

## REVIEW STATEMENT

**by Assoc. Prof. Antoaneta Stefanova Dzhelyova, PhD,**  
Department of General Linguistics and History of the Bulgarian Language,  
*Paisii Hilendarski* University of Plovdiv,  
on the materials submitted  
for the acquisition of the educational and scientific degree of *doctor*  
in the Sphere of higher education 2. *Humanities*  
Area of professional qualification 2.1. *Philology*  
Doctoral Programme: *Romance Languages*

**Author:** Rossina Alexieva Kakova

**Dissertation Topic:** *Vowels in French and Bulgarian – an Acoustic Description with Regard to the Perceptual Integration of Their Frequency Components*

**Supervisor:** Assoc. Prof. Rusi Nikolov Nikolov, PhD (Department of Romance and German Studies, Faculty of Philology, *Paisii Hilendarski* University of Plovdiv)

### 1. General overview of the submitted materials

Following Order № ПД-21-2385 from 14.12.2023 of the Rector of the *Paisii Hilendarski* University of Plovdiv (PU) I have been appointed a member of the scientific jury participating in the defense procedure of a doctoral thesis on the subject *Vowels in French and Bulgarian – an Acoustic Description with Regard to the Perceptual Integration of Their Frequency Components* for the acquisition of the educational and scientific degree of *doctor*, sphere of higher education 2. *Humanities*, area of professional qualification 2.1. *Philology*, Doctoral Programme: *Romance Languages*.

The author of the dissertation is Rossina Alexieva Kakova – a full-time doctoral candidate at the Department of Romance Languages. The candidate's supervisor is Assoc. Prof. Rusi Nikolov Nikolov, PhD.

The submitted set of documents is in accordance with art. 36 (1) of the Rulebook for Development of the Academic Staff of Plovdiv University and comprises the following documents:

1. an application to the Rector of the University of Plovdiv;
2. a Europass CV;
3. preliminary defense minutes from the extended Department meeting;
4. doctoral dissertation abstract;
5. a declaration for originality and authenticity of the attached documents;
6. a reference form concerning the fulfillment of the minimal national requirements;

7. a list of scientific publications on the subject of the doctoral dissertation;
8. a doctoral dissertation;
9. copies of the scientific publications;

## **2. Brief autobiographical data concerning the doctoral candidate**

The doctoral candidate Rossina Alexieva Kakova was born on 12.09.1972. She finished the Language High School in the town of Lovech in 1991. In 1996 she graduated from the *Paisii Hilendarski* University of Plovdiv with a major in Bulgarian and French. In 2018 she obtained a Master's degree in English Language and Teaching Methods at the University of Plovdiv. From 01.03.2020 to 01.03.2023 she was a full-time PhD student at the Department of Romance and German Studies of the Faculty of Philology of the University of Plovdiv.

She has worked as a French teacher at the *Peyo Kracholov Yavorov* Secondary School, *Dobrin Petkov* Secondary School and *Raina Knyaginya* Primary School in Plovdiv.

Since 2014 she has been a senior lecturer of French at the University of Food Technologies in Plovdiv.

## **3. Relevance of the topic and appropriateness of the set aims and objectives**

The relevance of the topic lies in the contemporary multicultural situation in which the acquisition of foreign languages is of particular importance for the development and realisation of the individual. The necessity of combining successful traditional and current innovative methods of foreign language teaching presupposes the search for new solutions with contemporary information technologies, such as those proposed in this dissertation. Providing feedback when certain results are obtained is one of the goals in the search for effective methods of teaching foreign language pronunciation.

The representation of phonemes as complex multicomponent objects, which can however be studied and observed according to certain patterns in order to correct mispronunciations and adequately master the phonemic system and prosody, is in line with current scientific achievements and research.

## **4. Knowledge of the problem**

The doctoral candidate is very familiar with established theories and practices, as well as with contemporary theories and methods applied in the French phonetics education for foreign learners. They are commented on competently with regard to their advantages and disadvantages in relation to various factors – the starting age at which learning begins, the

time required for internalising and the stages of mastering the phonetic system, the learners' background knowledge, the type of teaching – oral or written, the learners' motivation, etc.

The doctoral candidate possesses the ability to critically analyse and synthesize information, as well as the skills to compose a succinct and coherent text. The examination of foreign language literature dominates. There are 171 cited sources in French and English, but only 12 in Bulgarian.

I believe that the information on contemporary Bulgarian experimental phonetics should be expanded, especially in the research field under consideration. Acoustic analysis of Bulgarian vowels with the SARP5 program has been done by I. Gaydadzhieva and N. Chocheva, and N. Chocheva has worked on the acoustic modelling of French vowels in particular (see *Paisiy Hilendarsky University of Plovdiv – Bulgaria Research Papers*, Vol. 49, Book 1, Part A, 2011, pp. 406 – 417 and *Paisiy Hilendarsky University of Plovdiv – Bulgaria Research Papers*, Vol. 50, Book 1, Part B, 2012, pp. 179 – 186, etc.).

## **5. Research methods**

A comparative analysis of the main theoretical concepts in modern experimental phonetics and auditory analysis and computer acoustic analysis with the TREFL and Speech Analyzer programs is made.

## **6. Characteristics and evaluation of the dissertation**

The text of the dissertation is not very lengthy at 138 pages, but it is highly informative. Including the appendices and bibliography, the dissertation consists of 142 standard pages. It is well-structured with clearly delineated conclusions after each of the three chapters. The appendices illustrate the comparison of the formant structures and formant values of the unrounded French front vowels [i], [e] and the unrounded Bulgarian front non-labial vowels [ɪ], [e], modelled 1) according to the traditional acoustic method and 2) according to the proposed acoustic-phonetic method.

The achievements of the classical two-formant model (F1 and F2) are further developed by the experimentally verified acoustic-phonetic model presented in this work. It takes into account the relationship between the acoustic and the corresponding perceptual image of sound based on the third formant (F3). The phenomenon of perceptual integration of formants that are adjacent and quite close in frequency is considered.

The effectiveness of the acoustic-phonetic model is evident precisely when the Bulgarian and French vowels are compared due to acoustic matches of the F1 and F2 formants in the complete absence of a match at the perceptual level.

The parallel use of the phonetic module of the TREFL program with the Speech Analyzer software system guarantees speed and precision of the study.

R. Kakova has sound knowledge in the field of acoustic phonetics, which is visible in the definition of basic terms and concepts (spectrum, formant, formant frequency, formant structure, frequency of the fundamental tone (F0), amplitude, duration, timbre, spectrogram) and in the representation of vocals in articulatory, acoustic and perceptual aspects.

The rich professional experience – over 20 years of teaching practice, the competence in presenting various programs (Win Pitch, Speech Analyzer, Praat, Speech Filing System, Real-time Spectrum, Real-time Spectrogram) used in experimental phonetics and the presented research based on the employed phonetic module of TREFL – Translation REFERENCE Library, designed and created by Assoc. Prof. Rusi Nikolov, together with the parallel use of the Speech Analyzer software system allow the candidate to convincingly bring out the obvious advantages of acoustic-phonetic modelling and its importance for theoretical and practical phonetics.

The optimized acoustic-phonetic model is beneficial in foreign language pronunciation acquisition. It expands the possibilities for speech analysis and evaluation and provides feedback necessary for optimising learner-teacher interaction.

## **7. Assessment of the publications and personal contributions of the doctoral candidate**

The three listed publications are clearly related to the topic of the PhD thesis, which is their natural continuation.

The realization of a successful scientific experiment with the help of mastered modern technologies and the possibility of applying the innovative acoustic-phonetic model to the learning of French as a foreign language is a contribution to the field of experimental phonetics. It can be viewed as part of future larger projects.

## **8. Abstract**

The abstract accurately summarises the content of the dissertation and conforms to the standards.

A check for plagiarism in the text of the dissertation and in the submitted articles did not reveal any signs of plagiarism.

## **9. Recommendations for future use of the dissertation contributions and results**

When the text is published, it is necessary to correct the mistakes regarding the use of commas, dashes and articles with masculine singular nouns. I recommend that the citation on

pp. 50 – 51 of the thesis, which is given in English and Bulgarian and is 2 pages long, be reduced; that the term *harmonic*, given as a variant of *overtones*, be reconsidered, since in the specified usage the word *harmonic* contradicts the literary norm of the contemporary Bulgarian literary language. On page 10, after the first paragraph, it is proper to indicate the source used – in this case the article by I. Gaydadzhieva and N. Chocheva in *Paisii Hilendarsky University of Plovdiv – Bulgaria Research Papers*, Vol. 50, Book 1, Part B, 2012, pp. 179.

### CONCLUSION

In the presented work, the set tasks and objectives are successfully fulfilled. The dissertation exhibits the necessary scholarly merits – solid theoretical preparation of the author, ability to conduct a scientific experiment using modern technologies and to create a product of practical value. The dissertation meets all requirements of the Law for the Development of Academic Staff in the Republic of Bulgaria (LDASRB), the Rulebook for the Application of LDASRB and the corresponding Rulebook of *Paisii Hilendarski University of Plovdiv*.

Due to the aforesaid, I hereby give my positive assessment of the conducted research presented in Rossina Kakova's dissertation thesis *Vowels in French and Bulgarian – an Acoustic Description with Regard to the Perceptual Integration of Their Frequency Components* and I recommend to the honourable scientific jury to award Rossina Alexieva Kakova the educational and scientific degree “doctor” in the sphere of higher education 2. Humanities, area of professional qualification 2.1. Philology, doctoral programme: *Romance Languages*.

31.01.2024

Plovdiv

**Reviewer: .....**

**(Assoc. Prof. A. Dzhelyova, PhD)**