

The Role of the Experiment in the Study of the Language Material

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Abstract—The article deals with the role of the experiment in the study of the language material. As it is known the learning of voices is very difficult, and it requires great attention. In this case it is necessary to use the opportunities of experimental phonetics. It should be stressed that the role of experiment in the investigation of the language facts through experiment has long been proved. The author uses expedient to investigate the acoustic peculiarities of the language voices. The intonation is used to be closely related to the various emotions of a person in the speech acts. In recent years, the application of principles, conceptual schemes, ideas and concepts derived from psycho- and sociolinguistics and linguistic pragmatics in the field of intonation has become widespread. Intonation must be studied at the communicative level. Semantic categories expressed in intonation units usually refer to the communicative components of speech. In the grammatical structure of the sentence, they can correspond to the composition of any length. Accordingly, the "sphere of activity" of intonation units can have different components from word to sentence at the hierarchical level.

Index Terms—language, system, tone, experiment, frequency, length, material

I. INTRODUCTION

A characteristic of all living languages is that they are constantly changing. In order to follow all the processes that take place in language, to have an understanding of the origin, functions and essence of language, to be aware of the theories about language, it is necessary to read and analyze the works of many linguists and philosophers. This research aims at the above-mentioned goals. Due to the interest in modern linguistics, the number of researches in this field is increasing. One such study is related to the definition of the nature of language. Although there are different theories, concepts and opinions of scholars on the nature of language, it has not been possible to reach a consensus on this issue. The relevance of this topic chosen for the research is the study of the issue in English-language sources.

It is noteworthy to mention that the ambiguity of intonation is reflected in the multifaceted aspects of communication, which manifests itself in the form of a corresponding connection to the interactive discourse. The speaker's choice of intonation should reflect not only the linguistic information but also the different shades of emotion. The following types of the intonation have been distinguished by D. Crystal: 1) emotional; 2) grammatical; 3) informational; 4) textual; 5) psychological, and 6) indexical.

To illustrate the importance of intonation in a language, consider the following examples:

/He is not driving to class tomorrow// (O, səhər dərsə maşınla getməyəcək).

1. If we put emphasis on the word /class/ in this sentence, then we can give information about what he will do and plan in the morning.

2. If we emphasize /driving/, the meaning will change completely. This emphasis draws our attention to the means of transport. That is, he will go to school in the morning, not by car, for example, by bicycle.

3. Now put the emphasis on /He [hi:] / o (male g.). In this case, it is emphasized that the one who left was not another person, but he (the man).

It is noteworthy to mention that the meaning can be changed by emphasizing different words.

It should be noted that the rising and falling tones also have such differences in meaning.

For example:

/I don't get too excited; I am not planning to walk you down the aisle// (I'm not too excited. I don't plan to spend you in the aisle).

/I do// (Me too)

The fact that this sentence is not a descending tonal shows that this idea is a simple truth.

Now let's use the sentence /I do// in another context:

"I do?" Don't be a fool, you know better than that! "

In this sentence "I do? (Me too?) is said in a shield tone, and it is doubt, surprise, and so on. reports.

Let us look at the intonation patterns in the tag questions. Unlike other types of questions with a shield tone, the distinguishing questions ask the listener to confirm the answer and imitate the emphasis. /That is your wife, isn't she?// the pronunciation of this sentence shows that I am very sure that it is your wife there. Therefore, divisive questions are never asked in a shielded tone.

In general, it should be noted that intonation and its analysis have always attracted the attention of linguists. Difficulties and uncertainties in intonation have always been in the focus of linguists. The difficulties created by intonation are understood and accepted by the researcher as a means of accurately performing any pattern of intonation acquired by the researcher. However, none of this situation is considered a problem. This means that practical skills can be taught. Thus, most of them can be perceived by hearing, ie without any instrumental means. In addition, the lack of an appropriate instrument cannot be attributed to recent research. This shows that the problem of intonation is more theoretical than practical.

Studies have shown that there are many features that distinguish intonation from other prosodic features. Among these differences, the main and primary place is meaning. Other features, both prosodic and non-prosodic, have no meaning.

II. SCIENTIFIC NOVELTY OF THE RESEARCH

As is well known, research into the nature of language has been going on since ancient times. Although this issue is somewhat abstract, it is very interesting and controversial. Many books have been written on the subject, research has been conducted, and theories and concepts have been put forward. However, in general, the essence of language has not yet been finalized. With the exception of this research, no research has been conducted in our country on English language sources. The fact that the research was conducted using English-language sources made this work more authoritative. The analysis of the views on the definition of the essence of the language in this research work based on the material of the English language can be considered as a scientific novelty of this work.

III. DISCUSSION

According to the theory put forward by V. von Humboldt, the study of the form of language occupies a central place in the linguistic theory. Following W. von Humboldt, the American linguist U.D. Whitney also claims that the form of language occupies a central place in the linguistic theory. They are divided into two parts according to the form of the language: 1) the internal form and 2) the external form [Akhundov 1988, p. 166]. It does not matter whether the language is divided into internal or external forms because its purpose is to help a person to learn his/her own behavior and the behavior of others. Therefore, some linguists directly associate the form of language with thinking. Such linguists as V. von Humboldt, F. de Saussure, U.D. Whitney, N. Chomsky, F.Y. Veysalli and others can be mentioned. If we refer to F. Veysalli, it can be understood that the connection of language and thinking helps a person to open his soul [Veysalli 1993, p. 9].

Language and thinking are known to have a crucial role at every step of a person, for example, in the enrichment of his life activity, in the formation of his consciousness, in the change of his way of thinking, in his achievements and so on. N. Chomsky expresses the language like this: 'Language is a competence and a means of realizing competence' [Veysalli 2011, p.73]. Some linguists equate the means used by language for its own purposes with the technical means of language and divide them into two groups: phonetic means and mental means. The sound and the formation of the sound composition of words and word forms are phonetic means. In general, in the initial stage of speech, the one-phoneme stage, not the morpheme, should be considered the initial stage. Basing on the opinion of F. Y. Veysalli 3 types of languages can be distinguished:

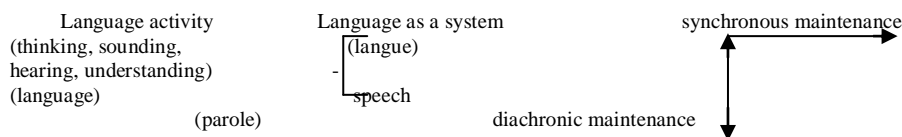
The III type of the language. The first speech sound could be specific to the next stage of human activity. Studies show that in the first people it may be the sounds they make when they pass out after a hard day's work.

The II type of the language. The efforts of various sciences (linguistics, zoopsychology, child psychology, etc.) show that human initial speech is very simple, and human language is made up of some meaningful units that are divided into components.

The I type of the language. This language consists of acoustic images that can be divided into components. The second and third types are very simple, while the first type is a more organized language and can be divided into both phonemes and morphemes [Veysalli 2010, p. 109].

In his book named "Language" L. Bloomfield describes the language like the following: "... linguistics should always proceed from the phonetic form, not from the form of meaning" [Bloomfield 1933, p. 162]. I.A. Baudouin de Courtenay also expressed his way of thinking about the language. He writes in his article named "Humanization of language": "Language sounds are formed, interacting with each other and characterized by a certain sequence" [Veysalli 1993, p. 21]. I.A. Baudouin de Courtenay distinguishes three aspects of the language: phonation - speech, pronunciation of sounds; auditory - hearing, comprehension of what is said; cerebration - protection, preservation, consideration of everything related to language, thinking [Veysalli 1993, p. 21]. F. de Saussure's views on the language are also observed to be interesting. He describes the language as following: "Language is a system regulated in all its internal parts; it depends on the object it expresses, but it is free and is conditional (arbitrary) in relation to the object" [Saussure 2003, p.112]. He writes as well: "Language is a system of signs, in this system the connection of sound with meaning is important, and both sides of these signs are equally psychological" [Saussure 2003, p. 18]. He expresses this with the French term *langue*. This system is opposed to the term speech password, the two are collectively referred to as

language, which corresponds to the expression of linguistic activity in our language. The encounter of F. de Saussure's language, speech and language activity can be seen more clearly in the following scheme [Saussure 2003, p. 23]:



A. Blokh writes about the language: 'Language is a system of sound symbols, with the help of which a social group acts together' [Blokh 1945, p. 5]. According to E. Cassirer, "language is neither a mechanism nor an organism, nor a living thing, nor a dead thing. A physical object is understood under this term. This is not a thing at all" [Blokh 1945, p. 30]. V. von Humboldt's definition of language is more valid: '... language is not ergon, it is energy' [Veysalli 1993, p. 30]. In 'An Introduction to Language' by V. Fromkin and R. Rodman, language is "... not just a collection of words. ... we cannot create meaning by arranging words in sequence. Language consists of sounds, words, and possible sentences. Knowing our language means that we also know the sounds, words and their combination rules in that language" [Victoria, Robert 1993, p. 11].

A. Akhundov, the Azerbaijan linguist can be given as an example who is known to be closely involved in the essence of the language. He answers the question: 'What is the language?' 'Language is a social phenomenon. ... language, which is the wealth of the masses, is the only means of expression for them' [Akhundov 1988, p. 75]. Considering the above, we can generalize the language like the following: language is a system, a set of rules necessary for the development of certain units; language is arbitrary, there is no direct connection between what is expressed and what is expressed; language consists of sounds, they arise from those sounds, they are pronounced and heard; language is symbolic; language is the carrier of thought, people express their thoughts in language [Rajabov 1987, p. 31].

According to F.Y. Veysalli, "... language is a very complex and at the same time multifaceted institution" [Veysalli 1993, p. 95]. It is both an individual and a collection of society, and in a sense an abstract being. Therefore, the role of language in speech and hearing, which is one of the important aspects for the existence of human language, is great. This means that language should be accepted as a leading tool in the communication process. Language acts as a means of communication because language units are realized, coded and accepted by a man. Listening plays a leading role in the language communication as well as speaking. Depending on the strength and frequency of the sound, air waves enter the listener's ear, become a mechanical process, reach the nerves, and the nerves create arousal in the same auditory center. Thus, the transmitted information is understood and the communicative function of language is fulfilled. In the communication model, 4 components must be distinguished from each other: the linguistic base of communication; articulatory base of communication; acoustic communication base; perceptual base of communication [Veysalli 1993, p. 96].

The language of each dialect and individual must be studied separately. It is possible to search for similar or different acoustic images through our observations in the speech of each individual [Bloomfield 1933, p. 73].

From an acoustic point of view, the structure of language sounds is very complex. Every sound must be pronounced and heard because it is born out of the need to say something to someone [Bloomfield 1933, p. 186]. For this, it must have certain acoustic features. Speech signals used in the acoustic structure form the basis of speech. This is due to the vibration of the vocal cords that are pronounced and transmitted. The sound should be pronounced in such a way that the person to whom the information is sent can hear and understand it in the required form. Sound propagation depends on the strength of the air pressure, climate and space. According to calculations, the speed of sound in 11 ° air is 331 m. per second [Bloomfield 193, p.186]. During sounding, the sounds produced by repetitive waves are periodic (this includes vowels), and the sounds produced by irregular waves are non-periodic (including sonorous and ringing consonants). The first group includes musical or tonal sounds, and the second group includes sounds made from a mixture of tones and noise.

IV. THE EXPERIMENT AND ITS RESULTS

Learning sounds is a job that requires a lot of attention and effort. In this case, it is necessary to use the possibilities of experimental phonetics, which has already been confirmed as an exact science. It should be noted that the role of experimental phonetics in the explanation of linguistic facts were proven many years ago. The advantage of the experiment was also noted by L.V. Sherba. He writes: "I have known for a long time that it is impossible to reveal the meaning of the personal form of a verb through personal observation, for example, in Russian. My linguistic ideas are always based on language materials and linguistic facts obtained from experiments" [10, p. 167].

Unlike intonation, other prosodic features mainly serve to define the meanings of different linguistic units. For example, accents and tones, which are considered to be such features, can perform different phonological functions. Thus, emphasis has functions such as distinguishing, height, demarcation, and so on. However, it is a fact that although they share segmental characteristics, they do not make sense in isolation. This fact distinguishes intonation from them. For example, what the speaker says in a descending tone means "completeness, integrity." The shield tone means "question" or "incompleteness". The following can illustrate the mentioned facts:

/He is flying to Paris tomorrow// (O səhər Parisə uçur).
 /Is he flying to Paris tomorrow?// (O səhər Parisə uçur?)

These examples show that intonation has a different meaning than other prosodic features. However, we wanted to emphasize that the main meaning of intonation patterns is hidden. They are defined accordingly in a broader discourse function depending on the propositional content of the sentence. Due to these features, intonation patterns mainly reflect the "emotion" or "attitude" of the speaker rather than grammatical functions and categories. Therefore, many scholars conclude that intonation patterns are more natural and universal than free and specific. One of the main features of intonation that distinguishes it from other prosodic or other linguistic features in general is that the difference they identify is not discrete, but gradual. For example, descending intonation may fall from different heights and from different distances. In this case, no clear division between discrete divisions and forms can be determined. In addition, these differences have the power to affect the parallel degree of meaning. True, according to some scholars, language differences can be identified in a basic discrete way. However, these scientists do not accept the gradient mentioned above. Accordingly, the formation of the status of intonation as a "language" phenomenon is questionable. This suggests that neither the phonetic nor the functional features of intonation suggest that it is a true linguistic phenomenon. D. Bolinger wrote about this in his article "Beyond the tongue". It has been found that intonation has similarities and similarities with other paralinguistic features (eg, *screaming, calling, shouting*, etc.), as well as with gestures. It is true that A. Martine does not include intonation in the definition of language. Thus, according to this scientist, the main principle that defines the language of intonation is "double articulation". According to this principle, meaning mediates or creates a connection between intonation and form. But, as mentioned above, meaning is expressed directly through intonation. A. Martine believes that due to these facts, intonation can not be included in the definition of language. This idea can also lead to the isolation of intonation in linguistics. But we cannot agree with this opinion. Almost all intonation differences are a sign of degree. They are considered categorical units showing high and low transmission, ascent and descent, and other phonetic differences. Furthermore, as noted above, not all intonation meanings are related to "feelings" or "attitudes." Thus, the transmission feature does not always have a "natural" and universal meaning. This feature varies from language to language. It is also clear that although some aspects of intonation are left out of the language, other aspects of it are included in the language. According to many linguists, these difficulties in the sense of "intonation" are reflected in its terminology. Thus, according to some scholars, intonation reflects both "linguistic" and paralinguistic features. We can conclude that our main goal is to determine whether aspects of intonation are "linguistic" and "non-linguistic." It is unfortunate that, as noted above, scholars are divided on this issue.

Each sound requires a certain amount of time to pronounce. The acoustic appearance of the speaker is based on three parameters: tone, intensity, time. Each of these parameters allows us to correctly determine the acoustic aspects of communication. The experiment can be considered successful by accurately determining the acoustic aspects of vowel sounds.

In English /My mother was too dry to answer// and /You always know when he is happy// The intonation contour of the sentences was determined on the basis of the values of the acoustic parameters of the sentences. The obtained acoustic indicators are given in the table and a graph is drawn on their basis.

/My mother was too dry to answer//



/You always know when he is happy//

GRAPHIC 1.

vowels parameters	ai	ʌ	ə	ə	u:	A1	ə	a	ə
f (hs)	145	190	130	126	140	136	130	143	112
i (db)	74	75	72	70	71	60	63	69	59
t (m/san)	124	110	84	80	90	290	60	96	95

GRAPHIC 2.

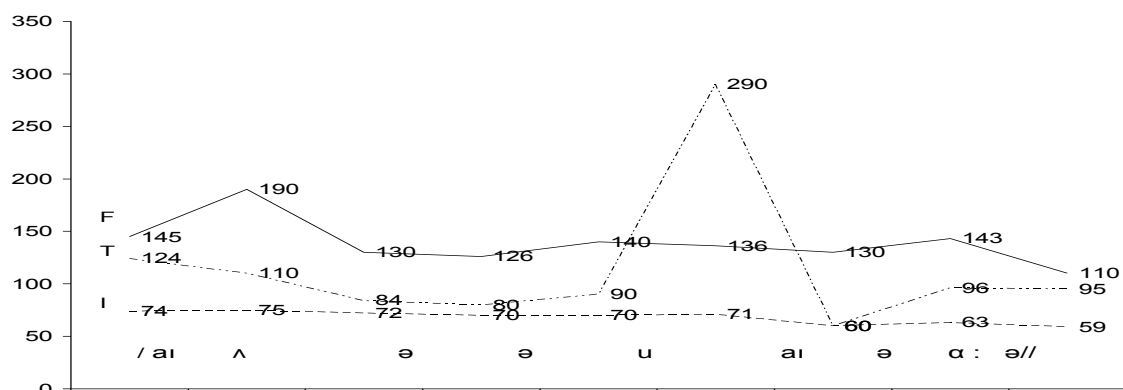
vowels parameters	u:	ɔ	eɪ	ou	e	i:	i	æ	i
f (hs)	170	168	182	160	143	136	126	134	118
i (db)	71	73	77	71	69	64	63	60	56
t (m/san)	108	100	130	170	90	68	60	106	112

The intonation contour of the sentence /My mother was too dry to answer// and the values of the main tone frequency indicate that the exhaustion intonation has taken place.

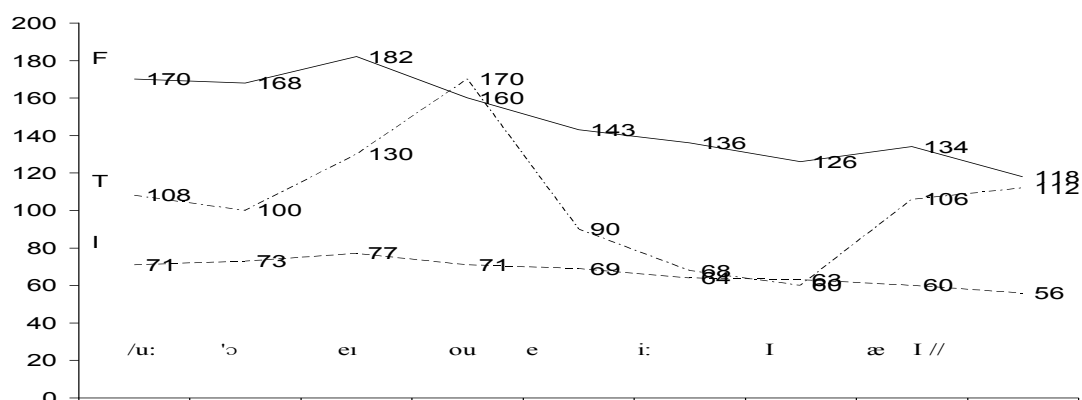
While the average tone frequency of vowels in a sentence is 139 hs, in the end the basic tone frequency is much lower than the average tone frequency. For example, at the end of a sentence, the main tone frequency is 110 hs. The interval difference in the sentence is 29hs. However, at the beginning of the sentence, the melodicity is 145-190hs higher than the average tone register. The peak of melodicity in the sentence is recorded in the second syllable at 190hs,

which is completely typical for the intonation contour of the translated sentences (see: table 1, gr. 2). Analysis of the time parameter shows that it differs from the values of the melodic parameter. The average pronunciation rate based on absolute values is 113 m/s. However, there is a slowing down of the pronunciation temp towards the end of the sentence length values. The absolute length of the vowel / a / in the last syllable of the sentence is 95 m/sec. The increase in the values of the time parameter towards the end indicates the intonation of exhaustion. Analysis of the intensity of the sentence shows its weakening direction. The average intensity is 68 db. At the beginning of the sentence, the amplitudes are 74-75 db, and the intensity in the last syllable is 59 db. The interval difference in intensity values is 6 db. (see: table 1, gr. 1).

GRAPHIC 1.



GRAPHIC 2.



/You always know when he is happy// The average tone frequency of vowels in the analyzed sentence the mentioned sentence is 148 hs.

At the end of the sentence, the melodic performance is much lower than its average tone frequency. This is 148 hs: 118 hs. The interval difference between the melodic indicators is 30 hs. At the beginning of the sentence the melodicity is much higher than the average tone register - 170-182 hs. The peak of melodicity in the sentence is 182 hs in the third syllable. The results obtained are typical for the intonation contour of the sentences (see: table 2, graph 2). Analysis of temporal indicators reveals that it differs from the values of the melodic parameter. The average pronunciation speed in the sentence is 104 m/s. Towards the end of a sentence, the pronunciation slows down, which is natural for metaphorical sentences. The absolute lengths of / æ / and / ə / in the last syllables of the sentence are 106-112 m / sec. The increase of the values of the time parameter towards the end is an indicator of exhaustion intonation. The intensity of the sentence indicates that it is in a weakening direction. The average intensity in the analyzed sentence is 67 db. The intensity at the beginning of the sentence is 73-77 db, and the intensity in the last syllable is 56 db. The interval difference in intensity values is 21 db. Based on the results of the oscillographic analysis, it indicates the realization of the intonation of exhaustion in the analyzed sentence.

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