect of the unit, which is uttered with a single breath. A breath–group usually coincides with a sense–group because "pauses for breath are normally made at points where pauses are necessary or allowable from the point of view of meaning" [84, p. 274]. But a pause for breath may be made after two or more sense–groups are uttered, so a breath–group may not coincide with a sense–group.

The term "divisible accentual unit" [9] emphasizes the role of utterance stress in constituting the unit. The divisible accentual unit may consist of several indivisible accentual units (rhythmic units).

The terms "tone–group", "tune", "tone–unit" also emphasize the role of just one (pitch) component of prosody for the formation of the unit.

In our opinion, the term "intonation group" [110] better reflects the essence of this unit. It shows that the intonation group is the result of the di–

vision in which not only stresses, but pitch and duration (i.e. intonation in the broad sense) play a role.

Structurally the intonation group has some obligatory formal characteristics. These are the nuclear stress, on the semantically most important word and the terminal tone (i.e. pitch variations on the nucleus and the tail if any). The boundaries between intonation groups are marked by tonal junctures and pauses. All these features shape the intonation group, delimit one intonation group from another and show its relative semantic importance.

The intonation group is a meaningful unit. The most general meanings expressed by the intonation group are, for instance, those of completeness, finality versus incompleteness, non–finality.

It may be coextensive with a sentence or part of a sentence. E.g. ,Yesterday |they'passed their exam. They'passed the exam yesterday.

The structure of the intonation group varies depending on the number of syllables and rhythmic units in it. Minimally , an intonation group consists of one (stressed) syllable – the nucleus. Maximally, it contains the prehead, the head, the nucleus and the tail. H.Palmer was the first to single out the consecutive structural elements of the intonation group ("tone–group") – "head", "nucleus" and "tail" [101].

The number of structural elements distinguished by different phoneticians is not the same. Thus, J. O'Connor and G.Arnold distinguish two elements in the pre–nuclear part of their tone–group – the prehead (unstressed syllables, preceding the first stressed one) and the head (the first stressed syllable and the following stressed and unstressed ones). The notion of "head" in this sense coincides with the notion of "scale", used by Soviet phoneticians, e.g. G.Torsuyev, A.Trakhterov, V.Vassilyev, A.Antipova and others.

H.Kingdon uses the term "head" to mean only the first stressed syllable, which he considers to be an independent structural element. The stressed and unstressed syllables following the head, form another element – the body.

The functional role of some of these elements is indisputable. The most conspicuous is the functional role of the nucleus :its prosodic features express communicative and attitudinal meanings, indicate the end of the intonation group. Different types of head (scale) convey attitudinal meanings. Types of prehead differentiate emotional meanings.

But whether the first stressed syllable of an intonation group plays a functional role or not is a moot point. Auditory observations and the analysis of acoustic data show that pitch characteristics attributed to the first stressed syllable are actually characteristic of the unstressed syllables following it. For instance,the effect of the rising tone on the first stressed syllable is frequently conditioned by the higher pitch of the following unstressed syllables.

It seems more consistent to treat the first stressed syllable as part of the functional whole – the scale or head (in the broad sense), admitting its role as

the onset that determines the pitch movement within the intonation group.

It is also disputable that *the tail is an independent functional element of* the intonation group, since its pitch variations are determined by the nuclear tone.

The "prehead", "head" and "tail" are non–obligatory elements of an intonation group, whereas the nucleus is an obligatory and the most important functional element.

A higher unit in which prosodic features are actualized is the u t – t e r a n c e. The utterance is the main communicative unit. It is characterized by semantic entity which is expressed by all the language means: lexical, grammatical and prosodic. The prosodic structure of an utterance is a meaningful unit that contributes to the total meaning of the utterance. Each utterance has a definite prosodic structure which may be coextensive with a sentence*, or with a word combination, or with a word. E.g.  ˈCount on ˌJane's ˋability.

ˈComprˌehensˋibility.

One and the same prosodic pattern of an utterance may be used with any syntactical structure: 1) a declarative sentence – "The ˈisland is ˈfar in the ˋEast." 2) an imperative sentence – "So ˈtell them they ˈought to go ˋback." 3) an interrogative sentence (general question) – "But ˈshall we discuss it ˋagain?" 4) a special question – "And ˈwhat is the ˈmatter with ˋJane?" 5) an exclamatory sentence – "If ˈonly you'd ˈasked me beˋfore!"

The utterance may contain one intonation group, two or more. E.g. ˈListening is an imˈportant ˈprocess in ˈlearning a ˌlanguage. Beˈsides the ˌauditory ˈprocess |there are ˌspeaking| ˌreading |and ˋwriting of the ˌlanguage. Irrespective of its structural complexity, the prosodic structure of the utterance is viewed as a single semantic entity.

The utterance is not the ultimate unit of prosodic analysis. In speech single utterances are not very frequent. On the contrary, they are connected and grouped into still larger units – hyperutterances, phonetic paragraphs and texts. The prosodic features of these higher units indicate the relations between their constituents, the degree of their connectedness and interdependence, thus forming the prosodic structures of the hyperutterances, the phonetic paragraphs and texts. The study of these units in modern linguistics is in the forefront of scholars' interest.

To summarize, it is necessary to note, that the syllable, the rhythmic unit, the intonation group, the utterance and the hyperutterance are taxonomical prosodic units: each hierarchically higher unit consists of one or more units below it. Whereas the elements of the intonation group, considered above, i.e.

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*The term "sentence" is used here in the sense of a formal grammatical structure.

prehead, head, nucleus and tail, are autonomous units, they are not related taxonomically.

PROSODIC SUBSYSTEMS

Pitch

The pitch component of intonation, or speech melody is the variations in the pitch of the voice which take place with voiced sounds.

Acoustically, speech melody is the variations of the fundamental frequency, generated by the vibrations of the vocal cords.

To describe the melody of an utterance it is necessary to determine the relevant pitch levels, pitch ranges, directions and rate of pitch movement in the terminal zone and pre-terminal part of each of its intonation groups.

The p i t c h l e v e l of the whole utterance (or intonation group) is determined by the pitch of its highest-pitched syllable. It shows the degree of semantic importance the speaker attaches to the utterance (or intonation group) in comparison with any other utterance (or intonation group), and also the speaker's attitude and emotions.

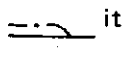
Parenthetical phrases and other semantically less important intonation groups of an utterance are characterized by a lower pitch level than the neighbouring intonation groups, as, for example, in 'This ,castle | as ,far as I re,member, | was 'build in the '15th `century, or 'Where did the 'charitable ,gentleman | who had a ,first-class ,ticket for this ,seaside re`sort | find you?

The number of linguistically relevant pitch levels in English has not been definitely established yet: in the works of different phoneticians it varies from three to seven. In unemphatic speech most phoneticians distinguish 3 pitch levels: low, mid and high. These levels are relative and are produced on different registers depending on the individual peculiarities of the voice. Besides low, mid and high levels some phoneticians distinguish the emphatic (higher and lower) and the emotional (higher and lower) pitch levels [88].

American linguists K.Pike, J.Trager, G.Smith, R.Wells and others distinguish 4 relevant pitch levels (low, mid, high, extra-high), which they term "pitch phonemes". The sequence of pitch phonemes in pronouncing an intonation group are called intonation contours.

The p i t c h r a n g e of an utterance is the interval between its highest-pitched syllable and its lowest-pitched syllable. According to circumstances the speaker changes his voice range. It may be widened and narrowed to express emphasis or the speaker's attitudes and emotions. For example, if "Very good" is pronounced with a narrow (high) range

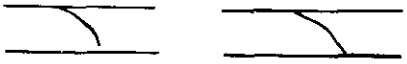
it sounds less enthusiastic. Pronounced with a low narrow range



it sounds sincere, but not emotional. If said with a wide range

 it sounds both sincere and enthusiastic.

Some phoneticians adopt the existence of two significant pitch ranges – wide and narrow, others distinguish three pitch ranges – wide, mid and narrow.

The rate of pitch variations may be different depending on the time, during which these variations take place, and on the range of the variations. The falling tone, for instance, is steeper (the angle of the fall is obtuse) when it is pronounced within a shorter period of time, its range being the same. Cf. 

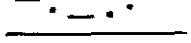
On the other hand, the fall is steeper, when the time of the fall is the same, but the range is wider. Cf. 

This is an illustration of the interaction of the pitch and the temporal component of prosody.

Differences in the rate of pitch variations are semantically important. When the rate of the fall is fast, the falling tone sounds more categoric and definite than when the rate of the fall is slow.

The basic unit used to describe the pitch component is the tone. Depending on whether the pitch of the voice varies or remains unvaried tones are subdivided into kinetic and static (or level) [90]. Static tones may have different pitch level of the voice – the high static tone, the mid static tone, the low static tone. The differentiation of kinetic tones as high falling and low falling, high rising and low rising, etc. is also based on the differentiation of the pitch level of their initial and final points.

As to the direction of pitch movement, kinetic tones are subdivided into simple and complex. Simple tones are unidirectional: the falling and the rising tones. Complex tones are bidirectional: the falling–rising tone, the rising–falling tone, and the rising–falling–rising tone.

The most important from the functional point of view is the terminal tone of an utterance. The peculiarity of the terminal tone in English is that it may occur not only on the "nucleus" but may be extended to the "tail". The pitch of the "tail" depends on the kind of terminal tone. Thus, in falling tones the unstressed syllables are pronounced on a low level or they form a descending sequence. In rising tones the unstressed syllables of the tail form an ascending sequence (the rise actually occurs on the unstressed syllables. E.g. ˈCan you ˊwait for me? 

In other words, the carrier of the terminal tone is not only the stressed syllable. It is rather this stressed syllable together with its enclitics.

The terminal tone is the most important functional element of the prosodic structure of the utterance. It conveys certain meanings of its own which

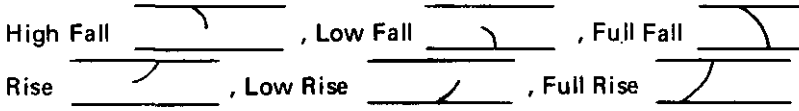
make the whole utterance more concrete and precise. The meanings of the falling tone, for example, are definiteness, completeness, finality, certainty, assertiveness, etc. The meanings of the rising tone are those of indefiniteness, incompleteness, non-finality, uncertainty, tentativeness. The falling-rising tone carries the meaning of reservation, implication, contrast etc.

Due to its linguistic meanings and the functions that it performs in speech the terminal tone can be treated as a phonological (or rather intonological or prosodemic) unit in the structure of a language — a t o n e m e. Concrete tones in which a toneme is realized in speech can be defined as allotones of the toneme [110].

The number of such tonemes, i.e. relevant terminal tones, in English is not unanimously agreed upon. D.Jones, L.Armstrong and I.Ward distinguish two tones: Falling and Rising. H.Palmer has four tones in his system: the Falling (both high and low), the High Rising, the Falling-Rising and the Low Rising. According to R.Kingdon there are five terminal tones as to the directions of pitch movement: Rising, Falling, Falling-Rising, Rising-Falling and Rising-Falling-Rising, each of which is represented by high and low varieties. J. O'Connor and G.Arnold exclude Rise-Fall-Rise from the system of English tones but include the Mid-Level tone, which is commonly used to show non-finality. D.Crystal discriminates seven nuclear pitch movements in the subsystem of tone: Fall, Rise, Level, Fall-Rise, Rise-Fall, Fall+Rise and Rise+Fall.

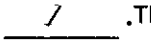
Depending on the pitch level of the starting and ending points of the tone, most scholars distinguish two functional variants of each of these tones: high and low.

W.Jassem distinguished also Full Rise and Fall which differ from the high and low variants in a wider interval between the initial and final pitch levels:



The Full Falling tone sounds complete and final, while the high falling tone expresses incompleteness, non-finality and is, therefore, frequently used in non-final intonation groups: E.g. If you\wait for him, he'll\come. He'll\come, if you\wait for him.

The High Rising tone is widely used in repeated questions and echo questions. E.g. ´What did you say? ´Has he?

The Full Rising tone serves to express surprise, astonishment, a demand for information. E.g. /What did you say? / Has he? Besides some linguists distinguish the Mid Rise (which starts near the bottom of the normal voice range and rises to a level of pitch somewhat above the middle)  .This tone is used in general questions of the basic type, interested special questions in the first part of alternative questions and in the second part of disjunctive questions.

The tonemic status of Low Fall and High Fall, Low Rise, Mid Rise and High Rise is not clear yet. Are they all independent tonemes, or allotones of two tonemes–falling and rising?

Another problem arises in connection with the Fall–Rise Divided. Is it a separate toneme or a combination of Fall+Rise? The functions of these tones as well as those of some others haven't been studied sufficiently. So, we see that the subsystem of terminal tones in English is not fully established.

Significant pitch modifications can also be observed in the head, another structural element of an utterance. The h e a d is viewed as one melodic shape, one part of the pitch contour of the utterance. It acts as a unit independent of the nucleus. The functions of the head are to express relations between its constituent units – rhythmic groups and to convey modal–stylistic meanings. Compare the meanings in the following utterances: E.g. It's the 'only 'sensible 'thing to `do (the gradually descending head). It's the only ,sensible 'thing to `do (the ascending head). It's the 'only 'sensible 'thing 'to `do (the scandent head). It's the `only `sensible `thing to `do (the sliding head). The head can also predict the communicative type of utterance. Pitch variations over the head make a subsystem of their own.

Phoneticians classify heads in different ways. H.Palmer distinguishes three types of head: an Inferior head , which is never higher in pitch than the initial point of the nucleus; a Superior head which is higher in pitch than the initial point of the nucleus; a Scandent head when the pitch rises or climbs from the mid–level to the highest level of the tonegroup. This highest point is therefore higher in pitch than the pitch of any nucleus. H.Palmer distinguishes also a Heterogenious head which is a combination of any of the three foregoing types.

In the works of Soviet phoneticians L.Trakhterov, G.Torsuev, V.Vassilyev, A.Antipova the following types of scale are distinguished: the Gradually Descending scale ; the Broken Descending scale ; the Low Level scale ; the High Level scale ; the Ascending scale ; the Scandent scale ; the Sliding scale

J.O'Connor and G.Arnold classify four unemphatic heads (scales): Low ; High ; Falling and Rising and three emphatic heads: Stepping , which is an emphatic modification of the High head; Sliding – an emphatic modification of the Falling head; and Climbing – an emphatic variant of the Rising head.

The problem of the number of heads as well as the problem of their functions and possible combinations of heads and terminal tones in English hasn't been fully solved yet.

It seems more logical to classify head patterns of English into three major types, falling, rising and level, the criterion in each case being the general di–

rection of pitch movement over the head. As to the pitch movement within each rhythmic unit of the head there are three subtypes of the falling head: stepping, sliding, descending; two types of the rising head: ascending and scandent; two types of the level head: high and low.

T h e p r e h e a d is normally pronounced on the low or mid pitch level. If it is pronounced on a pitch somewhat higher than the normal pitch (High Irregular Prehead) or somewhat lower (Low Irregular Prehead) the utterance acquires emphasis and emotional connotations. E.g. The Rovers, Robert? (astonishment)

He can't have possibly meant it (joy).
But it's incredible (surprise).

The pitch characteristics of the tail depend on the kind of nuclear tone. The tail is descending when it continues the fall of the nucleus. It may be level, when the fall of the nucleus reaches the lowest level or when the tail continues the mid-level pitch of the nucleus. The tail is ascending when it is part of the rising or falling-rising terminal tones. So the tail is not an independent element of the utterance. It should be treated as a constituent element of the terminal tone.

The functional analysis of English prosody in general and speech melody in particular shows that the leading role in differentiating communicative types of utterances belongs to the terminal tone. That is why the communicative-distinctive function of speech melody is widely recognized as a purely linguistic function – a distinctive function proper.

A wide scope of the distinctive function of intonation includes also the modal-stylistic (or attitudinal) function. With this broad concept of the distinctive function in view we can state that the prehead, the head and the terminal tone are functionally relevant elements of the utterance. Therefore differentiation of melodic contours (tunes) of utterances must undoubtedly take into account the pitch characteristics of their elements (the prehead, head (scale) and the terminal tone), each of which forms a separate subsystem of utterance prosody.

Various combinations of the elements form invariably complicated and numerous melodic structures, which can be reduced to a limited number of relevant melodic contours, melodemes. The number of relevant melodic contours in English, as in other languages, is limited. (According to J.O'Connor and G. Arnold, there are ten basic melodic contours ("tone-groups") in English [100].) To establish the system of melodemes is a complicated task which can be solved with the help of auditory, acoustic, statistic and linguistic methods.

Utterance Stress

Words grouped into an utterance are not all equally important. Depending on the context or the communication situation some words appear to contri-

bute more information than others. Those that are semantically more important are made prominent. The special prominence given to one or more words in an utterance is called u t t e r a n c e s t r e s s.*

It has already been stated that stress is part of the phonetic structure of the word. We always know the place of stress in a word, the potential stress pattern of the word. When the potential stress pattern is actualized in an utterance, i.e. when the word is made prominent, stress becomes a feature of the utterance.

The means, with the help of which the special prominence is achieved and the effect of stress is produced, are variations of pitch, loudness, length and quality. Acoustically, utterance stress is determined by variations of fundamental frequency, intensity, duration and formant structure.

The role of each of these acoustic parameters in creating the effect of utterance stress has been studied experimentally by a number of phoneticians in this country and abroad. It appears that fundamental frequency is more efficient in determining stresses in an utterance than intensity. Duration also appears to play a greater role than intensity. The sounds of the stressed syllables are characterized by a distinct, unobscured formant structure (distinct quality).

As a rule the effect of utterance stress is created not by a single acoustic parameter but by a certain interaction of different parameters. That is why utterance stress is a structural phenomenon. The acoustic structure of stress varies depending upon the type of stress and its position in an utterance.

The subsystem of utterance stress in English includes three basic functional types: nuclear stress, non–nuclear full stress and partial stress.

The main difference between these three types of stress is the difference in how the syllables that bear them are marked. The nuclear syllable is in most cases marked by a kinetic tone and is, therefore, perceived as the most prominent. Non–nuclear fully stressed syllables are more often marked by static tones. Both are pitch prominent, both initiate tones. Partially stressed syllables are not pitch prominent, they do not initiate tones and their pitch characteristics depend on the pitch pattern of the preceding fully stressed syllables.

Because of the difference in the means, effecting partial and full stresses, these types are distinguished by a number of phoneticians as "stress" and "accent". "Stress" is achived by a greater force of articulation, resulting in greater intensity on the acoustic level and in greater loudness on the perceptual level. "Accent" combines "stress" and pitch prominence (i.e. the acoustic features of intensity and fundamental frequency). Nuclear and non–nuclear

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*The term "sentence stress" is not quite precise, as sentence often implies a syntactical structure only.

full stresses are referred to as primary accent and secondary accent, respectively.

Each of the above three types of stress has functionally significant degrees depending on the modal–stylistic factors of speech. Thus, stresses in emphatic speech are stronger than those in unemphatic speech.

Each type of stress also has different positional variants: e.g. prenuclear and post–nuclear partial stresses. Their acoustic structure is different.

The distribution of stresses in an utterance depends on several factors. G. Torsuyev points to the following factors: semantic, grammatical and rhythmical.

The crucial factor in determining the location, type and degree of stress in an utterance is the semantic factor, i.e. the meaning which the utterance is intended to convey. The semantic centre of the utterance is singled out by the nuclear stress (or primary accent). This type of stress is opposed to the non–nuclear stresses by its greatest semantic importance. In their turn non–nuclear full stresses (secondary accents) signal greater semantic value of the words than partial stresses. E.g. "Have you ˈbrought the ˈform ˊwith you?" or "When d'you ˈintend ˏleaving?"

Notional words, due to their function in the language, are predisposed to be stressed in an utterance. Form words are likely to be unstressed. But in special conditions, when they are semantically important, form words may become stressed, e.g. "It is ˈnot at ˈall ˋinteresting". – "It ˋis interesting". On the other hand notional words, if the meaning requires, may become unstressed, e.g. "ˈAre you very ˊbusy ˈjust now?" or "ˋLet me hear ˌhow you get ˏon."

The grammatical structure of the utterance also determines its accentual structure. For instance, the inverted word order for expressing interrogation requires stress on the auxiliary verb.

The distribution of stresses in an utterance is also affected by the rhythmical laws of the English language. Due to the rhythmical organization of the utterance notional words may be unstressed, and form words, on the contrary, may be stressed. Cf. "He ˈwent ˋout."—"ˈJohn went ˋout". "ˈAt the ˏentrance | there were ˈmany ˋpeople." (but "At the ˈentrance to the ˏtheatre | there were ˈmany ˋpeople").

The semantic, grammatical and rhythmical factors are closely connected with one another, the semantic factor being the main one.

The accentual structure of an utterance is conditioned to a certain extent by the stress patterns of its words. Word stress and utterance stress are in close relation. Whenever utterance stress occurs it will normally fall on a syllable which also has word stress. The word and the utterance may have the same accentual patterns. Cf. ˈWell ˋdone". "Re–ˋwrite".

The specific character of word stress and utterance stress is conditioned by the domain of their functioning: word stress is an essential part of word–shape, whereas utterance stress is a feature of the utterance.

Stresses in an utterance fulfill the same three functions as other components of prosody: constitutive, distinctive and identificatory. In their constitutive function stresses form the utterance by integrating words . They form the accentual structure of the utterance, which is the basis of its rhythm and part of its prosodic structure. While integrating words into utterances, stresses of different hierarchy segment the speech continuum into rhythmic (accentual) units, intonation groups and utterances, and delimit them one from another thus carrying out the segmentative and delimitative functions. The distinctive function of stresses manifests itself in differentiating utterances as to their meaning, which is conditioned by the position and type of stress. E.g. "Don't you find it difficult" and "Don't you find it difficult?" The opposition of degrees of utterance stress carries out a modal–stylistic function.

In its identificatory function utterance stress provides a basis for the hearer's identification of the important parts of the utterance and for his understanding of the content.

Rhythm

Rhythm has been defined as regularity or periodicity in the occurrence of a particular phenomenon in an utterance. Languages differ in their rhythm mainly because of this phenomenon. In some languages the recurring phenomena are stresses, in others – syllables. So languages may be characterized either by stress–timed or syllable–timed rhythm [103]. English is considered to be mostly a language with stress–timed rhythm. Though occasionally it may display syllable–timed character as well [103, 60].

Stress–timed rhythm presupposes that utterance stress serves as a basis for the rhythmical organization of speech and that stresses segment the speech continuum into units of more or less equal length. These are accentual, or rhythmic units. The units tend to follow one another in such a way that the lapse of time between the stressed syllables is somewhat uniform. Since the rhythmic units differ in the number of syllables they are comprised of, the syllables of the longer groups are compressed by very rapid pronunciation and those of the shorter ones are lengthened to conform to the same interval of time. This produces perceptible isochrony of rhythmic units within the limits of a given intonation group [35, 110, 90]. But there is no direct relation between perceptible (subjective) and acoustic (objective) isochrony. Regarding isochrony as a characteristic feature of English rhythm G. Torsuyev points out that this rhythmic tendency of the English language does not mean mechanical equality of intervals between peaks of prominence even within one and the same intonation–group [35].

A number of special investigations show that isochrony of rhythmic groups is rather approximate. The lapses of time between stressed syllables (peaks of prominence) are not absolutely equal. Perfect isochronism can be realized very rarely, only when definite conditions are fulfilled.

So English rhythm can't be said to have objective isochrony of its units. One can only speak about a tendency to isochrony which results in the modifications of the length of syllables and vowels and in modifications of the stress patterns of words.

Since the approximate isochrony of intervals between stressed syllables is regarded as a measure of English rhythm, a great number of phoneticians (A.Classe, D.Abercrombie, H.Halliday, J.Pring) define the unit of rhythm as a sequence of syllables from one stressed syllable to another. But this formal rhythmic division does not reflect the relations between prosodic units and the units of the other subsystems of the language, as the syllables of one and the same word may be parts of different rhythmic units. E.g. Se|'mantic im|portance.

G.Torsuyev, V.Vassilyev, R.Kingdon, J. O'Connor, W.Jassem and other scholars represent another approach to rhythmic division. According to this approach the boundaries between rhythmic units are determined by the semantic and grammatical relations between the words of an utterance. With such rhythmic division the syllables of a word always belong to the same rhythmic unit, form words join the stressed syllable as proclitics and enclitics, depending on their semantic links.

When analysing periodicity of rhythm in particular, both the formal and the semantic approaches may be accepted. Perceptible isochrony is characteristic of formal rhythmic units as well as those based on the semantic principle [90]. But the second definition seems more correct and consistent for its reference to meaning. Correct rhythmic division is of great importance since division of utterances into rhythmic units can play a distinctive role. E.g. 'Shall I|'put it|on|myself? and 'Shall I|'put it|on myself?

To single out rhythmic units one should be also guided by their perceptual prosodic structures. The rhythmic unit is a perceptible unit which can be isolated due to its prosodic features and meanings. (See pp.71–72).

We have been considering English rhythm in its auditory (perceptual) aspect. What is rhythm from the point of view of its acoustic structure? A great number of phoneticians believe, that certain temporal modifications, though they are very important, cannot be treated as the only characteristic feature of English rhythm. Acoustically, rhythm is a complex of variations in frequency, intensity and duration. Since the basis of rhythm is stress, which is a structural acoustic phenomenon, rhythm is a structural acoustic phenomenon too and it is achieved by the same acoustic parameters that produce the effect of stress.

Rhythmic units form a certain hierarchy, since stresses, on which they are based, are not equal in their prominence, position and function. The most prominent, as a rule, and functionally more important is the nuclear stress. Therefore the nuclear rhythmic unit is the most important in an utterance. A rhythmic unit formed by full stress together with partial stress can be defined as a complex rhythmic unit [3]. A sequence of full and partial stress indicates closer semantic relations between the words than a sequence of two full stresses. (Cf. "It was a'twenty minutes walk" and "It was a'twenty minutes walk"). Rhythmic units formed by post-nuclear (partial) stress may be regarded as weak, for example the second groups in "Yes" he said. "You are right, Mary" [103].

Prosodic characteristics of rhythmic units are determined by their position and function in an intonation group or in an utterance. The prosodic structure of the nuclear rhythmic unit differs from that of the onset rhythmic unit, the rhythmic unit within the head (scale) is different in its prosodic features from that of the tail and so on. D.Bolinger has described three pitch-patterns of rhythmic units, or pitch accents, as he calls them, with the relevant falling, rising and level direction of pitch movement. These pitch accents are differentiated by their meanings and possible position in higher-level units [57]. D.Abercrombie has analysed three duration patterns of the formal bisyllabic rhythmic unit (foot) [49]. However, the full inventory of prosodic characteristics as well as the number and types of rhythmic units in English has not been established so far.

Rhythmic units are nothing but elements of rhythm. Rhythm as regularity of occurrence of stressed syllables manifests itself in hierarchically higher prosodic units – intonation groups and utterances.

It has been shown by a large number of works that rhythm performs important linguistic functions. It is the most important organizing factor which makes for the exposure of exact sense of speech and its maximum perceptibility. It unifies smaller language units into utterance, hyperutterance and text, and indicates relations between them. It also performs a distinctive role due to the prosodic characteristics of its units.

There may be different rhythmic patterns in a language depending on the number and types of stresses in an utterance as well as on the degree of prosodic contrasts between its stressed and unstressed syllables. In the English language prosodic contrasts between stressed and unstressed syllables are sharper than, for example, in Russian and Byelorussian. But in the English rhythmicality system these contrasts vary as well.

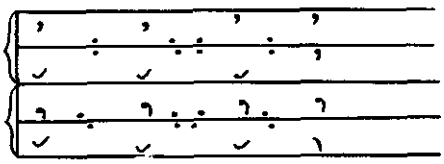
On account of the prosodic characteristics of English rhythm D.Crystal distinquishes 3 pairs of contrastive rhythmic structures. These are: rhythmic/arythmic, spiky/glissando, staccato/legato [60]. Rhythmic utterances are very common in everyday speech. They are used when the speaker rephrases a

particularly important point of information. Arhythmical utterances, on the contrary, are rather rare. They result from certain variations in tempo and hesitation pauses. Spiky rhythm is characterized by sharp and rapid pitch transitions between stressed and unstressed syllables, whereas glissando is characterized by smooth and usually slow glides between them. E.g.:

Who would come on a night like this

spiky

glissando



In staccato and legato the transition between stressed and unstressed syllables differs as to their loudness and duration. Staccato is analogous to spiky as it is characterized by sharp contrasts between heavily prominent stressed syllables and very light unstressed syllables.

Legato is analogous to glissando in the smooth transition between the loudness and duration characteristics of stressed and unstressed syllables. The types of rhythm mentioned above (except arhythmicality) are typical manifestations of English rhythm. It is quite evident from the analysis of the rhythmic contrasts that English rhythm is determined by all the prosodic features: duration, loudness and pitch.

Further investigation is needed to clarify the structure of English rhythm and its concrete functions, the relations between stressed and unstressed syllables within rhythmic units, on the one hand, and the relations between stressed syllables of different rhythmic units on the other.

Tempo

The tempo of speech is the rate at which utterances and their smaller units are pronounced. On the acoustic level tempo is generally measured by the number of syllables per second.

Tempo of speech may be determined by different factors. It may vary depending on the size of audience, the acoustic qualities of the room, the individuality of the speaker and other extralinguistic factors. But most significant for the linguistic study is how variations in tempo correlate with changes in meaning.

It is common knowledge that by slowing down the tempo of speech we can make an utterance or part of it more prominent, thus underlining the semantic importance of it. E.g. ˈHundreds of ˈtimes have I ˌtold you to ˈleave ˈthat ˈjam ˈalone.

On the contrary, by increasing the speed of utterance we diminish prominence and, as a result the actual semantic importance of what we say. E.g. ˈNothingatallˈserious,don'tˌworry.

Tempo can also be used to express the speaker's attitude or emotion. For example, fast tempo may express excitement, joy, anger, etc. as in "There are your slippers, and there. And may you never have a day's luck with them" as pronounced with anger by Eliza in B.Shaw's "Pygmalion". Slow tempo shows relaxation or calmness, reserved and phlegmatic attitude on the part of the speaker, as for instance in "Well, we can both breathe a sigh of relief" when pronounced after having done something hard or unpleasant.

Everybody's speech has some norm of tempo, deviations from which affect meaning. Phoneticians generally distinguish normal tempo and two departures from the norm: fast and slow.

D.Crystal gives a more detailed classification of variations of tempo [60]. He distinguishes between simple and complex tempo systems. The simple tempo system is manifested both in monosyllables and polysyllabic stretches of utterance. The complex tempo system is realized in polysyllabic stretches.

In monosyllables the speeding up and slowing down of the duration of the syllable is perceived as clipped, drawled and held syllables which are generally used for emphasis. "Clipped syllables are articulated at a more rapid speed than normal, in a very tense way; drawled and held syllables are articulated less rapidly than normal, and very lax" [60, p. 154].

The distinction between drawled and held syllables is that in the former a sound is lengthened as in [ff aɪn] and in the latter a sound is articulated with the onset of articulation delayed, so that the auditory impression of length is produced through unexpected silence, for example, in stop consonants as in "Perfectly" [pp ɜ:fɪktlɪ] or "Quite, quite blue" [kkwaɪt].

In polysyllabic stretches of utterance D.Crystal distinguishes two degrees faster than the norm — allegro, allegrissimo, and two degrees slower than the norm — lento, lentissimo. In the complex tempo system there are accelerando — a gradual increase in tempo, and rallentando — a gradual decrease. These contrasts of tempo correlate with changes in meaning. They may also serve as a style-forming and style-differentiating device.

Pauses

The speech continuum is divided into units of different length and hierarchy by means of pauses. It is the main function of a pause to segment connected speech into utterances and intonation groups to delimit one utterance or intonation group from another. Pauses are closely related with tempo: the number and length of pauses affect the general tempo of speech.

Phoneticians distinguish 3 main types of pauses: silent pauses, pauses of perception and voiced (or filled) pauses.

A silent pause is a stop in the phonation (a stop of the work of the vocal cords, which results in the cessation of sound).

Pauses of perception are not a stop in phonation, as there is no period of silence. The effect of a pause is produced by a sharp change of pitch direction, or by variations in duration, or both.

Pauses of perception are generally marked by a wavy line which is used at the junction of intonation groups. E.g. The teacher says ∫ John is very bright.

Voiced pauses have usually the quality of the central vowel [ɜ:(ə)] with or without nasalization [ə (m)]. They are used to signal hesitation or doubt and are therefore called hesitation pauses.

Silent pauses are subdivided into several types according to their length: short, long and extra—long. The short pause is mainly used to separate two intonation groups. The long pause which is approximately twice as long is generally used to delimit two utterances. The extra—long pause is used as a rule to separate two paragraphs. But the main factors that determine the occurrence of the type of pause are the semantic relations between the prosodic units. Short pauses indicate closer relations than long ones.

Cf. ˈThis is my ˋniece, |Miss ˇSmith and

ˈThis is my ˋniece ‖Miss ˇSmith.

It should be noted that the duration of pauses is relative, not absolute. It may vary depending on the general tempo of speech.

Pauses are very important constituents of intonation. Besides their segmentative and delimitative functions they also perform a unifying function showing the relations between utterances or intonation groups.

EXERCISES

A. Think about the following questions for class discussion:

1) What is the difference between prosody and intonation?

2) Interpret the term "system". What is the prosodic system of a language?

3) Give your interpretation of the term "structure". What is the prosodic structure of the utterance? of the rhythmic unit? What is the accentual and rhythmic structure of the utterance?

4) What is the smallest meaningful prosodic unit? What meanings does it convey?

5) Is the prosodic (intonation) structure of the utterance related with a definite syntactical structure? What factors determine the prosodic structure of an utterance?

6) On what grounds do phoneticians assert that tone, pitch level, pitch range, stress and tempo each makes a system of its own (a prosodic subsystem)?

B. Select pairs of utterances with identical syntactical structure and with different prosodic features to illustrate the inventory of

1) the tone subsystem;
2) the subsystem of stress;
3) the subsystem of tempo;
4) the subsystem of rhythm;
5) the subsystem of pauses.

C. Collect examples analogous to the model to illustrate

1) the dependence of stress on the rhythm of the utterance.

M o d e l: In the'middle of the,room...§and'In the,middle of it..§

2) the tendency to avoid stressing several syllables in succession.

M o d e l : It's'quite un\natural.(Cf.'un\natural)

3) the tendency to avoid stressing several words (monosyllabic or polysyllabic) in succession.

M o d e l :'Read text\ten. He is a'very punctual'person.

4) compression of syllable length in rhythmic units as a manifestation of the tendency to isochrony.

M o d e l:'Mary'left for\London.'Mary has'left for\London.
'Mary would have'left for\London.

CHAPTER 7. THE FUNCTIONAL ASPECT OF PROSODY

MEANINGS AND FUNCTIONS OF PROSODY

The functions and meanings of prosody should be described with reference to the utterance as the basic communicative unit. The prosody of an utterance (intonation) carries independent meanings of its own, regardless of the words and the grammatical structure of the utterance.

The prosody of the utterance is polysemantic. Due to its structural complexity it can express a number of different meanings of interrogation, non-finality, uncertainty, non-categoric attitude, surprise, etc. The inherent meanings of prosody which are of a general character (such as definiteness – uncertainty, assertiveness – reservations, separatness – connectedness, etc.) are specified and concretized when interacting with the grammatical and lexical meanings of the utterance. There may be cases of correlation and harmony between the inherent meanings of prosody and the meanings of words and grammatical structures as well as disbalance and disharmony. For example, "It\may be/so" (But I'm not quite sure) The falling-rising tone is in harmony with the modal verb. Whereas in "It\may be so" (I'm absolutely sure about it) the falling tone makes the statement sound categoric. Or again, the meanings of the prosodic structures in the utterances "I↑like^that" and "^Clever `aren't you?" with the challenging or antagonistic Rise-Fall are opposite to the meaning of the words. "Intonation", J.O'Connor and G.Arnold mark, "gives greater precision and point to the meaning. It provides important information which is not contained in any of the other features of utterance" [100, p.32]. Hence the role of utterance prosody in communication.

The prosody of the utterance performs a number of functions, the basic of which are constitutive, distinctive and identificatory.

1. The constitutive function is to form utterances as communicative units. Prosody unifies words into utterances, thus giving the latter the final form without which they cannot exist. A succession of words arranged syntactically is not a communicative unit until a certain prosodic pattern is attached to it. E.G. "Pete has left for Leningrad" is not a communicative unit until it is pronounced , i.e. until it acquires a certain pitch-and-stress pattern. Prosody is the only language device that fransform words as appelative units (vocabulary items) into communicative units – utterances. In written speech prosodic features are to some extent indicated by punctuation marks, e.g. "Fire!" is a command or an exclamation, depending on the situation in which it occurs, "Fire?" – a question, "Fire". – a statement.

Prosody is, therefore, the most common, the most elementary, the ever present constitutive factor of the utterance [65]. It forms all communicative types of utterances – statements, questions, imperatives, exclamations and modal (attitudinal) types: – e.g. categoric statements, non-categoric, per-

functory statements, quizzical statements, certainty and uncertainty questions, insistent questions, etc.*. In constituting an utterance, prosody at the same time performs the s e g m e n t a t i v e and d e l i m i t a t i v e function. It segments connected discourse into utterances and intonation groups, and simultaneously delimits them one from another, showing relations between them. Cf. "We can if we want to" and "We can if we want to". It also signals the semantic nucleus and other semantically important words of an utterance (or an intonation group). Prosody also constitutes phonetic styles of speech [23].

2. The d i s t i n c t i v e function of prosody manifests itself in several particular functions, depending on the meaning which is differentiated. These are communicative–distinctive, modal–distinctive, culminative ("theme–rheme") distinctive, syntactical – distinctive and stylistic–distinctive functions.

The c o m m u n i c a t i v e – d i s t i n c t i v e function is to differentiate the communicative types of utterances, i.e. statements, questions, exclamations, imperatives, and communicative subtypes: within statements – statesments proper (It was a very hot afternoon), answers (It was a very hot afternoon), announcements, etc.; within questions – first instance questions (Where did he find it?), repeated questions, (Where did he find it?) echo questions (Where did he find it?); within imperatives – commands (Don't be late!), requests (Don't be late.) and so on.

The m o d a l – d i s t i n c t i v e (attitudinal–distinctive) function of prosody manifests itself in differentiating modal meanings of utterances (such as certainty versus uncertainty, definiteness versus indefiniteness) and the speaker's attitudes (for instance, a reserved, dispassionate versus involved, interested attitude, or antagonistic versus friendly attitude and so on). Into this function some phoneticians include differentiation of the speaker's emotions, the emotional function.

Various modal meanings can also be expressed and differentiated by lexical and grammatical means, e.g. such modal words as "sure", "undoubtful", "definitely", "perhaps", "may be", "probably" and modal verbs "may", "might" and so on. Usually, the speaker's attitude corresponds to the contents of the words he chooses. But utterance prosody may disagree with word content and is, then, the crucial factor in determining the modal meaning of the utterance. Cf. "He definitely promised" and "He definitely promised". In the first case the melodic contour agrees with the word content and the grammatical struc–

*Some linguists, e.g. A.Shakhmatov, V.V. Vinogradov, A.Smirnitzky include intonation in the definition of the sentence and treat it under syntax as grammatical phenomenon.

ture, whereas in the second case it does not. So the first utterance sounds definite and categoric. The second utterance sounds indefinite and non–categoric. In "Thank you" the high falling tone is in harmony with the word content and expresses genuine gratitude. In "Thank you" the rising–falling tone adds an antagonistic note to the utterance. That is why in actual speech the listener is more interested in the speaker's "tone" than in his words.

The culminative–distinctive function of prosody manifests *itself in differentiating the location of the semantic nuclei of utterances and* other semantically important words. This function is often called logical, predicative and accentual.

The adherents to the theory of "sentence perspective" claim that in this way prosody indicates the "theme–rheme" organization of an utterance, i.e. it distinguishes between what is already known and what is new in the utterance.

E.G. theme rheme
The ˈteacher has ˋcome
rheme theme
The ˋteacher has ˌcome

The semantic nuclei in these utterances are different or, according to the theory of sentence perspective the "theme–rheme" structure of the utterances is distinguished purely by prosody.

The syntactical–distinctive function of prosody is to differentiate syntactical types of sentences and syntactical relations in sentences.

E.g. *Her ˌsister ˌsaid ˈMary, | was aˈwell–known ˋactress* (a compound sentence).

Her ˈsister ˌsaid | ˈMary was aˈwell–known ˋactress (a complex sentence with an object subordinate clause).

ˈSmiling ˌTom | entered the ˋhall ("smiling" is an attribute).

ˌSmiling | ˈTom ˈentered the ˋhall ("smiling" is an adverbial modifier).

But it is disputable whether prosody performs in such cases a primarily grammatical function. The primary function of prosody is to stress the internal coherence of the items within it. Disambiguation of the syntactical structure is a derivative effect which this function may have within grammar. D.Bolinger says, that intonation gives us a clue to the grammatical relations in utterances. But it is an accidental effect of two possible semantic (theme–rheme) organizations of the utterances. "The encounters between intonation and grammar are casual, not causal. Grammar uses intonation on those frequent encounters, but intonation is not grammatical" [58, p.37]. The same intonation as in "ˌSmiling | ˈTom ˈentered the ˋhall" might be used to emphasize the *separate importance of "Smiling" if the listener hasn't heard it. So, there is* no direct relation between prosody and grammar. Utterance prosody cannot be defined and described in terms of the syntactical structures with which it occurs.

The same can be said about the relation between prosody and the meaning of a word. Prosody can differentiate between two possible meanings of a word.

E.g. I have certain`proofs (some proofs).

I have `certain proofs (undoubtedly true).

'Give me some`apples (a few).

'Give me'some`apples (any). [65, p. 51]

But prosody does not determine the meaning directly. It only signals contrastive emphasis.

S t y l i s t i c – d i s t i n c t i v e function of prosody manifests itself in that prosody differentiates pronunciation (phonetic) styles, determined by extralinguistic factors (see Chapter 10).

3. The i d e n t i f i c a t o r y function of prosody is to provide a basis for the hearer's identification of the communicative and modal type of an utterance, its semantic and syntactical structure with the situation of the discourse.

All the functions of prosody are fulfilled simultaneously and cannot be separated one from another. They show that utterance prosody is linguistically significant and meaningful.

Now that the function of utterance prosody (intonation) are analysed and recurrent prosodic (intonation) structures are described (e.g. 10 tone–groups of J.O'Connor and G.Arnold in English [100]), the problem is to establish the system of prosodic units or patterns on the abstractional level analogous to phonemes. These units, capable of distinguishing meanings are defined as intonemes by V.Artyomov, O.Nork, V.Vassilyev [5, 32, 20] or prosodemes by P.Kuznetsov, A.Reformatzky, K.Baryshnikova, S.Gaiduchik [29, 34, 10]. Each language has a certain limited number of such units. Thus the patterns of one language are not the same in form as those of other languages. Nor do they necessarily express the same meanings, though there may be resemblances in some cases.

Learners of English should bear in mind both peculiarities of forms and meanings of English prosody, i.e. they should produce the prosodic patterns correctly and use them in appropriate situations.

Emphasizing the role of intonation in speech, R.Kingdon says: "Intonation is the soul of a language while the pronunciation of its sounds is its body... There is a practical reason why it is advisable to pay more attention to intonation than to pronunciation. The sounds of English as it is pronounced by different speakers and in different dialects vary within wide limits, so that the foreign learner has a certain latitude in this field, but in most dialects stressing and intonation conform fairly closely to the same pattern" [88, p. xiv].

Thus, the linguistic character of prosody can be summarized in the following way: prosody of speech is significant and meaningful; prosody is

systematic: it is not invented in speaking but produced according to the system of prosodic structures of a given language. Prosody is a characteristic feature of each concrete language and cannot be used in speaking another language [100].

BILINGUALISM AND PROSODIC INTERFERENCE

More than one language can be used in communication by the same persons. The practice of alternate use of two languages is called bilingualism [112]. Bilingualism may be acquired "naturally" and "artificially", as a result of foreign language learning (the so-called "classroom" bilingualism).

Languages used by bilingual persons are said to be in contact. Language contacts may be of a "mass" character, involving whole language communities (as, for instance, in Russian–Byelorussian bilingualism), or they can take place in "individual" or "group" bilingualism (e.g. in Russian–English bilingualism in a study-group), since in one individual speaker there exist two distinct language systems, and the speech of bilingual persons is thus the focus of the contacts.

The major manifestation of bilingualism is interference. Language interference is a process and a result of the interanction and mutual influence of the language systems being in contact. On the speech level interference is defined, according to U.Weinreich, as "those instances of deviation from the norms of either language which occur in the speech of bilinguals as a result of their familiarity with more than one language, i.e. as a result of language contact" [112].

Interference takes place on all the levels of language (phonetic, grammatical and lexical). On the phonetic level there are two types of interference: phonemic and prosodic. Features of phonemic interference in Russian–English "class-room" bilingualism have been well described by G.Torsyev and V.Vassilyev as typical phonemic and allophonic mistakes of Russian speakers of English. As for prosodic interference, it should be given a more detailed description. In speech prosodic interference manifests itself in deviations from the prosodic norm of a language which result from the influence of the other language. Prosodic interference is more essential with regard to intelligibility than phonemic interference. Of all kinds of interference (phonemic, phraseological, lexical-semantic, word-building and morphological-syntactical) prosodic interference is the most stable and widespread; very often features of prosodic interference occur in a bilingual's speech even if he has a good command of the second language.

Learners of English, who are trained to be artificial bilinguals, should bear in mind that the prosodic patterns of their native language may, and very of-

ten do, sound wrong when applied to English [100]. Wrong realizations of prosodic patterns give a foreign accent as do bad sound articulations. In addition, the prosodic patterns used by non–native speakers may be inappropriate for the given situation of discourse, because their meanings may be quite different from those in the native language. The use of wrong prosodic patterns can cause vexation and misunderstanding on the part of the listener. This is more serious than a foreign accent.

Imagine one saying "Good bye" instead of "Good bye"; "Shut the door behind you" instead of "Shut the door behind you". The English listener may get a bad impression, since he will probably assume that the effect made by the tune was given by the speaker deliberately.

"This is very important", J. O'Connor and G.Arnold point out, "English speakers are able to make a good deal of allowance for imperfect sound–making, but being for the most part unaware of the far–reaching effects of intonation in their own language, they are much less able to make the same allowance for mistakenly used tunes. The result is that they may hold the foreigner responsible for what his intonation seems to say – as they would rightly hold an Englishman responsible in a similar case– even though the tune does not faithfully reflect his intention" [100, p. 2].

A native listener may learn in time to consciously ignore the inappropria*te prosodic patterns, but this will be done at the cost of getting only part of* the meaning of the utterance, and not being too sure about that.

Our research into phenomena of prosodic interference in the English speech of Russian [31] and Byelorussian speakers of standard English has shown that over 10% of English prosodic intonation patterns that were pronounced by those speakers did not conform to the situation of discourse. For instance, in the dialogue

– Is this book yours?
– No, it isn't mine, dear.
– Whose is it then?
– I don't know. It probably belongs to one of the boys.

the second utterance was sometimes pronounced with the high falling tone instead of the low rising tone, and in the third utterance nuclear prominence was given to the word "whose" instead of the word "is".

Wrong	Correct
– No, it isn't mine, dear.	– No, it isn't mine, dear.
– Whose is it then?	– Whose is it then?

We can conclude that the linguistic skills of the bilingual speaker should be tested according to his "communicative competence", i.e. the knowledge and expedience in applying the rules which are governed by definite situations.

FEATURES OF RUSSIAN–ENGLISH AND BYELORUSSIAN–ENGLISH PROSODIC INTERFERENCE

Interference from the native language in English utterances spoken by Russian and Byelorussian learners of English is observed in all the subsystems of prosody on the auditory and acoustic levels.

The obvious similarities of the prosodic systems of Russian and Byelorussian, which are closely related languages, result in typologically common features of Russian–English and Byelorussian-English prosodic interference.*

a) Melody

The influence of the pitch patterns of the mother tongue in English utterances produced by Russians and Byelorussians manifests itself in the following deviations from the English prosodic norm:

1) higher initial and final pitch levels of the rising tones and the falling–rising tone;

2) wider pitch interval (the distance between the starting and the ending point) of the rising tone;

3) lower final pitch level of the falling tone;

4) lower initial pitch level of the utterance. (Normally the beginning of Russian and Byelorussian utterances is lower than that of English);

5) wider pitch range of the utterance;

6) lower pitch level of the 1st stressed syllable and the lower pitch level of the utterance.

Byelorussian speakers of English pronounce the 1st stressed syllable and the whole utterance on a slightly lower pitch level than Russian speakers, because the pitch level of the utterance in the Byelorussian language is lower than in Russian;

7) narrower pitch intervals between the prehead and head, head and nucleus, nucleus and tail. This is due to the fact that in Russian and, to a greater extent, in Byelorussian the pitch movement is more monotonous, i.e. there are no sharp pitch contrasts (transition) between the structural elements of the utterance;

8) the use of the pitch patterns which are not characteristic of English, e.g. the rising tone ◜ instead of ◞

All the above features result in Russian or Byelorussian accent. Besides that, learners of English very often exaggerate the pitch contrasts characteristic of English which results in affected speech. This occurs also when the

*The direction of the deviations being mainly the same (e.g. higher than in the norm), the degree of the deviations may slightly vary (e.g. much higher, very much higher).

1st stressed syllable of the utterance is pronounced higher than is normally used by Englishmen.

b) Stress and Rhythm

According to the experimental studies of prosodic interference, stress and rhythm are the areas of the greatest number of deviations from the prosodic norm of the non–native language of the bilingual speaker, and what is more important, distortians in the accentual patterns display a very high degree of stability and communicative relevance. These results apparently emerge from the functional and structural differences between the accentual systems of the languages being in contact. In English utterances pronounced by Russian and Byelorussian speakers the following features of interference can be observed:

1. The occurrence of a greater number of stresses and the resulting distor–*tions of the rhythmic patterns of English.*

2. The shifting of the nuclear stress to the left, towards the beginning of the utterance. This shifting is known as a characteristic feature of the Rus–sian and Byelorussian languages.

3. Exaggerated prominence of the nuclear syllable, achieved by a wider interval of the terminal tone and a greater quantitative contrast with the un–stressed syllables.

4. Exaggerated prominence of the stressed syllables in the prenuclear part of the utterance as a result of their greater duration and also the affected pitch contrasts.

5. Distortions in perceptible isochrony of rhythmic units under the in–fluence of the syllable–timed tendency of Byelorussian rhythm. Though Byelo–russian rhythm is stress–timed as well as English the tendency to pronounce stressed syllables at approximately equal intervals of time is weaker in Byelo–russian. As a result, the variability of the duration of the rhythmic unit in En–glish utterances spoken by Byelorussians is greater than in the same utterances pronounced by Englishmen.

Distortions in rhythm are also due to the inadequate (slowed down) pro–nunciation of some difficult sounds and sound combinations, the absence of reduction, the absence of loss of plosion, the lengthening of fricative con–*sonants.*

c) Tempo

The tempo of English utterances pronounced by Russian and Byelorussian learners of English is slower than in the speech of Englishmen (with Byelo–russian speakers it is, as a rule, somewhat slower than with Russian speakers). This results from the immediate influence of the tempo of speech which is characteristic of the native language.

Unstressed syllables are not reduced to the same degree as in the English *norm. The absence of necessary reduction is, in particular,* characteristic of form words, e.g. [wɔ:z] instead of [wə z] in the utterance "So yesterday was the 31st".

Stressed syllables are also longer than they should be.

The slowing down of the nucleus and the tail may occur in utterances pronounced with the rising tone (the interval of the rise, being wider than in the norm), e.g. "Is ˈthis book yours?" Distortions in the temporal structure of the utterance are also observed at the juncture of intonation groups; there is a tendency with Russian and Byelorussian speakers to overlengthen the final syllables of the preceding intonation group and to shorten the initial syllable of the following intonation group which is perceived as an inadequate (very long) pause.

The character of deviations is essential for intelligibility. Thus, the inadequate realization of the rising tone in a general question or in a non-final intonation group may appear to be sufficient for the native listener's evaluation of the utterance as unnatural. On the other hand, exaggerated or too small prominence of stressed syllables, faster or slower tempo may not affect a *rather high evaluation of the non-native speaker's intonation.*

The number and the character of deviations are dependent on the type of utterance. In statements containing more than one intonation group, in disjunctive and general questions there are more features of interference than in special questions and statements, containing one intonation group.

Changes in the number and in the character of prosodic deviations from speaker to speaker indicate the degree of the speaker's familiarity with the second language.

The degree of familiarity with the prosodic system of the second language is primarily evaluated by native speakers by the number of perceptible deviations.

Research in the field of language interference in general and prosodic interference in particular proves valuable to the theory of language contacts as it reveals regularities in the functioning of language systems being in contact. It is also important from the point of view of practical application of the data obtained. The foreign language teacher, whose ultimate goal is to train his students to be artificial bilinguals, can gain a lot from what has been found *about prosodic interference. The importance of further pedagogically-oriented* experimentation in the field of phonetic interference is quite obvious.

Research along the lines of phonemic and prosodic interference may be also helpful to the acoustic engineer who sets up to construct a bilingual synthesizer – an apparatus that would "speak" alternately two languages.

EXERCISES

A. Think about the following questions for class discussion:
1. Are the functions and meanings of the prosodic structure of the utterance equivalent notions?
2. What meanings can the prosodic structure have? What do you think are the denotative and connotative meanings of the prosodic structure?
3. How can you illustrate the polysemantic and polyfunctional character of the prosodic structure?

B. Select examples from tape–recordings to illustrate
1) the communicative function of prosody,
2) the modal (attitudinal) function,
3) the culminative (accentual) function,
4) the stylistic function,
5) the role of prosody in modifying the basic meanings of the words in an utterance.

C. Compare semantically identical Russian (Byelorussian) and English utterances as to
1) the number of stresses in them,
2) the form of the terminal tone,
3) the character of rhythm.

D. Express your opinion of the following:
1. The learner of English will always be understood (irrespective of the situation) if he pronounces the model English prosodic patterns.
2. "The attitude markers are sometimes thought of as luxuries, the icing on the top, with word markers and grammatical sequence markers as the solid cake" [99, p. 268].

CHAPTER 8. PROSODIC NOTATION SYSTEMS

Linguistic analysis and the teaching of spoken language cannot disregard its prosody. That is why notation systems of prosodic phenomena are equally important both for research work and language teaching.

There is a fairly wide variety of notations that are being used in printed matter (papers, articles, textbooks, etc.). The aim of this chapter, however, is not to discuss all types of systems, but to acquaint the reader with the most widely used ones, so that he may read and reproduce them accurately.

It has already been mentioned (see Ch. 3), that any system of notation is a generalization of a great variety of linguistically relevant sound phenomena. The extent of the generalization may vary. Depending on what the notation is intended for, it may be broad or narrow.

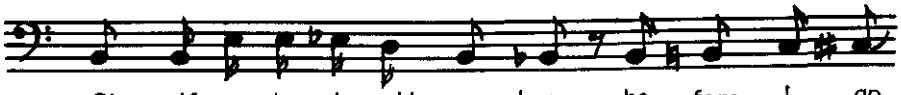
For research work it is essential to discriminate all the linguistically relevant prosodic contrasts, both major and minor; whereas for teaching purposes it is generally sufficient to discriminate only the features that are more significant, frequent and easily perceived. A broad notation is intended to reflect only the most relevant prosodic features by using the fewest possible symbols. These symbols should represent intonation visually as clearly as possible and act as a pictorial stimulus for immediate reproduction. A narrow notation is intended to be more detailed and precise.

One should not be misled into thinking that the more detailed the notation is , the more valuable it is. Phonetic precision is not the main point. A highly detailed notation may turn out to be too complicated and inadequate even for the scholar, if it does not reflect the differences in the degrees of significance of the prosodic data which it denotes. There are various degrees of significance that it is necessary to discriminate. Even the narrow notation is to provide the scholar with means of indicating what is linguistically more relevant and what is less relevant. One should look for distinctive features in prosody, and these are the features that are to be adequately represented. Thus, adequate representation of distinctive features is the most essential requirement a system of prosodic notation is to satisfy.

There is a number of means to denote prosodic features: the musical notation (J.Fonagy and K.Magdics [69]), interlinear staves with dots, dashes and arrows (L.Armstong and I.Ward [53], D.Jones [84]), the head and nucleus system (H.Palmer [102]), the tonetic stress–mark system (R.Kingdon [88]), the intonation contour system (K.Pike [103]), the numerical or number system (G.Trager and H.Smith [108], M.Halliday [76]) and others. These notations reflect the differences in the theoretical assumptions of scholars and their interpretation of prosodic data.

Until recently intonation was normally defined as pitch movement (or melody) alone. That is perhaps the main reason why one of the first attempts

to represent intonation visually was the introduction of a m u s i c a l n o t a t i o n. Scholars as far back as the 19th century used musical symbols to indicate the pitch changes in the voice, i.e. to transcribe what they considered to be intonation.



[69]

Musical symbols are sometimes used even now. But such a notation is unsatisfactory, not only for the practical reason that it is difficult to read, but also for the theoretical reason that the voice does not pass from one pitch to another at definite intervals as in singing. It is the level, the degree and direction of pitch change that matters, not the absolute tones of definite frequency which exist in music.

The next important development in the system of denoting prosodic phenomena was a n o t a t i o n w i t h i n t h e l i n e of the text. It was devised by H.Palmer, who used arrows inserted in the text to mark the pitch change in the nucleus (the most prominent word in a tone–group). The tonetic symbols he used were as follows:

↘, ↓ the falling nucleus,

↓ the falling nucleus with intensification,

↗ the high rising nucleus,

↗↘ the falling–rising nucleus,

↗ the low rising nucleus.

Besides those tonetic indications H.Palmer used special symbols to indicate the pitch of the syllables that precede the nucleus, i.e. those of the head. He marked the head thus:

— the superior head,

/ the scandent head,

_ the inferior head.

The syllables following the nucleus (called the tail) are not marked.

Do you feel ↗tired after your walk?

↗↘I didn't notice any difference.

H. Palmer also used a fuller notation in which the tune of the whole tone–group is shown by dots indicating the relative pitches of each syllable in the "head", "nucleus" and tail". Small dots correspond to unstressed syllables and thick dots mark the stressed syllables.

—What lovely weather we're having!  or

/Isn't this √lovely weather?  or

[102, p.xxiii–xxx]

H.Palmer's tonetic notation reflects his so–called "head–nucleus" approach to intonation, in which the central unit is the tone group. The tone group, in its turn, consists of two important elements: the nucleus and the head.

His notation system was accepted without any significant alterations by many English scholars (e.g. D.Jones, L.Armstrong and I.Ward, W.Lee and others).

You↑won't/see her if you\go there. (Even if you go there).

You↑won't\see her if you/go there. (You may if you don't) [93, p. 62].

Or again:

That's from my uncle who lives in London↓ (implies that the speaker has more than one uncle)

That's from my uncle↑ who lives in London↓ (implies that he has only one uncle)

In the latter examples the most prominent word is underlined, and the arrow that stands after it indicates whether the word is pronounced with a rise or a fall. This system is devised to suit a modified typewriter keyboard. It is fairly broad covering only the most general pitch variations and is therefore inaccurate.

The types of tones vary according to investigators from broad ones to narrow ones. While some scholars, like H.Palmer, R.Kingdon, J.O'Connor, G.Arnold differentiate between 'low rise' and 'high rise', there are others who do not. That is why the number of tonetic marks that are used by different scholars varies.

A rather accurate system was developed by R.Kingdon. It is known as the tonetic stress–mark system. R.Kingdon considers stress to be a very important factor in giving prominence and associates it with pitch. Thus one and the same mark indicates stress and tone simultaneously.

He distinguishes stressed syllables of two kinds: those in which the vocal cords remain at a given tension, producing a note of constant pitch (Static Tones); and those in which their tension changes, thus producing a sound of varying pitch (Kinetic Tones).

Static Tones:

the High Level Tone : It's'now or'never.

the Low Level Tone: Now,,how did you ,manage,that?

Kinetic Tones:

Tone IH – the High Rising Tone: Shall I ˊcome?

Tone IL – the Low Rising Tone: I,can't,do it,now.

Tone IIH – the High Falling Tone: I'want it`now.

Tone IIL – the Low Falling Tone:'Where's it,now?

Tone III Undivided – the Falling–Rising Tone: It'll be easierˇnow.

Tone III Divided –`I can,go.

Tone IV – the Rising–Falling Tone:^Now.

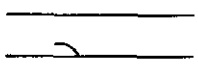
Tone V – the Rising–Falling–Rising Tone:ˇNow.

R.Kingdon considers these tones to be the "significant factors" in English intonation. As for "pauses, speed of delivery, voice quality, and slight alterations in pitch and tone, which cannot be recorded without making any notation system too complicated for practical use", he regards them as *refinements that are not cardinal for practical purposes.* [88, *p.xvi*]

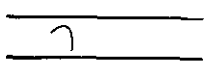
The tonetic stress–mark system is economical, convenient and rather precise, though it cannot reflect all the possible modifications of each of the five components of intonation. Many linguists use the system to mark English intonation.

Besides those intralinear systems, i.e. systems that indicate prosodic features within the line of the text, there exist interlinear systems in which the pitch of every syllable is represented by a dot, or a line, or an arrow.

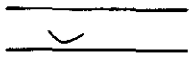
An interlinear system is a comparatively delicate description system of pitch change, pitch level and pitch range, as it represents the pitch of every syllable. It enables the investigator to distinguish between stressed and unstressed syllables in an utterance by either changing the size of the dots, or by using dashes to indicate stressed syllables and dots for the unstressed ones. The system uses a minimum of symbols which serve as a guide to the eye and assist in imitating the tune. On this account it is often used for teaching purposes. But this system requires special space and is therefore not very convenient and economical.



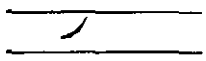
Yes=That is so.



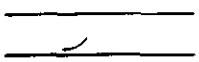
Yes=Of course it is so.



Yes=Is that really so?

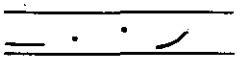


Yes=That may be so.



Yes=Yes I understand that, please continue!

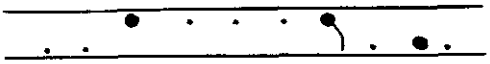
Put on your coat!



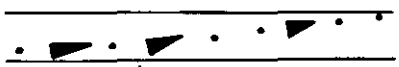
[84, p.277]

I want to be absolutely sure about it.

What on earth did you do that for, Peter?



[100, p. 11]



Is ˌthat the ˊbest you can ˋdo for us.

ˇKeep it for us . [90, p.11, 18]

All the above mentioned systems were devised mainly for teaching purposes and therefore single out prosodic features of immediate value to language teaching. There are other notation systems which aim at supplying the investigator with means of representing and discriminating various prosodic phenomena.

One of these systems is that of D.Crystal. It includes symbols to mark various degrees of pitch variation, pitch range, pause, loudness, speed, rhythmicality and tension. Besides that, he considers it necessary to analyse the role of paralinguistic features, such as voice qualifiers (whisper, breathy, husky, creak, falsetto, resonant) and voice qualifications (laugh, giggle, tremulousness, sob, cry). All the prosodic features communicate meanings and are marked by special symbols. Those symbols can be grouped into (a) features noted in the text and (b) features in the margin.

(a) Features Noted in the Text

Tone–unit boundary: |

Nuclear syllable: CAPITALS

Head: $|_h$ – higher than normal; $|_l$ – lower than normal

Pitch–range, stressed syllables

step–down: ↓

step–up higher than preceding syllable: ↑

Nuclear syllable pitch–range

narrow: ∩ ; wide: ∪

Pause	Silent	Voiced

unit:	–	ə:(m)
double:	– –	ə: ə:
treble:	– – –	ə: ə: ə:
brief:		ə (m)

(b) Features in the Margin

Pitch–range: narrow, wide, monot(one), high, low, ascend(ing), descend(ing)

Loudness: forte, fortiss(imo), piano, pianiss(imo), cresc(endo), dimin(uendo)

Speed: alleg(ro), allegriss(imo), lento, lentiss(imo), accel(erando), rall(entando)

Rhythmicality: rhythmic, arythmic, spiky, gliss(ando), stoc(cato), leg(ato)

Tension: tense, lax, precise, slurred

Paralinguistic features: whisper, breathy, husky, creak, fals(etto), reson(ant), spread, laugh, giggle, trem(ulounsness), sob, cry.

If one of these features is substituted for another, there is a change in the meaning of the utterance which any native speaker of English will perceive.

An illustration of this system of notation is an extract from an informal conversation between two housewives A and B:

'alleg'	A	'you got a|$_h$ CÓLD|'–
'lax'	B	|NO|·'just a|bit'↑SNÌFFY| cos I'm –
'dimin'		I|'ÀM CÓLD| and I'll| be all'right 'once
'alleg piano'		I've 'warmed ÙP –'do I LÔOK as
		'though I've 'got a ↑CÓLD|'
	A	no I|$_h$ thought you SÒUNDED as 'if you were
'pianiss'	B	'|M|$_h$'– [63,p.97]

D. Crystal's system of notation is complicated and cannot be readily used even for scientific purposes. Nevertheless his system is much more precise than other notation systems. It provides the scholar with a series of terms and symbols that enable him to describe adequately prosodic features which he cannot mark using other notation systems. That is why some of the prosodic terms and categories introduced by D.Crystal have been accepted by scholars.

The phoneticians of the Moscow State University have worked out a less complicated notation system which they called a p r o s o d i c t r a n s – c r i p t i o n. It is detailed enough to reflect most of the linguistically relevant prosodic contrasts using a minimum of symbols that are simple and readily applicable. Moreover, their prosodic transcription includes a number of additional symbols to indicate a greater variety of pauses than D.Crystal's notation system.

The prosodic transcription includes the following set of symbols:

| a one—unit pause, which is equivalent to one beat or cycle of a person's normal rhythm of speech;

|| a two—unit pause, which is approximately twice as long as the one–unit pause;

||| *a three—unit pause, which is about three times as long as the one—unit* pause;

§ a pause which is too short to be able to say with certainty whether phonation has actually ceased;

\+ a potential pause which remains unrealized;

[əm] | a voiced pause (the symbols above the vertical line denote the 'parasitic' sounds the pause is filled up with).

Tone (Pitch Movement)

ˋ ˈ ˊ pitch movements on a high level (ˋnow ˈnow ˊnow);

ˎ ˌ ˏ pitch movements on a mid level (ˎnow ˌnow ˏnow);

ˎ ˌ ˏ pitch movements on a low level (ˎnow ˌnow ˏnow);

ˎ a falling pitch (ˎnow);

ˇ ^ ˇ *complex tones (ˇnow ^now ˇnow)*

˙ . tones intervening between the initial and nuclear ones (The ˈwheels had˙not be.gun to ˎturn)

Range

h abnormally high range (h now)

l abnormally low range (l now)

w range wider than the speaker's normal range (w now)

n range narrower than the speaker's normal range (n now)

Tempo

allegro allegro, or tempo that is faster than normal

allegrissimo allegrissimo, or tempo that is very fast

lento *lento, or slow tempo*

lentissimo lentissimo, or very slow tempo

Loudness

~~~~~~~~forte, or louder than usual

~~~~~~ fortissimo, or shouting at the top of one's voice

_ _ _ _ _ piano, or speaking in a soft voice

..... pianissimo, when a person speaks very softly indeed.

The prosodic transcription therefore enables the scholar to distinguish 6 types of pauses, 3 pitch levels, 5 ranges, 5 types of tempo, 5 degrees of loudness. Besides that, it appears to be a very delicate descriptive system of kinetic and level tones, both simple and complex. The usage of this system can be *illustrated by the following example:*

|| We shall be/gin | by/stating | that 'language — 'speech di/chotomy | 'i.e. | that the di'vision into\language and ,speech | 'al 'though 'very·much has been ,written on the,subject, | 'still de'serves at\tention.|| 'True, for a 'course in\linguo—stylistics | 'we do\not have to ,deal with the 'more\general ,questions: | on the ,one'hand | we a/ssume | that there e'xists a 'thing 'called\language, | which is 'one of the\natural, or\ganic,semio·logical ,systems.|| [51, p. 45]

The American linguists' approach to the analysis of intonation is markedly different, as they have phonemicised intonation. They present American English intonation in terms of 4 pitch levels, 3 terminal contours, and 4 stress phonemes.

K. Pike was the first to point out the 4 contrastive pitch levels, which, as he writes, serve as the basic building blocks for intonation contours.

1 _____ extra—high

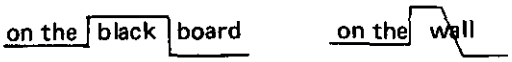
2 _____ high

3 _____ mid

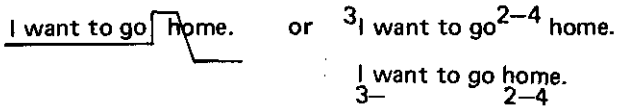
4 _____ low

American linguists note that the size of the interval between the four levels is not significant linguistically, nor is the absolute pitch of any of the levels. These levels are relative matters and depend on the voice of the speaker. For some speakers the intervals are wide, for others the intervals are narrow. It is the pattern formed by the sequence of pitch phonemes (or intonation contour) that really matters. That is why the supporters of this viewpoint use a special system of notation: lines within the text to indicate i n t o n a t i o n c o n t o u r s. They do not mark the pitch-level of *every syllable, they mark*

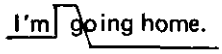
the level at the most 'crucial' points for the intonation contour, the so-called 'contour points'.



Sometimes the levels are indicated by means of figures over the text: from 1 for the highest to 4 for the lowest (K. Pike [103]), or vice versa [G.Trager and H.Smith [108]). Such a notation system represents the intonation contours as sequences of any of the four levels. It is referred to as the numerical system. The numbers are placed above or below the words of the text to represent the pitches on which the words are pronounced.



K. Pike and other American linguists consider that there does not exist a simple correlation between intonation contours and the chief communicative types of sentence (statements, commands, etc.). Yet intonation contours are a part of the signalling system of English structure, and they signal different structural meanings.

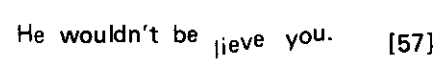


(3–2–4 signals finality)

(3–2–3 signals continuation)

D. Bolinger considers that the configurations of pitches are *linguistically relevant and he indicates them graphically in the following* manner:

or



[57]

All the American linguists attribute special significance to pitch, which, as they believe, is linguistically more relevant in American English than in British English.

These are the most widely used systems of notation, some of which show many limitations (as the numerical system or the musical notation), others are more adequate, flexible and are not bound by strict categories (as the prosodic transcription or the interlinear systems).

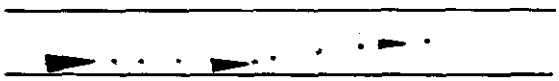
EXERCISES

A. Think about the following questions for class discussion:

1. Why is a prosodic notation system indispensable for linguistic analysis of spoken language?
2. What are the main requirements that a prosodic notation system should satisfy?
3. Why do scholars sometimes use the term "level–transcriptions" for the numerical and intonation contour systems?
4. Many American scholars distinguish "pitch phonemes", which they consider to be minimal distinctive units of pitch. "No" uttered with one pitch phoneme differs from "No" uttered with another pitch phoneme or a different combination of pitch phonemes. What objections does this viewpoint suggest?
5. Which components of intonation do most of the prosodic notation systems represent? Which of the notation systems are suited to reflect temporal variations?
6. Which prosodic notation system do you consider most suitable for teaching English at school?

B. Provide examples to illustrate the fact that various notation systems reflect different interpretations of intonation.

C. Use another notation to indicate the prosodic features of each of the following phrases:

1. 'Two, times 'three 'plus two, is 'ten.
   2–4–3/ 4– 2 1– –4–3/ 3– 2–4//
2. Do you know him? (3–2–1)
3. 
   ,That'll be the ,easiest way to do it.
4. I shouldn't trouble if I were you.
5. I don't/mind if it /is.
6. Were they better they'd be more accept able.
7. I will if I may.
8. That's terrible!

D. Transcribe an extract recorded by English or American speakers. Use the prosodic transcription devised at the Moscow State University to render all the prosodic impressions.

CHAPTER 9. VARIETIES OF ENGLISH PRONUNCIATION

THE ORTHOEPIC NORM

There exist numerous varieties of pronunciation in any language, the English language as well. The pronunciation of almost every locality in the British Isles has peculiar features that distinguish it from the pronunciation of other localities. Besides, pronunciation is socially influenced. It reflects class distinctions, education and upbringing. The varieties that are spoken by a socially limited number of people and used only in certain localities are called dialects. There are therefore local dialects and social dialects. Moreover, there are innumerable individual differences, called idiolectal differences. At the same time all these varieties have much more in common than what differentiates them. They are varieties of one and the same language, the English language, which is a means of communication for all those who speak it.

Dialects have some peculiarities in pronunciation, vocabulary and grammatical structure. Every dialectal pronunciation is characterized by features that are common to all the other dialects of the language, and by a number of specific peculiarities of its own, that set it apart from all the other dialects. Due to mass media (radio, TV, cinema), the increased mobility of the population, concentration of the population in the cities, the dialectal differences are becoming less marked. That, of course, does not mean that the pronunciation of a Manchester dialect speaker does not differ from the pronunciation of a London dialect speaker. Among the most well-known dialects one should mention Cockney (spoken by the less educated part of the Londoners), Geordie (heard in Newcastle-on-Tyne), Scouse (the Liverpool dialect) Cornish dialect (in Cornwall) and others.

Dialect speakers are, as a rule, the less educated part of the population. With the more educated people pronunciation generally tends to conform to a particular standard. But the English language would lose a lot if its dialects disappeared. Dialects enrich the language and make it more lively and fresh. They stimulate the development of language, supply it with new lexical and syntactic means, cause modifications in its phonetic system.

In present-day English the number of local dialects is being reduced to a fewer, more or less general, regional types. Every regional type of pronunciation is characterized by features that are common to all the dialects used in the region. The regional types of pronunciation, in their turn, are marked one from another by a number of pecularities specific to each of them. In British English phoneticians generally distinguish three main regional types of pronunciation: Southern, Northern and Scottish regional types of English pronunciation. Besides, there may a non-regional type of pronunciation that is not native to any particular locality in the country.

One of the types of pronunciation, generally the one that is spoken by the educated people in the capital, is recognized as the orthoepic norm.

The o r t h o e p i c n o r m of a language is the standard pronunciation adopted by native speakers as the right and proper way of speaking. It comprises the variants of pronunciation of vocabulary units and prosodic patterns which reflect the main tendencies in pronunciation that exist in the language. It is used by the most educated part of the population.

The orthoepic norm is based on the variants of pronunciation that are widely used in actual speech, that refect the main phonetic tendencies, and that are considered to be acceptable by the educated. Thus, wide currency, conformity to the main phonetic tendencies and social acceptability are the three main conditions that are necessary for a variety of pronunciation to be accepted as the norm.

Though attempts are generally made to preserve the norm as it is, new pronunciations which are in common use gradually become 'acceptable' and are included into the norm. On the other hand, some of the pronunciations, which had been acceptable, fall out of use, are labelled as 'old-fashioned' and are, consequently, excluded from the norm. For example, "clothes" /kloʊð z/ was formerly pronounced /klouz/, which now sounds old-fashioned and is no more current among educated speakers. Or again, in the early twentieth century "chemist" /ˈkemɪst/, "chemistry" /ˈkemɪstrɪ/ were pronounced as /ˈkɪmɪst/, /ˈkɪmɪstrɪ/, these variants of pronunciation have fallen out of use.

Besides, the orthoepic norm always includes a set of stylistic variants of pronunciation which are 'acceptable' only in certain circumstances.

The point is that the spoken language exists in different varieties, such as familiar conversational style, official style, etc. And there are phonetic phenomena and variants of pronunciation that are acceptable in some styles, but are not appropriate in others. For example, the colloquial /kɒz/ or /kəz/ for "because" and /ˈsʌməʊ/ for "somehow" are common in rapid familiar conversation, but are unacceptable in a public speech.

Thus, the orthoepic norm comprises well-established (or codified) variants of pronunciation acceptable in all the varieties of speech, and it also includes stylistic variants that are acceptable only in some varieties of speech in case they do not violate the main phonetic tendencies. Consequently, the orthoepic norm includes a number of stylistic norms, none of which can be considered "neutral" and "acceptable" in all circumstances.

The pronouncing dictionaries record the well-established pronunciations as first variants. The less frequent variants of pronunciation are generally recorded as secondary variants.

Since the orthoepic norm is ever changing and developing, from time to time the pronouncing dictionaries have to be revised and reset. If the pronunciations entered as secondary variants appear to become commoner in the speech of the cultured people, the order of recording the variants is rearranged.

For example, in the 1937 edition of Everyman's English Pronuncing Dictionary by D.Jones the pronunciations of the following words were indicated in such an order: "again" – /əˈgeɪn–əˈgen/, "national" – /ˈnæʃə n ə l – ʃnəl, – ʃn̩l/. In the 1956 edition the order is reversed: "again" – / əˈgen/, /əˈgeɪn/, "national" –/ˈnæʃənl, – ʃnəl, – ʃn̩l, – ʃn̩l,– ʃə nəl/.

In connected speech the sound structures of words are greatly modified under the influence of rhythm, tempo and utterance stress. But the pronouncing dictionaries do not and cannot reflect all these variants, though they are not regarded as deviations (or departures) from the norm.

Among the native speakers there is a certain amount of tolerance in the matter of the sound structure of words. In certain circumstances "I don't know" / ədəˈnoʊ /, "right place" /ɹaɪp ˈpleɪs/, "bright boy" /braɪp bɔɪ/ are perfectly correct. In this sense W.Ripman is right when he says: "It might be thought that reference to a dictionary would be sufficient to settle disputed points. However, it may be said that no dictionary... can be implicitly trusted in matters of pronunciation" [107, p. 5].

The dictionaries therefore register the codified norm (the model pronunciations) and only partly reflect the actual pronunciation in general use.

So far we have considered only variants of pronunciation of vocabulary units, which can be recorded in dictionaries. But the orthoepic norm involves prosodic phenomena as well. The intonation of a speaker may also be acceptable or unacceptable. There are pitch patterns in general use, which are not tinged with any regional peculiarities and which give no indication of who the speaker is and where he comes from. As we examine the prosodic features of speech we realize that there is a generally–agreed norm of loudness and a recognized norm of tempo which cultured speakers do not deviate from. But there are certain pitch patterns that give a local accent to speech. For example, short and sharp tones, stoccato delivery occur more frequently in the speech of Welshmen. Moreover, phoneticians note that certain tones occur more frequently in the speech of one sex and are less frequently used by the other sex. Thus, R.Kingdon indicates that the falling–rising and the rising–falling–rising tones are great favourites with women speakers [88].

Therefore, there is a prosodic norm in every language which comprises well–established prosodic patterns, used in educated speech, and their stylistic variants, current in particular styles of pronunciation. Though it cannot be recorded by pronouncing dictionaries, its importance is obvious: even minor deviations from the prosodic norm are perceived as either a local accent or a foreign accent.

The English prosodic norm is rather well described (see D.Jones, R.Kingdon, J.O'Connor and G.Arnold and the works of Soviet phoneticians). As for its stylistic variants, they are not as yet well established and have become the object of a number of phonetic investigations. The prosodic norm is an important component of the orthoepic norm.

It should be emphasized, that the orthoepic norm is not constant and fixed for all centuries and generations. Variation of the orthoepic norm is a natural objective phenomenon, which reflects the development of language.

The orthoepic norm is not isolated from non–standard pronunciations that are in current use. The non–standard prosodic patterns and regional variants of pronunciation constantly influence the orthoepic norm. It is a well–known fact that most of the phonetic changes first occur among the less educated before they are recognized as acceptable. Therefore, the main factors that condition variation of the orthoepic norm are social, territorial and stylistic factors.

It should also be mentioned that British English pronunciation is exposed to external influence. On the British television and screen there is a lot of American speech which works against the standardization of the pronunciation, especially with the younger generation. On the other hand, the orthoepic norm influences the non–standard types of pronunciations. The spread of education and mass media encourage to some extent a standardized pronunciation.

These are but a few examples which serve as an illustration of the constant interaction of the orthoepic norm with non–standard pronunciation.

PRONUNCIATION VARIETIES OF BRITISH ENGLISH

It is generally considered that the orthoepic norm of British English is "Received Pronunciation" (RP), though, as many scholars state, it is not the only variety of British English pronunciation that is recognized as the orthoepic norm in present–day Britain.

Received Pronunciation (RP) was accepted as the phonetic norm of English about a century ago. It is mainly based on the Southern English regional type of pronunciation, but it has developed its own features which have given it a non–regional character, i.e. there is no region in Britain to which it is native. RP is spoken all over Britain by a comparatively small number of Englishmen who have had the most privileged education in the country – public school education, (public schools being the best and most expensive fee–paying schools in the country). RP is not taught at these schools, "it is absorbed automatically by the pupils" (as D.Jones puts it [85]), for children are sent to live there at the age of eleven when pronunciation is most flexible. The children, isolated in the school from their parents and other children, contact only with their teachers and schoolmates, and very soon acquire the so–called "public school accent", or RP. As almost all the leading positions in the Cabinet, the armed forces, the judiciary are occupied by those who have had public school education, RP is actually a social standard pronunciation of English. It is often referred to as the 'prestige accent'.

Though RP is carefully preserved by the public schools and the privileged class in England, the RP of today differs in some respects from the former refined RP used half a century ago. A. Gimson claims that the exclusive purity of the classic RP has been diluted, as some features of regional types of speech are "received" now, though some 50 years ago those features were considered to be regional, non–RP [72].

The main changes that have recently taken place in RP are as follows:

1. The diphthongization of the RP /i:/ and /u:/ which in final position are often pronounced with a glide (e.g. "see" /siˑj/, "who" /huˑu/).

2. Monophthongization of /aɪ/ and /aʊ / when followed by / ə / (e.g. "tower" –/ˈtaʊə />/ˈtaə /, "fire" /ˈfaɪə />/ˈfaə /).

3. The centering of former /oʊ/ to /ɜʊ/, that "is perhaps the most striking of the changes which have affected the pronunciation of British English in recent times" [72, p. 20].

This change is obvious from the following example. In the 30s the vowel in the first weak syllable of such words as "November" had three possible pronunciations – the recommended /oʊ / (/noʊˈvembə /), shortened monophthongal form/o/ (/noˈvembə /), or, in rapid speech,/ə / (/nəˈvembə /). Now, there is a tendency to pronounce /ɜʊ / in careful speech (/nɜʊˈvembə /), and /ə / in rapid speech (/nəˈvembə /).

S.Potter, an English linguist, states on this account: "Increasing numbers of young people pronounce home as /hɜʊm/ centralizing the initial element of this narrow diphthong. This is a prominent and outstanding change because it is so widespread in all classes of society. There are clear indications that /hɜʊm/, not /hoʊm/, will be the pronunciation of tomorrow" [105, p.17–18]

4. A greater weakening of vowels in weakly stressed syllables, which results in the use of the neutral /ə / where the more conservative form had and has the stronger /ɪ/, e.g. /bəˈliːv/ for /bɪˈliːv/; /ˈɪntrə stɪŋ/ for /ˈɪntrɪstɪŋ/.

But RP does not accept a loss of the /ə/–/ɪ/ distinction in final open syllables (e.g. between "better – Betty", "dollar – dolly"). RP retains the /ɪ/ in such morpheme endings as "–ed, –es," e.g. "matted, teaches" (as opposed to "mattered, teachers").

5. The assimilation of the following sounds: /sj/ > /ʃ/, /zj/ > /ʒ /, /tj/> >/tʃ/, /dj/> /dʒ/ (e.g. "issue", "crozier", "situation", "education").

6. The final /b, d, g/ are now partially devoiced. But the distinctions between /b – p, d – t, g – k/ are just as clearly marked, because /p, t, k/ are fortis, while /b, d, g/ are lenis (cf. "cab – cap", "had – hat", "bag – back").

7. The use of the intrusive /r/, which some 20–30 years ago was carefully avoided by RP speakers.

Nowadays RP tolerates the intrusive /r/ in such phrases as "the idea /r/ of it", "Asia /r/ and Africa", "drama /r/ and music".

Those modifications are accepted and have become well–established nowadays , but they are not equally widespread among all the RP speakers.

On this account A.Gimson distinguishes three varieties of RP today: (1) the conservative RP used mainly by the older RP speakers, (2) the general RP heard on radio and TV, that is less conservative and has received all the changes mentioned above, (3) the advanced RP mainly used by the younger RP speakers, which as often as not has received many more changes, even the use of the glottal stop [71].

The modifications of RP which have been mentioned above are rather numerous and provide sufficient evidence of the evolution of RP during the past quarter of a century. RP has accepted so many features of the Southern English regional accents that many linguists [110] use the terms "Southern English" or "Southern English type of pronunciation" for RP.

RP has been investigated and described more thoroughly than any other type of English pronunciation. It was excellently described in the works of D.Jones and his Everyman's English Pronouncing Dictionary is still the most reliable reference book on RP. Many features of RP have been studied in the Soviet Union and other countries. That is why it is RP,or Southern English Pronunciation, that is often accepted as the teaching standard in many countries where English is taught as a foreign language.

But there are many educated people in Britain who do not speak RP, though their English is good and correct. They speak Standard English* with a regional type of pronunciation.

D. Abercrombie divides English people by the way they talk into three groups:

(1) RP speakers of Standard English (those who speak Standard English without any local accent);

(2) non–RP speakers of Standard English (those who speak Standard English with a regional accent);

(3) dialect speakers [48].

Scholars often note that it is wrong to assume that only one type of pronunciation can be correct. If a particular pronunciation is well–established and current among educated speakers, it should not be treated as incorrect. This primarily concerns the Northern and the Scottish types of pronunciation which are used by many educated people in Britain.

The Northern regional type of English pronunciation is characterized by features that are common to all the dialects used in the northern part of England.

The main distinctions of the Northern type of English pronunciation, as opposed to RP, are as follows:

(a) /æ/ is more open and more retracted back, as in /a/ (e.g. "back","bad").

(b) /ɑ:/ is fronted compared with RP /ɑ:/ and it approximates to /æ/ in words which do not contain "r" in spelling (e.g. "glass", "laugh","after"),

*'Standard English' here is the accepted form of English and implies its vocabulary and syntax rather than pronunciation and enunciation.

but there occurs / ɑ:/ in "harm", "cart", etc. Therefore in Northern English there remains a distinction between "ham" and "harm", or "pat" and "part".

(c) /ʊ/ is used instead of /ʌ/ (e.g. "cup", "love", "much"), so there is no distinction between words like "could" and "cud", "put" and "putt".

(d) /oʊ / is pronounced as a monophthongal /o:/ (e.g. "go", "home").

(e) /e/ or /ɛ:/ are pronounced instead of /eɪ/ (e.g. "may", "say", "take").

(f) /ɒə / is widely used, so they distinguish words like "pore" and "paw".

(g) All tones are drawled and speech is generally slower than in Southern English. The Low Rising Tone is used much oftener than in RP. For example, "Lancashire is the most thickly populated county in England" sounds like [ˌlaŋkəʃɪrɪz ðə mo:st ˈθɪklɪ ˈpɒpjʊlɛtɪd ˈkaʊntɪ ɪn ˏɪŋglənd]. All that tends to give a sing–song quality to speech.

The Scottish type of English Pronunciation is also based on the dialects spoken in Scotland which vary among themselves in some respects. Their common features, which distinguish the Scottish type of pronunciation from RP, are as follows:

(a) / ɜ:/ is not used in the Scottish type of pronunciation, instead of RP / ɜ :/ they use the sequences /ɪr/. /er/ or /ʌr/ (e.g. "bird" /bɪrd/ "heard /herd/, "word" /w ʌ rd/. Similarly monophthongs are used instead of diphthongs in "beard", "there", "pure", "poor", "sure", etc.

(b) /u/ is used instead of /aʊ/ (e.g. "down" /dun/).

(c) The Scottish pronunciation does not distinguish between / æ / and / ɑ:/; words like "bad", "path", "grass", "dance", "half", "part" are pronounced with /æ/, /a/ or /ɑ/.

(d) All vowels are short. There is no distinction in the length of the vowels in words like "pull" and "pool", "cot" and "caught", with the exception that the vowel in inflected words is not as short as the vowel in non–inflected words ("road" – "rowed", "greed" – "agreed")

(e) /r/ is an alveolar flap not only between and before vowels, as in "hurry" and "brown", but also after vowels, as in "word", "born".

(f) A voiceless labiovelar fricative /ʍ/ is used to distinguish between "which" and "witch", "whine" and "wine".

(g) In the Scottish type of pronunciation there appears a backlingual fricative /x/, which resembles the corresponding Russian sound (e.g. "loch").

There are certain peculiarities in the intonation of the Scottish type of English pronunciation, such as

(a) Special Questions may end with a high level tone after a fall on the interrogative word, e.g.

RP ˈWho's ˈhaving the ˋgrape fruit?

Scot. ˋWho's ˌhaving the ˈgrape fruit? [89, p. 262]

(b) A final vocative does not necessarily continue the tune of the General Questions, e.g.

RP 'Will you be'in to 'lunch, Mr. 'Brown?

Scot. ˌWill you beˌin to 'lunch,ˌ Mr.ˌBrown? [89, p. 262]

We may now summarize by saying that one should distinguish between RP and "educated" regional types of pronunciation (such as Southern, Northern and Scottish types of English pronunciation), on the one hand, and local dialects, on the other.

One of the best examples of a local dialect is Cockney. It is used by the less educated in the region of London. Cockney has not been fully investigated, but there are certain striking peculiarities that should be mentioned.

(a) In Cockney the nucleus of the diphthong /eɪ/ is an almost open vowel, so that it reminds of /aɪ/ (e.g. "take", "late").

(b) /æ/ sounds like /ɛ/ (e.g. "bag").

(c) /oʊ/ is /æʊ/ (e.g. "potatoes" /pə'taɪtæʊz/).

(d) A nasalized /$\widetilde{aɪ}$/ is used for /aɪ/ (e.g. "Buy potatoes and cabbages" /'bɑ̃ɪ pə'taɪtæʊz ɳ'kɛbə dʒɪz/).

(e) /p, t, k/ are heavily aspirated.

(f) /h/ does not occur, it may appear only in stressed position ("his", "her", "happened").

(g) The final /ŋ/ sounds like /n/ (e.g. "something", "evening").

(h) /θ/ and /ð/ do not occur, /f/, /v/ or /d/ are used instead (e.g. "thin" /fɪn/, "father" /'fɑːvə/, "this" /dɪs/).

(i) The glottal stop is often heard instead of /p/, /t/, /k/ and between vowels (e.g. "I hope so" /aɪæʊˀ sæʊ/, "back door" /bɛˀ doə/, "thirty" /fɜːˀɪ/).

Studies of regional and dialectal pronunciations generally concentrate on the phonemic structures of words and differences in the realizations of definite phonemes. But it appears that these pronunciations, besides that, have differences in their phoneme inventories. For example, the Northern type of pronunciation has no /ʌ/, whereas it has /ɒə/. The Scottish pronunciation distinguishes between voiced /w/ and voiceless /ʍ/, but it has no /ɜː/. Cockney has no /θ/ and /ð/ phonemes. There are many /h/–less dialects in England. Therefore there are distinctions in the phoneme inventories of various types of pronunciations. Scholars have recently given more attention to the phonological systems of British English varieties of pronunciations, yet much remains to be done.

AMERICAN ENGLISH PRONUNCIATION

English is spoken not only in Britain. It is the national language in the USA, Australia, New Zealand, and of a great part of the population in Canada. Each of those nations has its own orthoepic norm which exists alongside of regional types and numerous dialects.

Though the national languages have peculiar features of their own, which differentiate them from British English (BE) and from each other, they have much more in common. That is why they are considered to be variants of the same language, the English language.

American English (AE), which is a variant of the English language, has developed its own peculiarities in vocabulary, grammatical structure and pronunciation. American English embraces a wide range of pronunciation varieties. With the beginning of the 19th century the mobility of the population in the USA increased greatly: there was migration to the west of the country, and with the growth of industrial centres a considerable proportion of the farm population moved to the cities. As a result of that, dialectal differences have been reduced to fewer, more or less general, regional types. The most widely used regional types of AE pronunciation are the Eastern, the Southern, and the General American types, the latter spoken mainly in the Middle Atlantic States Region.

The GA (General American) pronunciation is usually referred to as the standard pronunciation of AE, though it is often debated whether there is a standard pronunciation in the USA. Nevertheless it is the GA that has the greatest "acceptability" if not prestige, in the United States.

The peculiarities of GA lie in 1) the pronunciation of sounds and sound combinations; 2) differences in the stress patterns of words, and 3) differences in intonation.

1) Peculiarities of pronunciation of GA sounds and sound combinations as compared to those of RP.

(a) /r/ in GA is retroflexive, i.e. the tip of the tongue is curled back;

(b) /t/ is voiced between a vowel and a sonorant (as in "battle", "twenty"), or between two vowels the second of which is unstressed (as in "pity", better"). But the distinction between /t/ and /d/ is not neutralized, because the voiced [t̬] is extremely short and resembles a one-tap alveoral /r/. Americans easily distinguish between "writer" and "rider", "latter" and "ladder";

(c) /l/ is always dark, even before vowels (e.g. "film", "look");

(d) / ʃ / is voiced in words like "excursion" /ʒn/, "version" /ʒn/, "Asia" / ʒ /, "Persia" /ʒ/;

(e) /h/ is often dropped in weak syllables, but it is retained when the syllable is stressed (e.g. "an historical novel" / ən ɪstˈɒ rɪklˈnɒ vl/, "I saw him" /aɪ ˈsɔ :ɪm/, but "history" /ˈhɪstrɪ/, "him" /hɪm/);

(f) /j/ is omitted before /u/ (e.g. "duty" /ˈdu:tɪ/, "student" /ˈstudn̩t/, "new" /nu:/);

(g) /d/ is dropped after /l/ and /n/ (e.g. "cold", "old", "individual");

(h) /k/ is omitted before /t/ (e.g. "asked" /æst/);

(i) The glottal stop /ʔ/ is used instead of /t/ before /m, n, l, r, j, w/ (e.g. "certainly" / sɜ:ʔ nli/, "that one" / ðæʔ wʌ n/, etc.);

(j) GA vowels are not differentiated by their length. D.Jones notes that all American vowels are long;

(k) / æ / is used instead of / ɑ:/ in words which do not contain "r" in spelling (e.g. "path","glass", "laugh", "can't", "last", "grass" etc. Exceptions: "father, palm, balm, alms");

(l) /æ / in GA is wider and longer than RP /æ/, the Americans pronounce it with a twang (e.g. "man", "pass");

(m) /o ɤ / is much less diphthongal than in RP. It may be represented as */o:/. Thus to represent Englishmen on the American stage the actors very* often exaggerate the diphthongal character of /oɤ/ [91] ;

(n) / ɤ ə /tends to be monophthongized. (e.g. "usually" / juʒəlɪ/, "rural" /ˈrurəl/) .

The phonetic distinctions between RP and GA pronunciation shown above reflect the differences in their phoneme inventories.

The system of AE vowel phonemes is generally presented in the following vowel chart:

	Front	Central	Back
High	i	ɨ	u
Mid	e	ə	o
Low	æ	a	ɔ

But there is no agreement about the vowel system of GA. Thus the high central vowel /ɨ/, popularly known among phonologists as "barred eye", is said to occur in the unstressed syllables of words like "waited", "chorus" and in the stressed syllables of "children", "just" (as in "Just a minute") . But many American scholars see no reason to distinguish /ɨ/. They consider that in GA it is actualized as /ɪ/ in stressed syllables and as / ə / in unstressed ones. As it makes no difference whether one says ,"ræ bɨt/ or /ˈræbət/, they do not include /ɨ/ into the system of GA phonemes.

Some phonologists consider that in GA the low back vowel / ɔ / does not actually contrast with /o/; similarly the low central /a/ does not contrast with / ɔ /. Though some contrasts are phonemic, nevertheless they carry a light load of significance. Therefore one of the three symbols is used to indicate the vowel phoneme in words like "pot", "hot" (/pot/, /pɔt/ or /pat/; /hot/, /hɔt/ or /hat/) .

The GA / ə / phoneme occurs both in stressed syllables (as in "but", "son", "blood") and in unstressed syllables (as in unstressed "of", "was", "does") .

It is therefore assumed that the GA phonemes are as follows:

/ɪ/ tip, if	/ə/ humdrum, up
/e/ bet, bed	/u/ pull, wood
/ æ / mat, act	/ɔ/, /o/ or /a/ pot, hot

Most of the more recent AE unabridged dictionaries use these symbols to indicate the GA simple vowel nuclei.

Besides the vowel phonemes mentioned above, there are three semivowels: /w/, /y/ and /h/, which can form complex nuclei. /w/ and /y/ are vocalic glides, /h/ *represents a lengthening element or a glide to the mid–central position.* Thus RP /oʊ/ is phonologically interpreted as /ow/, RP /i:/ as /iy/, RP /eɪ/ as /ey/, etc. The long vowels / ɑ:/ and / ɔ:/ are referred to as complex nuclei /ah/ and /oh/. That means that all GA diphthongs and long vowels are treated as complex nuclei. Some linguists consider that complex nuclei are combinations of two phonemes: vowel + semivowel [56], others treat them as single–unit phonemes [24].

There is more agreement about the system of GA consonant phonemes. Phonologists distinguish 21 consonant phonemes in GA: /p, t, k, b, d, g, č, ǰ, f, θ, s, ʃ, v, ð, z, ʒ, m, n, ŋ, l, r/. The list of consonant phonemes naturally does not include the semivowels /j, w, h/.

The differences in the phonological interpretations of GA and RP sound systems, however, seem to overemphasize the distinctions between them. For example, the distinctions in their vowel systems are actually less striking than it might seem when opposing 20 vowel phonemes in RP to 6 vowel and 3 semi–vowel phonemes in GA. A comparative analysis of GA and RP shows that they differ mainly in the distribution and the range of realizations of the phonemes, most of which are common for both the types of pronunciation.

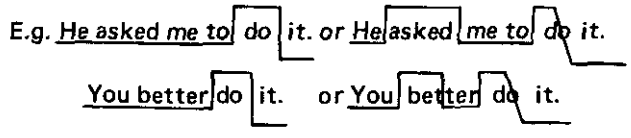
2) Peculiarities in the stress patterns of words in GA as compared to RP.

American speakers make much greater use of secondary stress in polysyl–labic words than British speakers do. In words which end in "–ary", "–ory", "–ery", "–mony", "–ative" the first syllable in the suffix bears tertiary stress (i.e. stress which is somewhat weaker than secondary stress).

E.g. ˈdictiǫnary, ˈterritory, ˈmilliṇery, ˈceremony, commuṇicative.

3) Peculiarities of GA intonation.

The most frequent intonation contour for statements and requests in GA is the tune, beginning low, rising to a high level, and then steadily falling.



The same type of falling intonation contour may characterize the so–called General Questions in GA.

Did he ask you to do it?

"Rising" tunes that rise from a low pitch level and end on a high pitch level occur with some General Questions, especially in situations where a very polite form is desirable.

E.g. Do you know him?

Will you be ready at seven?

Such intonation contours used in GA unemphatic questions are generally perceived by RP speakers in Britain as implying surprise or disappointment. On the other hand, the RP General Questions (pronounced with a Descending Scale ending with a Rise) seem to sound pretentious to the Americans.

Though the so-called Special Questions are pronounced with a falling tone in both RP and GA, the difference lies in the pronunciation of the Scale. If in RP it is usually the Descending Scale, in GA the whole utterance is generally pro - nounced on a level tone.

E.g. RP 'Why haven't you told me about it?

GA Why haven't you told me about it? or

Why haven't you told me about it?

Such questions sound dispassionate and disrespectful to an RP speaker.

The RP Special Question pronounced with a rising tone (polite questions) are perceived by the Americans as questions implying curiosity.

Another frequent intonational characteristic in GA is to end a sentence with a high-pitched fall-rise.

E.g. Can you do it? We certainly can.

We happened to be passing by.

On account of the fact that the features which distinguish AE from Bri- tish English are so numerous, some linguists claim that AE can no more be con- sidered a variant of the English language.

But most of the linguists express the opposite point of view. A. Shveitser, a Soviet linguist who has made a thorough study of AE, has proved that the distinctions between AE and BE do not affect the inventory of the main lan- guage units. Those distinctions are but functional variations of language units which are common to both variants of the English language: AE and BE [42].

Thus, there is a wide range of pronunciation varieties of the English lan- guage. These varieties reflect the social class the speaker belongs to, the geo- graphical region he comes from, and they also convey stylistic connotations of speech. Some of these varieties are received pronunciations, others are not.

Every national variant of the English language has an orthoepic norm of its own: RP, or Southern English, for British English, GA for American Eng-

lish, the Australian Standard Pronunciation for Australian English. Each of these orthoepic norms tolerates a definite range of phonemic variation, and each of them has its own peculiarities of combinatory phenomena. Further investigation is needed to establish the phonological systems of the different standard and non- standard pronunciations of English.

EXERCISES

A. Think about the following questions for class discussion:

1. What accounts for the opinion that the orthoepic norm embraces a wide range of pronunciation rather than a single variety of pronunciation?
2. Why do pronunciation dictionaries sooner or later get out-of-date?
3. Do all the speakers of one and the same language necessarily use the same number of phonemes? May dialects (social or regional) differ not only in the realizations of phonemes, but also in their phoneme inventories?
4. Why have dialects shown such remarkable virility in spite of the numerous factors that encourage standardization of pronunciation?
5. What accent places an English speaker in a privileged social category?
6. Which of the developments of RP have become well-established and accepted?
7. What are the main differences in the phoneme inventories of English regional types of pronunciation?

B. Express your opinion of the following:

1. "There is no single list of phonemes which will do for all speakers of the language..." [99, p. 128].
2. Vowels are the main means of identifying dialectal differences. In this respect they are of greater value than the English consonants.
3. G.Krapp, an American phonetician, says: "To British ears American speech often sounds hesitating, monotonous and indecisive, and British speech, on the other hand, is likely to seem to Americans abrupt, explosive and manneristic." [91, p. 50] What are the reasons for such an impression?

C. Use Everyman's English Pronouncing Dictionary by D. Jones to analyse the pronunciation of the following words: "because", "been", "literature", "resource", "translate". Find more examples to illustrate the fact that the *orthoepic norm is ever changing* and developing, and that it embraces a wide range of pronunciation.

D. Select some phrases from recordings made by English and American dialect speakers. Reproduce those phrases to illustrate British English and American English dialectal pronunciation.

E. Choose extracts from English prose which contain the speech of British English and American English dialect speakers. Examine the texts for evidence of dialectal pronunciation. What changes in the traditional spelling of words do writers use to represent deviations from the orthoepic norm?

CHAPTER 10. PHONOSTYLISTICS – A NEW BRANCH OF PHONETICS

PHONETIC STYLES AND THEIR CLASSIFICATION

Language functions in two main forms: the spoken language and the written language. Though the main concern of phonetics is to investigate the varieties of the spoken language, the written language cannot be dismissed altogether, as it is very often read aloud, or recited, or it guides the speaker when his speech is prepared and written down in advance.

Scholars distinguish a number of functional styles of the written language, such as belles–lettres style, publicistic style, newspaper style, the style of official documents and that of scientific prose, which have clearly distinguishable lexical and syntactical peculiarities. Apart from a few scattered studies of oratorial and conversational styles, the styles of the spoken language are not as yet unanimously defined, though we are well aware of the phonetic differences between, say, a casual conversation and an official exchange of views.

A close examination of the speech characteristics of one and the same person easily reveals that each native speaker uses several varieties of the language. He uses one at home, another with his colleagues, a third when addressing an audience and so on. At home he usually speaks rather carelessly, with his colleagues his speech, though rapid at times, is less careless, and when addressing an audience his speech is more careful. Each of these vareties may differ in the usage of items of vocabulary and in grammatical structures, but by far the most striking distinctions are phonetical. At times these varieties differ only phonetically, nevertheless they are easily identified by all the native speakers. For example, "Do you know her", when pronounced as [dʒəˈnɜʊə], or again, "come here" when pronounced [kˈmɪə] are easily identified as belonging to informal conversation.

The main circumstances of reality that cause phonetic modifications in speech are as follows:

(a) the aim of speech (which may be to instruct, to inform, to persuade, to narrate, to chat, etc.);

(b) the extent of spontaneity of speech (unprepared speech, prepared speech, etc.);

(c) the nature of interchange, i.e. the use of a form of speech which may either suggest only listening, or both listening and an exchange of remarks(a lecture, a discussion, a conversation, etc.);

(d) social and psychological factors, which determine the extent of formality of speech and the attitudes expressed (a friendly conversation with close friends, a quarrel, an official conversation, etc.) [8, 22].

These circumstances,or factors,are termed extralinguistic factors. Speaking is open to the influence of all these extralinguistic factors.

Different ways of pronunciation, caused by extralinguistic factors and characterized by definite phonetic features, are called **phonetic styles**, or **styles of pronunciation***.

The notion of styles of pronunciation was introduced by M.Lomonosov in the 18th century. Since then it has attracted many linguists. Though the differences in the styles of pronunciation are recognized by all, there is no generally accepted classification of styles of pronunciation as yet.

L. Shcherba [43], one of the first Soviet linguists to make a study of the styles of pronunciation, distinguishes two styles: the full style and the colloquial style. The full style is the pronunciation used in deliberately careful speech, while the colloquial style of pronunciation, as he defines it, is the pronunciation used in ordinary conversation. Cf. "Александр Александрович" and "Альсан Саныч" or "Сан Саныч". L.Shcherba notes that the colloquial style embraces different varieties of pronunciation which, as he says, are not easily differentiated one from another.

Most of the Soviet phoneticians who deal with Russian pronunciation (e.g. R. Avanesov [2], L. Bulanin [18]) distinguish three styles of pronunciation: (a) the full style or elevated style (used when speaking officially, reciting and reading aloud to a large audience), (b) the neutral style (used when lecturing, broadcasting) and (c) the colloquial style (used in rapid and careless speech).

English phoneticians distinguish a greater number of styles of pronunciation, although among them there is no generally accepted classification of pronunciation styles either. Thus, D.Jones distinguishes five styles of pronunciation: (a) the rapid familiar style, (b) the slower colloquial style, (c) the natural style used in addressing an audience, (d) the acquired style of the stage, and (e) the acquired styles used in singing [84].

J. Kenyon distinguishes four principal styles of "good spoken English": (a) familiar colloquial, (b) formal colloquial, (c) public-speaking style and (d) public-reading style (though J.Kenyon notes that there is a tendency nowadays among public speakers toward a formal colloquial style, the difference from colloquial style being more in subject matter and vocabulary than in pronunciation) [87].

D. Crystal and D.Davy consider that the term 'the English language' is not "a single homogeneous phenomenon at all, but rather a complex of many different 'varieties' of language in use in all kinds of situtation" [63]. They consider that the differences between these varieties are due to the kind of so-

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*The term "style of pronunciation" is sometimes interpreted in a narrow sense, taking into account only the way vocabulary units are pronounced. Whereas the term "phonetic style" generally implies both segmental and prosodic phenomena.

cial situation the speaker is in, including the social position of the speaker and the person spoken to. Their main concern is to establish the general phonetic distinctions of the varieties of current English, such as conversational English (which in its turn includes 'discussion', 'talking shop', etc.), television advertising (which is written English being recited often by professional actors), etc.

All the classifications mentioned above differ not only in the number of styles which are singled out. The main distinction between them is that they are based on different principles: the degree of carefulness (see L.Shcherba's and R.Avanesov's classifications of styles of pronunciation), the extent of formality (see J.Kenyon's classification), the rate of speech (see D. Jone's classification), the social situations (see D. Crystal and D. Davy).

The analysis of the relationship between phonetic styles and functional styles of written English reveals that there is some connection between them. For example, the rhythmical arrangement of scientific prose read aloud and that of belles-lettres style read aloud obviously differ. For instance, it has been noted that the latter tends to equisyllabic intonation groups, whereas in scientific prose there are considerable variations in the length of intonation groups [52]. The most frequently used Scales in reading both types of prose is the Descending, Broken Descending and Sliding Scales; whereas in the 'style of the stage' the intonation groups are shorter, the prevailing Scales are the Scandent and the Sliding Scales, their range is wider than in reading aloud [4].

R.Kingdon claims that reading aloud is not a uniform style, as intonation depends on the kind of matter that is read. He distinguishes between the following different types of texts: conversation, drama, anecdotes, prose and verse. The intonation of reading aloud conversation should sound "perfectly natural"; that of drama, which also consists almost entirely of direct speech, should sound "rather more advanced than everyday conversational English", as it aims at producing a dramatic effect by bringing out the meaning and feeling of every speech. The intonation of anecdotes represents the intonation "that would be used by an expressive speaker in telling the stories". Reading aloud prose, according to R.Kingdon, should be subdivided into two distinct styles: the narrative style, the intonation of which resembles that of anecdotes, and the descriptive style which "is read in a somewhat conventionalized manner". When verse is read the intonation brings out the meaning and the rhythm, both of which are mainly achieved by correct stressing [90].

Besides that, there is evidently a correlation between phonetic and the so-called 'speech styles.' Speech styles, just as phonetic styles, are conditioned by the circumstances of reality in which language functions, by the kind of situation the speaker happens to be in and by the aims of the speech situation [17]. There may be a great variety of situations, aims and circumstances (the situation may be private or public, the speaker may be informing, entertain-

ing, persuading, advertizing, he may be excited, friendly, dispassionate, etc.). The question remains open whether there are just as many phonetic styles as there are speech styles. Phonetic investigations of some of the speech styles have shown that there also exist definite phonetic distinctions between lecturing, reading aloud, responding in an interview, casual conversation, official talk and other speech styles.

It follows from what has been said that there is an obvious interconnection between phonetic and functional styles of the written language, on the one hand, and phonetic and speech styles, on the other. This makes the problem of classification of phonetic styles a very complicated one.

Some attempts have been made to classify all the numerous varieties of speech forms on account of their phonetic features and other linguistic characteristics. Thus D.Abercrombie classes them into (a) reading aloud (which includes most radio speech and recitation by heart of something originally learnt from writing), (b) monologue , which he notes is spontaneous speech created as it goes along (it includes lectures, radio commentaries, etc.), (c) conversation [49].

But this classification is not consistent, as both "monologue" and "conversation" are spontaneous speech, they differ in the extent of spontaneity and the nature of interchange. Whereas "reading aloud" is a different type of speech activity.

There now appears to be an increasing body of evidence to support the view that scholars should distinguish between (a) phonetic styles of spontaneous speech (conversation, spontaneous monologue, etc.) (b) phonetic styles of prepared speech (lectures, speeches, etc.), (c) phonetic styles of reading aloud [23]. In their turn, the phonetic styles of spontaneous speech should be classified into (i) official style, (ii) informal style or the style of everyday-life discourse, and (iii) familiar (careless) style. Each of these subgroups includes numerous varieties which are modified by extralinguistic factors. This classification of phonetic styles was worked out by S.Gaiduchik.*

The investigations of phonetic styles have originated a new branch of phonetics – phonostylistics, which is concerned with the identification of the style-forming means, i.e. the phonetic features that enable the native speaker to distinguish intuitively between different styles of pronunciation.

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*The investigations of phonetic styles were carried out at the Minsk Laboratory of Experimental Phonetics.

THE PHONETIC STYLE–FORMING MEANS

Until now it was considered that the phonetic style–forming means are the degree of assimilation, reduction and elision, all of which depend on the degree of carefulness of pronunciation. That means that nothing but changes in the sound structure and the syllabic structure of speech were taken into consideration. But the investigations mentioned above show that phonetic styles differ prosodically too.

It should be emphasized that assimilation, reduction and elision are natural phonetic phenomena, which occur in any pronunciation style. These phenomena are caused by an unconscious economy of effort, known as 'the law of least effort' [74], which is universal for all languages. The position and the nature of the adjoining sounds determines the character of the modifications that sounds undergo.

Besides that, the speaker is to a definite extent governed by his audience in his choice of vocabulary units, grammatical structures, tempo of speech, distinctiveness of articulation, and so on. He has to make sure he is understood. That is why he speaks more carefully when addressing a large audience, or people whom he is not on familiar terms with. Whereas he is less particular about the distinctiveness of his pronunciation when talking to those who know him well enough to 'tune in' very easily to his individual manner of speaking. For example, ['lemɪ̀si:] for "let me see", [dǹnou̯] for "don't know", [ˈfreɪ dn̩t] for "afraid not", [ˈsʌ mpm] for "something" in a free chat are 'acceptable' (though non–obligatory) assimilation and elision, but in other more official situations they are 'unacceptable' with those who speak the orthoepic norm. It appears that the use of one phoneme for another as often as not is a style–forming means. It may have a stylistic colouring and produce a striking effect.

Elision, reduction and assimilation may, therefore, signal stylistic differences. Take the sentence "We can trust him to do it well" said in two different ways:

(1) wi kn ˈtrʌst ɪm tə ˈdu ɪt ˌwel

(2) wi: kæn ˈtrʌst hɪm tu ˈdu: ɪt ˌwel

O'Connor states that they belong to different styles: the first being appropriate to colloquial conversation, the second to a political speech delivered to a large audience [98, 160]. On account of all that, the degree of assimilation, reduction and elision may serve to distinguish phonetic styles.

Besides these segmental features, there are prosodic features which enable people to distinguish between different phonetic styles.

Each speaker has a norm of loudness which he may depart from in different circumstances. His speech is generally characterized by a more or less regular usage of certain tones. But there are circumstances when he introduces

into his speech tonal variations, variations of pitch levels and ranges specific for definite styles of pronunciation (either to awaken enthusiasm and interest in his audience, or to acquire an authoritative tone, or, vice versa, to sound informal, etc.)

Each speaker has a norm of speech tempo as well. And he may depart from it in different circumstances. For example, when reading aloud the tempo is more or less even, when chatting freely the variations in the tempo appear to be considerable.

Pauses also help to distinguish different varieties of speech. For example, the character of pauses shows striking differences between written English read aloud and informal conversation. In the former the pauses are closely related to the grammatical structures, but in conversation they may and do appear in between words in close grammatical connection. Some of the pauses are often replaced by the so-called 'silence-fillers', such as "I mean", "sort of" "kind of", "well", "shall I say" and others [49]. For example, "It 'was a ... 'sort of ... conver`sation and it, went like, this..."

Some speakers, when they are greatly involved in what they say and are very emphatic, introduce no pauses until they run out of breath. Their speech sounds abnormal and careless:

"He 'said he was `going but he didn't do `anything to get 'under`way and he 'came to the 'door He 'stood there like a `dunce He just `watched 'other people 'pack their 'things He `didn't 'help at `all. " [103, p. 39].

Experimental investigations show that duration of pauses and tempo of speech depend largely on the extent of creative activity that takes place during speech production. When a native speaker uses a great deal of automatized and well learned sequences, commonplace utterances, professional jargon and clichés, the tempo of his speech is higher than when he has to take serious decisions concerning the content of his speech and its form (the vocabulary, the grammatical structures, the conciseness of expression) [73]. The tempo of speech also depends on whether the audience is large or not. The speaker usually slows down his tempo of speech when addressing a large audience.

Thus, it appears that each style of pronunciation is characterized by a relatively high proportion of definite segmental and prosodic features which are not typical of other styles. If some of them are used in other styles, they occur not as often and in combination with other features. Therefore, each phonetic style is characterized by a specific combination of certain segmental and prosodic features.

The English phonetic styles have been left unexplored as yet. Most of the research work concentrated mainly on distinctions between different types of speech activity: reading aloud as contrasted to spontaneous conversation.

For example, D.Crystal and D.Davy [63] have noted that informal conversational English as opposed to written English read aloud is characterized by

(a) a high proportion of hesitation features of all kinds, e.g. [mm], [ə m] [ə];

(b) a substantial amount of overlapping and simultaneus speech;

(c) a great amount of non–obligatory assimilation;

(d) a very high frequency of simple falling tones, a high frequency of 'stepping down' head and almost complete absence of 'stepping up' head; a high frequency of compound tones, especially the fall + rise; a frequent use of low rising tones on statements; the occasional use of very emphatic tones such as rise–fall and fall–rise; a common use of high unstressed syllables especially in the prehead; a tendency to make frequent use of a small number of basic prosodic configurations;

(e) a strong tendency to use short intonation groups and to break up lengthy intonation groups wherever possible (the vast majority falling within the range of one to five words);

(f) a frequent use of pauses which occur in places where they are not regular in formal conversation.

D.Davy when opposing different intonation patterns for conversation and reading aloud, has found that the rising tones are used much oftener in reading. The percentage is as follows:

for conversation: ˋ58.7, ˊ16.1, ¯8.0, ˇ7.4, ˆ5.1, ˆ4.2, ˊˋ0.4;

and for reading: ˋ50.2, ˊ24.6, ¯5.5, ˇ11.1, ˆ5.5, ˆ2.1, ˊˋ0.6. [63, p.249]

Informality of conversational English is also created by unexpected introduction of dialect forms, elements of very formal language, slips of the tongue, hesitant drawls, uneven tempo, significant variations in loudness, paralinguistic features (such as laugh, giggle, etc.)*. They note that the significant fact about informal conversation is the toleration of all these features when they occur and the expectation that they will occur.

The first attempts made to investigate the phonetic styles of spontaneous speech (official style, the style of everyday-life discourse and familiar style) disclose numerous distinctions in pitch range, pitch level, rate of pitch change, rhythmical organization of speech, character of pauses, etc. Much remains to be done in this field of phonetic science.

*Some of the rhetoric tricks are based on the regular use of these features to create the effect of informality and spontaneity in television interviews, lectures, etc.

GENERAL NOTES ON THE PROBLEM

As shown above, there is sufficient evidence of the existence of phonetic styles. But further experimental investigation is needed to establish the most relevant phonetic features of the main styles of English pronunciation as well as of other languages. It will make it possible to produce a classification of styles based on phonetic principles, i.e. on the objective segmental and prosodic features of speech.

The relations between phonetic styles and the orthoepic norm are complicated. The orthoepic norm (be it 'Received Pronunciation', or General American, or the Australian Standard Pronunciation) does not exist in one particular form. It is modified by extralinguistic factors and is characterized by all the phonetic features, specific for all its phonetic styles. It means that within the orthoepic norm, there is a wide range of phonetic modification that may be 'acceptable' for definite phonetic styles and at the same time be 'unacceptable' for others.

Phonostylistic investigations of speech appear to provide valuable data not only for the linguist, but also for the sociologist. It is evident that in addition to the information we intend to convey, our speech reveals our cultural background and education. The problem of phonetic styles is of considerable importance to the teachers of foreign languages. When choosing the teaching standard it is necessary to determine not only the type of pronunciation, but also the style to be taught to foreigners, especially at the initial stage. Besides, it is wise to differentiate the teaching of reading aloud from the teaching of oral conversation. Not all the features that are 'acceptable' in the former should be encouraged in the latter.

Moreover, phonostylistic data should be made use of in developing the perceiving abilities of the learner. One has to provide the learner with necessary cues to differentiate the type of speech activity, the nature of interchange, the extent of formality of speech; the ability to perceive all those speech characteristics is very important in any communication act.

Further phonostylistic studies will provide the teacher with the necessary data and enable him to impart the so-called "social acceptability" to the speech of the learner.

EXERCISES

A. Think about the following questions for class discussion:

1. Is there a correlation between linguistic and extra-linguistic context? What extra-linguistic factors cause phonetic modifications in speech?
2. Why are there so many classifications of phonetic styles?
3. Familiar style is one of the most widespread phonetic styles regularly

used by the educated people (when at home, with friends, etc.) Is it right to label pronunciation variants used in familiar style as "bad" or "incorrect"? Are those variants appropriate in any situation?

4. What are phonetic style-forming means? Are there also lexical and grammatical style-forming means?

5. Are there segmental and prosodic distinctive features that differentiate one phonetic style from another?

B. Express your opinion of the following:

1. "In English we are familiar with the 'tone of voice' that is generally attributed to people acting in their professional capacities... There are many occupations that would be recognized primarily on the basis of the non-segmental features involved, e.g. the disc jockey, barrister, preacher, street vendor, parade-ground commander, sports commentator and many other kinds of radio and television announcer." [61, p. 88–89]

2. "It would be as inappropriate to introduce formality into an informal, chatty conversation, as it would be to introduce an informality on an official occasion" [62, p. 61]

3. Language teachers, like all of us, want to be understood, and are inclined to speak slowly and with deliberation, a tendency in which they are not discouraged either by their students or by the often formal atmosphere of the classroom. Even the tape recorded conversations of native speakers tend to sound rather stiff and stilted. As a result, the learner may be familiar with vowel weakening, assimilation and elision, but he usually has little idea of the degree to which they occur in ordinary conversational English.

C. How will the following phrases sound in official style?

(a) [ˈtwɒ zn̩tʃə ˌtɜ :n] It wasn't your turn.

(b) [dʒə ˌgetɪt] Did you get it?

(c) [ˈnɒt sə ˈlaɪtsɪt ˈlʊks] Not so light as it looks.

(d) [hi hæz n̩ ˈkʌm] He hasn't come.

(e) [ˈʌpm ˈdaʊn] up and down

D. A broadcast talk is normally written English read aloud. When preparing the text for such a talk the writer must ensure that the material can be easily articulated and readily understood. The speaker, in his turn, must keep the listeners' interest and make his speech comprehensible. Examine the prosodic means he uses in the following broadcast talk:

‹high›	‹his | work›as a CĂRicaturist |–
‹spiky›	‹is | that in ‹which he‹most
«breathy»	"deLĪGHTed |" ' –it was | "NĒVer | a | matter of ‹formal ↑TRĂINing |or | set
‹spiky›	↑PŬRpose with ‹him | –‹↑it ↑be | gan

with 'marginal' ˌSKÈTCHes| in ˈhis

'spiky' 'school and 'college' NÒTEbooks| – [63, p.249]

E. Examine the markers of informality in a familiar conversation (see p.128). Which of the segmental and prosodic features have the most important stylistic function?

F. Find an informal conversation in a novel. How does the novelist reflect the characteristic features of conversation? Are there graphic means to represent some of the prosodic features?

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