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**PAUSES OF HESITATION-SEMANTIZERS IN STUDENTS’
FOREIGN SPONTANEOUS EMOTIONAL SPEECH**

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Abstract

The paper presents results of an experimental study aimed at identification of linguistic and vegetative correlates in spontaneous dialogic nonnative speech of university students in the state of emotional stress. The study was conducted on the basis of the Department of Translation of Nizhny Novgorod State Linguistics University with the use of telemetry equipment, which allows to reveal parameters of heart rhythm variability when solving complex cognitive problems or meeting challenges in the state of emotional tension. Such factors as participation in the experiment of an unfamiliar person recording results with special equipment, presence of experts evaluating the quality of speech, the topic of the dialogue set 30 seconds before the discussion, the unprepared character of speech and strict regulation of the time-frame of the conversation were regarded as sources of psychological stress. Pauses of hesitation-semanticizers have become the subject of a special study due to a number of interesting facts revealed during the experiment. Firstly, pauses of this type make up 72% of all registered cases of different types of pauses, and are used by all the informants, without exception. Secondly, these types of pauses have correlative connections with psycho-physiological characteristics of the speaker's functional state: increase in the heart rate variability characteristics as a sign of heightened emotional stress corresponds to increase in the number of pauses-semanticizers. Cognitive mechanisms that determine the appearance of pauses-semanticizers in spontaneous speech in nonnative speech of university students in stressful situations, as well as their general functions, distribution, syntactic functions are considered.

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Keywords: Emotional tension, pause of hesitation-semanticizer, foreign speech, spontaneous speech, dialogue.



1. Introduction

The peculiarities of pauses realized in spontaneous speech have become a question that interests scholars in different spheres. They focus on functional semantic types of pauses and the cognitive mechanisms that explain them (Betz & Kosmala, 2019; Jakovleva, 2016; Pistono et al., 2019), psychological, physiological and social factors that determine the peculiarities of the realization of pauses (Silber-Varod, Kreiner, Lovett, Levi-Belz, & Amir, 2016; Yoo & Shin, 2019; Zhabin & Molokanova, 2018), the perception of pauses by the listener (Kim & Jang, 2019; Wu, Zhou, & Chen, 2019), pauses as an objective parameter of evaluating the level of foreign language proficiency, also as compared to one's first language (Al-Ghazali & Alrefae, 2019; Galaktionova, 2008; Kosmala, Canda, & Morgenstern, 2019; Riazantseva, 2001), universal and language-specific strategies of pausation in different languages (Fägersten, 2005; Hurshudyan, 2006), annotating of unplanned pauses and other conversational failures in spoken language corpuses (Podlesskaya & Kibrik, 2007) and their identification during automatic signal processing (Comeaux, & Thomson, 2019; Verkhodanova & Shapranov, 2016), and other aspects.

In this paper, the methodology of research is described; the cognitive mechanisms that give place to such pauses are analyzed; the specific positions in different structural types of sentences and the syntactic functions of such pauses are discussed.

2. Problem Statement

General linguistic description of pauses of hesitation-semantizers which tend to appear due to some difficulty in making choice of the lexical or grammatical frame for the utterance was given in (Sineokova, 2019).

There are two reasons to pay special attention to this type of pauses. Firstly, as the experiment demonstrated, they are the most frequent type to appear in spontaneous dialogues of students in a foreign language occurring in a stressful situation (up to 72 % of all the registered pauses; and the range of their realization with different speakers varied from 60 % to 80 %). Secondly, there were discovered significant correlations between the cases when such pauses appeared and the physiological characteristics of the students' functional state (heart rate variability characteristics) that testify to the rise in their emotional excitability (Sineokova & Bakchina, 2016).

2.1. Participants of the Study

14 people participated in the study; they were the 4th year students of Journalism Dept. of Nizhny Novgorod State Linguistics University and a teacher. 6 students were examinees, 7 students and the teacher were experts who evaluated different aspects of their speech. The level of language proficiency (B2) was stated on the basis of the passing grade for the previous academic year: 1 student had "excellent", 4 students — "good", 1 — "satisfactory". All the participants had signed an agreement to take part in the experiment.

2.2. Study Material

The material for investigation was unprepared dialogues of examinees on a given topic, 6–7 minutes long. Transcriptions of audio recordings are given in (Bahchina, Demareva, & Sineokova, 2015). The subject of analysis was 157 sentences containing the investigated type of pauses. Quantitative characteristics of the study material are presented in Table 01.

Table 01. Quantitative Characteristics of Study Material

	Number of utterances	Number of sentences	Number of words	Number of pauses-semanticizers	Number of pauses / number of words
Examinee 1	13	26	285	19	1 / 15
Examinee 2	10	27	296	24	1 / 12.3
Examinee 3	9	20	266	34	1 / 7.8
Examinee 4	14	29	433	18	1 / 24
Examinee 5	16	30	338	13	1 / 26
Examinee 6	17	25	284	24	1 / 11.8
Total	79	157	1902	132	—
Mean Value	13.2	26.2	317	22	1 / 14.4

3. Research Questions

To better understand the nature and the mechanisms of pauses realization in students' foreign speech in a stressful situation, their diagnostic role in evaluating the level of L2 proficiency it is necessary to apply a multidimensional approach including cognitive, linguistic, and psychophysiological aspects of their functioning. The major questions of the research are the following. What place do pauses of hesitation-semanticizers occupy among other functional types of pauses? What is the cognitive nature of this type of pauses? How does a stressful situation influence their processing? What are the distributional, positional and syntactic features of pauses of hesitation-semanticizers in different structural types of sentences?

3.1. Functional Types of Pauses

In Bahchina et al. (2015) different speech failures were analyzed, such as pausation proper, repetitions and redundant elements that serve as pause fillers, and also aposiopesis. They were divided into three functional groups: proper pauses (pauses of hesitation-semanticizers) that are necessary for a speaker to pick the adequate element(s) to reflect the aim of communication; pauses necessary for further utterance development (pauses with false repetition of elements); correcting repetition pauses necessary to correct some elements in an utterance (Sineokova, 2019).

In a situation of emotional tension in an unprepared dialogue an overwhelming majority of pauses appears to be pauses of hesitation-semanticizers.

3.2. Cognitive Mechanisms Causing the Appearance of Pauses of Hesitation-Semantizers

One of the main functions of pauses-semantizers is that they not only signal of processes that cannot be observed but also serve as markers of “different operations of monitoring the controlling mechanisms and compensation practices and means that a speaker resorts to when facing difficulties in speech production” (Galaktionova, 2008). In an experiment of the kind we have made, such monitoring is a resource-consuming cognitive activity due to the following reasons.

In spontaneous speech in L1 the conscious brain control is needed mainly over the sense of the utterance, while the process of choosing the form is generally unconscious. In students’ spontaneous nonnative speech, when the speech skills are not automated enough, a speaker makes more effort to control the means of expression (including phonetic, morphological, lexical, syntactic means).

A stressful situation has a deforming influence upon verbal and cogitative processes and can be a factor that causes difficulties in planning both the content of an utterance and adequate ways of its expression.

4. Purpose of the Study

The aim of the study upon the whole is the analysis of linguistic and vegetative correlatives of pausation in foreign spontaneous dialogic speech of students in a state of emotional tension.

The purposes of the part of the experiment under consideration are:

- to study distributional characteristics of pauses of hesitation-semantizers between different structural types of sentences (a simple sentence, a compound sentence, a complex sentence, a composite (compound-complex) sentence that contains both a compound and a complex sentence);
- to analyze their positional features in various structural types of sentences as relating to a conjunction / a syndetic word in compound and complex sentences, as well as in complex-compound sentences;
- to identify positional features of pauses of hesitation-semantizers before sentence parts (in a simple sentence) or clauses (in compound, complex and compound-complex sentences).

5. Research Methods

5.1. Instrumental Monitoring

The description of the telemetry equipment that identifies the parameters of heart rate variability while the examinees are solving complex cognitive problems or meeting challenges in the state of emotional tension, of the integrated environment “HR-Reader,” as well as of the statistic and spectral readings of heart rate variability that have been chosen as the vegetative correlatives connected with such psychophysiological categories as emotional maladaptation, the level of subjective complexity of the problem being solved and others, can be found in (Bahchina et al., 2015; Demareva, Bahchina, & Sineokova, 2014; Sineokova & Bakchina, 2016). The usage of a wireless device to register the heart rate (the miniature sensor Zephyr BioHarness) makes it possible to implement the principle of ecological

validity without any limits as to the distance and the examinee's mobility (Bahchina et al., 2015). This method of monitoring the vegetative states and speech peculiarities requires no special laboratory tests and can be used during usual classroom lessons of a foreign language.

5.2. Choice of Stressors

As the aim of study is to define the physiological and linguistic correlatives of pausation appearing in L2 in a state of emotional tension, the conditions that made the emotional tension greater were not neutralized; on the contrary, they were deliberately constructed. For example, in the classroom there was a person the students did not know who registered the physiological parameters with the help of special equipment. The presence of numerous experts in the same room and the fact that they were to estimate the qualitative properties of the speech (its fluency, logic, informativeness, expressiveness, the occurrence of speech mistakes and such) was an additional stressor. Another stressor was the fact that the topic for the dialogue was set 30 seconds before its start, and the length of the conversation was strictly regulated. In addition, previously the students might have got tired because the first part of the experiment had comprised the task to reproduce a complicated foreign text by heart. This factor had not been preplanned. Actually, the operational hypothesis was that the dialogue situation would be more complicated for the students due to the aforementioned stressors and due to the necessity of collaborating with a partner. Nonetheless, the results demonstrated that fulfilling a verbal and cogitative task that had an "ideal model" for imitation appeared to be much more energy-consuming than a spontaneous conversation (Sineokova & Bakchina, 2016).

The only factor that decreased the stress level was the opportunity to pick a partner for the dialogue.

5.3. Dialogue Transcripts Processing

The question of the dialogue transcription needs much attention because the interpretation of the scientific results in no small part depends on the correct definition of the borderlines between the text syntagmas. After the experiment the examinees were given the transcripts and the video recordings of their dialogues in case they wished to correct some debatable fragments when the experimenter found it difficult to tell between cases of juxtaposing simple sentences and cases of an asyndetic compound sentence; between parts of a potentially compound or complex sentence in syntactic isolation and proper compound and complex sentences; between elliptical constructions and synsemantic constructions with a member in syntactic isolation, etc. Speech mistakes were not to be corrected.

6. Findings

6.1. Distribution of Pauses-Semantizers Among Various Structural Types of Sentences

The statistic peculiarities of realizing pauses of hesitation-semantizers in Russian students' spontaneous dialogic speech in English in a stressful situation, in different types of sentences (a simple sentence, a compound sentence, a complex sentence, a composite (compound-complex) sentence that

contains both a compound and a complex sentence), and also at the junction of two sentences irrespective of their structural type, can be found in Table 02.

Table 02. Distribution of Pauses-Semantizers Among Various Structural Types of Sentences

		Ex. 1	Ex. 2	Ex. 3	Ex. 4	Ex. 5	Ex. 6	Mean Value
Total sentences / pauses-semantizers		26 / 19	27 / 24	20 / 34	29 / 18	30 / 13	25 / 24	26.2 / 22
Number of pauses per sentence		1.4	1.1	0.6	1.6	2.3	1.04	1.34
Simple sentence	Number of sent.	16 / 61.5%	18 / 66.7%	13 / 65%	15 / 51.7%	19 / 63.3%	21 / 84%	17 / 65.4%
	Number of pauses	4 / 21.1%	3 / 12.5%	5 / 14.7%	2 / 11.1%	2 / 15.4%	4 / 16.7%	3.3 / 15.3%
Compound sentence	Number of sent.	3 / 11.5%	1 / 3.7%	2 / 10%	3 / 10.3%	2 / 6.7%	—	8 / 7%
	Number of pauses	2 / 10.5%	3 / 12.5%	4 / 11.8%	2 / 11.1%	1 / 7.7%	—	2 / 8.9%
Complex sentence	Number of sent.	5 / 19.3%	6 / 22.2%	3 / 15%	6 / 20.7%	5 / 16.7%	1 / 4%	4.3 / 16.3%
	Number of pauses	7 / 36.8%	11 / 45.8%	8 / 23.5%	7 / 38.9%	3 / 23.1%	—	6 / 28%
Compound-complex sentence	Number of sent.	2 / 7.7%	2 / 7.4%	2 / 10%	5 / 17.3%	4 / 13.3%	3 / 12%	3 / 11.3%
	Number of pauses	6 / 31.6%	2 / 8.3%	17 / 50%	7 / 38.9%	7 / 53.8%	20 / 83.3%	9.8 / 44.3%
Sentences junction	Number of pauses	—	5 / 20.9%	—	—	—	—	0.8 / 3.5%

The analysis of the data makes it possible to arrive at the following conclusions.

- The total number of the sentences in a dialogue that was supposed to last for 6–7 minutes is from 20 to 30; the mean value is 26.2. The number of pauses-semantizers varies from 13 to 34, the mean value is 22. On the average, pauses of this type are registered in fragments 1.34 sentences long, the minimal and the maximal values are 0.6 and 2.3 respectively.
- Such pauses are used most frequently is simple sentences (65.4 %), less frequently they occur in complex sentences (16.3 %), complex-compound sentences (11.3 %) and compound sentences (7%).
- In spite of the high frequency of their occurrence, in simple sentences there were registered only 15.3 % of pauses of hesitation-semantizers. It shows how effective the strategy of using elementary syntactic structures is when the deep structure that appears in the planning phase to a great degree coincides with the surface structure. Examinee 5 used mostly simple sentences (63 %), and therefore in his 30 utterances there appear only 13 pauses.
- In compound sentences that were not a joint realization of simple sentences within one constructive and intonational syntagma but that had a complex polypredicative structure, a considerable growth of the number of pauses of hesitation-semantizers was registered as compared to the number of them in simple sentences. For example, examinee 2 used three such pauses within one utterance. This type of

sentences occurred comparatively seldom, so the medium frequency of pauses of hesitation-semanticizers in them is 8.9 %. We cannot be absolutely sure yet if this infrequent usage is an objective pattern or a peculiarity of the sample analyzed.

- In complex sentences the medium value of pauses of hesitation-semanticizers is 28 %, which confirms the idea that building logical connections between different parts of a complex polypropositional structure poses significant difficulties, in L2 in particular.
- Every examinee without an exception used compound-complex sentences in spite of their structural and conceptual complexity that confirmed the initial hypothesis. In this type of sentences there is the maximal number of pauses of hesitation-semanticizers, 44.3 %. At the same time, the scatter was notable, too: from 8.3 % to 83.3 %. One can conclude it is necessary to study other factors that could influence the results, i. e. the degree of the structural complexity, the sequence of the components, the type of their relationship, and others.
- Pauses of hesitation-semanticizers occurring at the juncture of different sentences were used by only one examinee. Nevertheless, the frequency of their occurrence (20.9 %) makes it possible to treat it as a special trait worthy of attentive study in the future.

6.2. Positional Features of Pauses-Semantizers in Various Structural Types of Sentences

Table 03 presents the quantitative data on the following positional features of pauses of hesitation-semanticizers found in various structural types of sentences: as relating to a conjunction / a syndetic word in compound and complex sentences (as well as in complex-compound sentences); before sentence parts (in a simple sentence) or clauses (in compound, complex and compound-complex sentences).

Table 03. Location of Pauses-Semantizers in Sentences

		Ex. 1	Ex. 2	Ex. 3	Ex. 4	Ex. 5	Ex. 6	Medium Value
Compound sentence	Before conjunction a		1	1			2	4 / 13.8%
	After conjunction a		1	1	2			4 / 13.8%
Complex sentence	Before conjunction / a syndetic word a	1	1	5		2		9 / 31%
	After conjunction / a syndetic word a	1	3	1	3	2	2	12 / 41.4%
Subject		1	4	4	5	2	5	21 / 19%
Predicate		7	4	10	6	3	11	41 / 37.3%
Object		4	4	5	5	2	5	25 / 22.7%
Adverbial modifier		2	1	2	2	3	2	12 / 10.9%
Attribute		1	1	4	—	1	—	7 / 6.5%

The analysis of the results shows the following.

- The location of pauses between parts of compound, complex and compound-complex sentences poses no coherent picture. The only tendency that can be observed is that pauses occur after a conjunction or a syndetic word, which can testify to the speaker's having a general structure of the utterance in mind,

and facing certain difficulties when trying to unfold it in the ensuing clause. Subsequent consideration of pauses in compound-complex sentences with attention to such aspects as the type of the subordinate clause, the sequence of the main and the subordinate clauses, the degree of their semantic integration, and others might be useful in future research.

- The maximal number of pauses (37.3 %) occurs before the predicate, including cases of pausation between components of a compound verbal predicate and a compound nominal predicate. Their occurrence in this position is twice as frequent as their occurrence before the subject (19%). One can suppose that in the situation under test the speakers' considerable hesitation at choosing the proper predicate can be explained by the difficulty in choosing the words that would most adequately reflect the rheme of the utterance, the most relevant information about the action or the state within definite modal and temporal characteristics.
- The significant frequency of pauses-semanticizers before objects (22.7%), which surpasses that before subjects, can be explained by the fact that objects, in the overwhelming majority of the registered cases, are connected with the predicates, detailing and complementing them, and therefore reflect the cognitive difficulties associated with the predicate.
- The number of pauses before adverbial modifiers appeared to be relatively small (10.9%); presumably the reason for this is that in our database they were optional rather than constructive, and had no fixed syntactic position in a sentence.
- To interpret the rare usage of pauses before attributes (6.5%) a further research is required because of the significant scatter. Two examinees never used pauses in this position, three examinees used them once, and examinee 3 used them four times (as often as before the subject and twice as often as before an object).

It should be noted that the acquired results correlate to other researchers' data as to the predominant usage of pauses in students' L2 speech within sentences and not at the juncture of two sentences (Al-Ghazali & Alrefaee, 2019).

7. Conclusion

The research has made it possible to elicit certain tendencies in realizing pauses of hesitation-semanticizers in spontaneous dialogic foreign speech in a stressful situation. The frequency of their occurrence in the discourse type under study (72 %) far outnumbers the frequency of pauses in false repetitions (13 %) and in correcting repetitions (7 %) (other cases belong to articulatory perseverations, aposiopesis, and other speech deformities). It testifies to the fact that cognitive activity is very resource-consuming due to the following factors: spontaneous, unprepared speech, communication in a foreign language, the need to communicate with an interlocutor, the state of emotional tension.

The fact that cognitive activity is performed with certain difficulties is reflected in the following results: the number of pauses per sentence (1 pause per 1.34 sentences on the average), the increased number of pauses in polypredicative compound, complex and compound-complex sentences, the prevailing number of pauses before the rhematic center of an utterance, its predicate.

The research has elicited a number of limitations that should be eliminated to amplify and interpret the acquired data. Firstly, the results of this research demonstrate some scatter in the examinees' usage of

pauses of hesitation-semanticizers in a number of parameters. An increased sample will make it possible to neutralize individual preferences and make the statistical analysis more precise. Secondly, to identify the peculiarities of speaking in a foreign language as compared to one's mother tongue it is advisable to make an experiment that will enable the researcher to single out and interpret the peculiarities of verbal and mental activity in one's mother tongue and in a foreign language. Thirdly, to clarify the cognitive mechanisms that influence the appearance of pauses of hesitation-semanticizers it is advisable to study them while changing variables: monologue vs. dialogue; spontaneous speech vs. prepared speech; a stressful situation vs. a stress-free situation; and different levels of speakers' foreign language proficiency. The question of speech perception under the aforementioned conditions with the aforementioned variables poses an interesting problem, too, especially if the perception of native speakers is contrasted to the perception of experts who are not native speakers, in evaluating such characteristics of speech as fluency, coherence, expressiveness and other factors.

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