

CONTENTS

Foreword	8
Chapter 1. Introduction	10
1.1. Phonetics – a Science of Sounding Speech	10
1.2. Contrastive Linguistics	13
1.3. Experimental Methods in Phonetics	18
1.3.1. Laboratories of Experimental Phonetics.....	18
1.3.2. Methods and Apparatuses of Experimental Phonetics	20
1.4. The Theory of Phoneme	33
1.5. The Systems of English and Ukrainian Phonemes	34
1.6. The Organs of Speech	37
1.7. Speech Sounds	40
1.8. Phonetic Transcription	42
1.9. Graphical Representation of Intonation	43
Part I. Segmental Units of Speech	46
Chapter 2. Vowels in English and Ukrainian	46
2.1. Classification of Vowels	46
2.1.1. The Position of the Tongue	46
2.1.2. The Position of the Lips	48
2.1.3. Stability of the Vowels Articulation	49
2.2. Articulation of English and Ukrainian Vowels in Detail	51
2.2.1. English Front Vowels in Comparison with Ukrainian	51
Front Vowels	51
The English Vowel [i:]	51
The English Vowel [ɪ]	53
The English Vowel [e]	55
The English Vowel [æ]	57
2.2.2. English Back Vowels in Comparison with Ukrainian	59
Back Vowels	59
The English Vowel [ɑ:]	59
The English Vowel [ɒ]	60
The English Vowel [ɔ:]	61
The English Vowel [ʊ]	63
The English Vowel [u:]	64
The English Vowel [ʌ]	65
2.2.3. English Mixed Vowels in Comparison with Ukrainian Vowels	67
The English Vowel [ɜ:]	67
The English Vowel [ə]	68
2.2.4. English Diphthongs	70
The English Diphthongs [ɪə], [eə], [ʊə]	70
The English Diphthongs [eɪ], [aɪ], [əɪ]	72
The English Diphthongs [əʊ], [aʊ]	74
The English Sound Combinations [aɪə], [aʊə].....	75

Summary	75
Chapter 3. Consonants in English and Ukrainian	77
3.1. Classification of Consonants	77
3.1.1. Classification of Consonants According to the Active Organs of Speech	77
3.1.2. Classification of Consonants According to the Manner of the Production of Noise	80
3.1.3. Classification of Consonants According to the Work of the Vocal Chords	81
3.2. Articulation of English and Ukrainian Consonants in Detail	84
3.2.1. English Labial Consonants in Comparison with Ukrainian Labial Consonants	84
The English Consonants [p], [b], [m]	84
The English Consonant [w]	86
The English Consonants [f], [v]	87
3.2.2. English Forelingual Consonants in Comparison with Ukrainian Forelingual Consonants	88
The English Consonants [t], [d], [n]	88
The English Consonants [s], [z]	90
The English Consonants [θ], [ð]	92
The English Consonants [ʃ], [ʒ]	94
The English Consonants [tʃ], [dʒ]	96
The English Consonant [l]	97
The English Consonant [r]	98
3.2.3. English Mediolingual Consonant [j] in Comparison with the Ukrainian [Й]	100
3.2.4. English Backlingual Consonant Phonemes in Comparison with Ukrainian Backlingual Consonants	101
The English Consonants [k], [g]	101
3.2.5. Pharyngeal Consonants	102
The English Consonant [ŋ]	102
The English Consonant [h]	103
Summary	104
Chapter 4. Pronunciation of Sounds in Connected Speech	106
4.1. Characteristics Features of Connected Speech	106
4.2. Styles of Pronunciation	108
4.3. Reduction	108
4.4. Assimilation	110
4.4.1. Assimilation as the Result of Speech Organs Articulation	111
4.4.2. Complete and Partial Assimilation	112
4.4.3. Progressive and Regressive Assimilation	113
4.4.4. Contact and Distant Assimilation	114
4.4.5. Historical and Living Assimilation	114
4.5. The Interchange of Sounds	117
Chapter 5. Syllabics	121
5.1. Introduction	121
5.2. Syllabic Theories	124

5.3. Contractive Analysis of Syllables in English and Ukrainian	131
Summary	135
Chapter 6. Word Stress in English and Ukrainian	138
6.1. Introduction	138
6.2. Degrees of Word Stress	140
6.3. Experimental Investigation of Word Stress	142
6.4. Acoustic Nature of Word Stress in English	145
6.5. Acoustic Nature of Word Stress in Ukrainian	152
6.6. Perception of Acoustic Characteristics of Word Stress in English and Ukrainian	158
6.7. Position of Word Stress in English and Ukrainian	161
Summary	168
Part II. Suprasegmental Units of Speech	173
Chapter 7. Structural and Phonetic Speech Arrangement on the Suprasegmental Level	173
7.1. Speech Continuum Delimitation	173
7.2. Phonetic Characteristics of Suprasegmental Units	176
7.3. Techniques Registering the Intonation Characteristics in Written Speech	178
Chapter 8. Components of intonation	179
8.1. Introduction	179
8.2. Melody component	182
8.2.1. Melody Perceptive Parameters, its Articulatory and Acoustic Correlates	182
8.2.2. Melody Graphic Registration	183
8.2.3. Structure and Properties of the Melody Contour Principal Elements	185
8.2.3.1. Nucleus	185
8.2.3.1.1. Low Fall	185
8.2.3.1.2. High Fall	186
8.2.3.1.3. Low Rise	187
8.2.3.1.4. High Rise	188
8.2.3.1.5. Fall-Rise	189
8.2.3.1.6. Rise-Fall	189
8.2.3.1.7. Level Tone	189
8.2.3.2. Tail	190
8.2.3.3. Head	191
8.2.3.3.1. Descending Stepping Head	192
8.2.3.3.2. Descending Monotonous Head.	192
8.2.3.3.3. Descending Sliding Head	192
8.2.3.3.4. Descending Scandent Head	193
8.2.3.3.5. Ascending Stepping Head	194
8.2.3.3.6. Ascending Monotonous Head	194
8.2.3.3.7. Ascending Sliding Head	194
8.2.3.3.8. Ascending Scandent Head	195
8.2.3.3.9. Level Head	195
8.2.3.3.10. Broken Head	195

8.2.3.3.11. Head Pitch Levels	196
8.2.3.4. Prehead	197
8.3. Dynamic Component.....	198
8.3.1. Perceptive Parameters of a Sense Group Dynamic Structure, its Articulatory and Acoustic Correlates.....	198
8.3.2. Loudness Graphic Registration in Text.....	199
8.3.3. Main Factors of the Dynamic Component Influence on Speech Prosodic Structure	199
8.4. Temporal Component.....	201
8.4.1. Duration and Tempo.....	201
8.4.2. Pauses.....	202
8.5. Summary Acoustic Energy.....	204
8.6. Timbre	204
8.7. Rhythm.....	206
8.7.1. General Characteristics of a Sense Group Rhythmic Structure	206
8.7.2. Boundaries of Rhyme Groups	207
8.7.3. Speech Rhythm and the Syllable Structure Relation.....	209
8.7.4. Prosodic Means Shaping the Rhythmic Groups	211
8.8. Sentence Stress.....	212
8.8.1. General Remarks.....	212
8.8.2. Normative (Syntagmatic) Stress.....	213
8.8.3. Logical Stress	215
8.8.4. Emphatic Stress	216
8.8.5. Strong and Weak Forms of the Form-words	217
9. Functions of Intonation	225
9.1. Introduction	225
9.2. Communicative Function	227
9.2.1. General Remarks	227
9.2.2. Intonation of the Declarative Sentences	227
9.2.3. Intonation of Questions	229
9.2.3.1. General Remarks	229
9.2.3.2. General Questions.....	230
9.2.3.3. Special Questions	231
9.2.3.4. Alternative Questions	232
9.2.3.5. Echo - Questions.....	233
9.2.3.6. Disjunctive Questions.....	234
9.2.4. Intonation of Imperatives	234
9.2.4.1. General Remarks	234
9.2.4.2. Commands.....	235
9.2.4.3. Recommendations	235
9.2.4.4. Requests.....	236
9.2.5. Intonation of Exclamations.	237
9.2.6. Peculiarities of the Communicative Function of Intonation in a Polysyntagmal Utterance	238
9.2.7. Intonational Typology of the Communicative Types of Utterances.....	239
9.3. Logical and Semantic Function	241
9.3.1. Logical and Semantic Function General Characteristics.....	241
9.3.2. Function of Sense-groups Division	241

9.3.3. Function Expressing the Degree of the Sense-groups Relation	242
9.3.4. Function Expressing the Semantic Relations between the Sense-group Elements	247
9.3.5. Intonation of the Independent Elements	248
9.4. Attitudinal and Emotional Function of Intonation	251
9.4.1. General Characteristic	251
9.4.2. Functional and Semantic Fields of the Modal Sphere	251
9.4.2.1. Types of the Language Modality	253
9.4.2.2. Evaluative Proper Subjective Modal Meanings (Attitudes).....	253
9.4.2.3. Imperative-Evaluative Function.....	256
9.4.2.4. Evaluative-Characterizing Function.....	258
9.4.2.5. Objective-Modal Function	259
9.4.3. Functional and Semantic Fields of Emotional Sphere	262
9.4.3.1. Types of Emotional Manifestations in Speech.....	262
9.4.3.2. Emotional - Estimative Meanings.....	263
9.4.4. Intonational Means in Emphatic Speech.....	265
9.4.5. Typology of Intonation Conveying the Attitudinal and Emotional Meanings	273
9.5. Interaction of Various Functions of Intonation	277
9.5.1. Types of Mechanisms of Intonational Structures Interaction ..	277
9.5.2. Complex Realization of the Sense Group Division Function and the Attitudinal-Emotional Function.....	278
9.5.3. Interaction of the Function that Reflects a Degree of Connection between the Sense Groups and the Attitudinal- Emotive Function.....	279
9.5.4. Interaction of the Function of Accentual Prominence and the Attitudinal – Emotive Function.....	280
9.5.5. Interaction of the Communicative and Emotional-Attitudinal Functions.....	282
9.5.6. Typology of Mechanisms of Different Intonational Functions Interaction	288
BIBLIOGRAPHY	289

FOREWORD

The present textbook “English Phonetics” (a contrastive study of English and Ukrainian pronunciation), written by T.A. Brovchenko and T.M. Korolova, is the second edition of the manual “English Phonetics”, written by T. Brovchenko and I. Bant in 1964.

The period of the second half of the 20th century was characterized by intensive development of all the sciences and linguistics as well.

The achievements of the scientists in the sphere of the theory of linguistics, the new elaborations of difficult problems, the development of new methods and apparatuses of experimental phonetics made it necessary to revise the book and make additional theoretic and experimental investigations.

The method of contrastive phonetics, which began to be developed in Ukraine in 1950s-60s and the needs of the teachers of foreign languages who realized that the most successful way for adults to acquire the current pronunciation of a foreign language is to learn the phonetic structure of the given language in comparison with the mother tongue caused the necessity of systematic comparative scientific investigations of phonetic structure of the foreign and native language of the learner.

Consequently, all the chapters of the present book were revised and most of them written anew.

In the investigation of the speech sounds articulation in English and Ukrainian the experimental methods of palatograms, linguagrams and photography were applied, a detailed and exact position of the speech organs was obtained. Some specific peculiarities of the shape and the position of the speech organs, typical of each of the two languages and unknown before, were registered.

A new treatment of the acoustic nature of word stress was suggested.

It has been proved that the main acoustic characteristic of word stress in English and Ukrainian, as well as in other languages with the dynamic type of stress, is the total acoustic energy, which is defined as intensity over time, i.e. the result of coordination of two components of the total energy – intensity and duration.

It has been proved experimentally that the share of duration and intensity is not equal in English and Ukrainian and depends upon the peculiarities of the phonematic structure of the language.

These hypotheses were supported by the results of the experimental analysis of objective, relative and subjective parameters of stressed and unstressed syllables in English and Ukrainian.

The chapter devoted to the theory of syllables (Syllabics) was revised. The syllable was treated as an impulse of energy, retaining all the characteristics as a classical impulse of energy.

The chapter devoted to intonation was also revised. A review of development of the theory of intonation was given.

A thorough description of the components, functions and the intonation structure of the utterance in various communicative types of utterance and under various conditions of speech production were presented.

The book is intended as a textbook for the students of Philological departments of the Universities and other higher education institutions of Ukraine as well as for those who are interested in the problems of sounding speech.

“Introduction” and Part I of the present book “Segmental Units of Speech” were written by T.A. Brovchenko. Part II of the present book “Suprasegmental Units of Speech” were written by T.M. Koroljova.

We would like to express special thanks to our colleagues N.V. Lanchukovskaya and A.S. Shaljov for much assistance when preparing the book for publication.

CHAPTER 1

INTRODUCTION

1.1. PHONETICS – A SCIENCE OF SOUNDING SPEECH

Language – the object of linguistics is a unique peculiarity of mankind, a fundamental link among human beings and between the humanity and the world.

About three thousand languages, existing in the world, are exceptionally different in their sound system, word stress, intonation, lexical and grammatic systems.

There are universal features in the phonetic, grammatic, lexical means of all the languages or some groups of languages. There are features that are common for all the languages in the world – they are the **structure** of the language and its **function**. It is possible to single out two levels – lower and higher in the structure of the language. The units of the lower level, sounds for example, have no meaning of their own. The units of the higher semantic level, for example sense-groups, phrases, overphrasal unities, obtain some meaning.

Each linguistic unit of the semantic level has some definite sounding, connected with some meaning due to what communication among the people of a definite language society can be realized.

Communication is the essence of human life. All that exists in human society is built on the basis of communication. All the material objects created by people, everything spiritual, the inner development of a human being and of the human society in general is possible only on the basis of communication. The main basis of communication is language.

Language is the main system of communication between people, it is obviously the main system available for people for accumulating information for knowing the world and everything around them.

There are two main types of information – written and oral.

In this day and age, at the time of radio, television, the Internet and various talking devices, oral speech information acquires especially great significance.

People got interested in the nature of speech sounds centuries ago, but scientific study of speech sounds began at the end of the 19th and the beginning of the 20th century.

The factors that stimulated the development of phonetics as a science were:

1. more thorough acquaintance with the functioning of the human speech apparatus;
2. the investigation of many linguists who studied languages that had no alphabets;
3. the compiling of alphabets for such languages.

The definition of phonetics as the science of speech sounds, given by most linguists of that time (Sweet H., Jones D. in England, Vitomskaya A.N., 1948; Dikushina O.I., 1981 in the former USSR), was narrow and did not reveal the essence of the science of phonetics.

Segmental units – speech sounds and syllables are to be examined from physiological, acoustic and functional point of view but they constitute only one of the elements of the phonetic system of the sounding speech.

Besides the sounds, the object of phonetics is suprasegmental units of speech – sense-groups, phrases, overphrasal unities and the text – the highest suprasegmental unit of speech.

The narrow definition of phonetics, which was acceptable at the early period of the development of phonetics, has become inadequate now.

Nowadays phonetics is understood as a science which studies all the phonetical means of semantic expression in oral speech – speech sounds, stress and intonation (Torsuyev G.P., 1950; Zinder L.R., 1979 and others).

Phonetics is a branch of linguistics that studies pronunciation, i.e. all the phonetic means of semantic expression in oral language – speech sounds, word stress and intonation and all the phonetic units of speech: speech sounds, syllables, phonetic words, sense-groups, phases, overphrasal unities and the text. Their formation, physical acoustic nature, perception and their semantic, grammatic and lexical role and functions in speech are to be studied.

Several branches of phonetics are distinguished. The main of them are:

Articulatory phonetics is a branch of phonetics that studies the production and the articulation of sound means in oral speech.

Acoustic phonetics is a branch of phonetics that studies acoustic qualities of speech sounds, syllables, phonetic words, syntagmas, phrases, overphrasal unities and the text.

Auditory phonetics is a branch of phonetics which studies the perception of all the phonetic means of oral speech and their interpretation.

Phonology is a branch of phonetics which studies the semantic functions of speech sounds and other phonetic means of semantic expression in verbal communication – speech sounds (phonemes), word stress and intonation.

Speech sounds (phonemes), word stress and intonation are phonematically relevant in English and Ukrainian.

The substitution of one phoneme for another can change the meaning of the word or its grammatic function, e.g.

corn [kɔ:n] – cork [kɔ:k]
СІЛЬ [С'ІЛ'] – БІЛЬ [Б'ІЛ']

The position of word stress in English may change the meaning of the words. For example:

blackboard ['blækbɔ:d]	класна дошка	black board ['blæk 'bɔ:d]	чорна дошка
greenhorn ['grɪ:nhɔ:n]	новак	green horn ['grɪ:n 'hɔ:n]	зелений ріг
redwing ['redwɪŋ]	дрізд	red wing ['red 'wɪŋ]	червоне крило

Word stress in Ukrainian has the same phonematic function. This may be illustrated by the following examples:

білизна [Б'ІЛІЗНА] – білизна [Б'ІЛИЗНА́]
важниця [ВА́ЖНИЦ'А] – важниця [ВАЖНІ́Ц'А]

In English the position of stress may distinguish parts of speech as well. The words given below differ in stress and at the same time their grammatical functions are different, e.g.

convoy ['kɒnvɔɪ] *n* – convoy [kɒn'vɔɪ] *v*
export ['eksɜ:t] *n* – export [eks'pɜ:t] *v*
import ['ɪmpɜ:t] *n* – import [ɪm'pɜ:t] *v*

In Ukrainian word stress is also one of the means of semantic expression in speech and the changes in its position may influence the meaning of words as well as their grammatical functions, for example:

брати [БРА́ТИ]	–	брати [БРАТІ́]
варений [ВА́РЕНИЙ]	–	варений [ВАРÉНИЙ]

Any component of intonation (tone, sentence stress, tempo, timbre) can change (or add to) the meaning of a sentence and thus, fulfil its phonematic function.

Consequently, if we substitute the falling tone for the rising tone in such sentences as: *Open the window, please. Fetch the newspaper. Hand in the paper*, etc., the communicative type of the sentence will be changed. Pronounced with the falling tone (↘) it means an order, pronounced with the rising tone (↗) it will express a request:

<i>Order</i>	<i>Request</i>
Open the window, please. [əʊpɪn də ↘wɪndəʊ plɪ:z.] Fetch the newspaper. [ˈfɛtʃ də ˈnju:s ↘peɪpə.]	Open the window, please. [əʊpɪn də ↗wɪndəʊ plɪ:z.] Fetch the newspaper. [ˈfɛtʃ də ˈnju:s ↗peɪpə.]

In the same way a statement may be changed into a question by exchanging the falling tone for the rising one.

<i>Statement</i>	<i>Question</i>
Ready. [↘redɪ.] The boy is here. [ˈðə ˈbɔɪ ɪz ↘hɪə.]	Ready? [↗redɪ?] The boy is here? [ˈðə ˈbɔɪ ɪz ↗hɪə?]

Sentence stress, one of the main components of intonation, may be phonematically important changing to some extent the meaning of the utterance by emphasizing one or several of its words.

The difference in intensity, i.e. different degrees of sentence stress, can give a different shade of meaning to the whole sentence by emphasizing a certain word or words, for example:

H and in your paper.	[↘hænd ɪn jə ,peɪpə.]
Hand i n your paper.	[hænd ↘ɪn jə peɪpə.]
Hand in y our paper.	[hænd ɪn ↘jɔ: peɪpə.]
Hand in your p aper.	[hænd ɪn jə ↘peɪpə.]

A change in the speed of utterance or in the intervals between the words can give a sentence a different emotional colouring.

The same sentence may express anger, irritation or wonder, making the speed with which it is uttered slower or quicker.

Therefore it may be asserted that a component of intonation – speed of utterance or tempo fulfils a phonematic function in speech.