

STATEMENT

**by Assoc. Prof. Vesela Petrova Chergova, PhD - Sofia University St. Kliment Ohridski,
Faculty of Classical and Modern Philology, Department of Portuguese and Lusophone Studies**

(n.s., first name, surname, last name - academic degree. Ph.D. in the university or scientific organization)

on the dissertation for the award of Doctor of Philosophy Degree

On Higher Education and Research Area:	2. Humanities
Professional field:	2.1. Philology
PhD Programme:	Romance Languages

Author: **ROSINA KAKOVA**

Dissertation Subject: Vowels in French and Bulgarian: an acoustic description taking into account the perceptive integration of their frequency components

PhD Scientific Advisor: Assoc. Prof. Roussi Nikolov, PhD - Paisii Hilendarski University of Plovdiv, Faculty of Philology, Department of Romance and German Studies

(academic degree, Ph.D., first name, surname, last name - university or scientific organization)

1. General description of the materials submitted and the procedure

By Order No. RD-22-282 of 06.02.2025 of the Rector of Paisii Hilendarski University of Plovdiv, I have been appointed as a member of the scientific jury, which will conduct the procedure for the defense of the dissertation of PhD student Rosina Kakova on the subject “Vowels in French and Bulgarian: an acoustic description taking into account the perceptive integration of their frequency components” for the award of Doctor of Philosophy Degree in Higher Education and Research Area 2. Humanities, Professional field 2.1. Philology, PhD Programme in Romance Languages. Rosina Kakova is a full-time PhD student at the Department of Romance and German Studies with the PhD Scientific Advisor as follows: Assoc. Prof. Roussi Nikolov, PhD (Department of Romance and German Studies), member of the Faculty of Philology, Paisii Hilendarski University of Plovdiv.

I received the set of PhD defense documents electronically and consider that they meet the requirements of the Law on the Development of the Academic Staff of the Republic of Bulgaria, as well as Art. 36 (1), (2) and (3) of the Regulations for development of the academic staff of Paisii Hilendarski University of Plovdiv. The set of documents includes:

- request to the Rector of the University of Plovdiv for disclosure of the procedure for defense of the dissertation, submitted on the 23th of January, 2025;
- CV in European format certifying the educational qualifications required for the purposes of the defence with a Master's degree and acquired professional qualifications as a teacher of Bulgarian language and literature and French language and literature and a specialist in English language and methodology;
- Minutes of the Department Council, related to reporting on the readiness to open the procedure and preliminary discussion of the dissertation work: Minute No. 223 of 17th of January, 2025, also reflecting the Order No. RD-22-15 of 10th of January, 2025 of the Rector of Plovdiv University about a one-time expansion of the composition of the Department Council with voting rights for the dissertation discussion. There is presented an abstract of the Minute No. 208A of 23th of February, 2024, which shows that the thesis was returned for revision for a period of one year with the consent of the Scientific Advisor;
- Author's abstract of the dissertation that meets the requirements and reflects the content of the thesis;
- Declaration of originality and authenticity of the attached documents submitted on the 23th of January, 2025;
- List of 3 (three) scientific publications on the topics of the dissertation;
- Copies of the three scientific publications on the topic of the dissertation;
- Reference for compliance with the minimum national requirements for the award of PhD Degree submitted on the 23th of January, 2025, according to which the PhD student collects the minimum required number of points (80): 50 points were awarded for a submitted dissertation and 30 points for published papers;
- Dissertation work. It consists of 162 pages of scientific text, organized into an introduction, three chapters, a conclusion, a statement of scientific contributions, a declaration of originality and reliability, appendices with the empirical data and research, and a bibliographical references.

The review of the above documents shows that they meet the legal requirements and prove the appropriateness of the procedure of public defense of a scientific study in the field of experimental phonetics with a focus applied on the foreign language teaching of French to Bulgarian learners, which follows the methods of modern comparative linguistics in the study of the acoustic characteristics of the Bulgarian and French vocal systems.

Within the scientific jury, I have been appointed to prepare a statement.

2. Topicality of the subject

The relevance of Rosina Kakova's dissertation is connected to the topicality of acoustic research of segmental and suprasegmental features of speech in general, which have developed and acquired new interpretations, including in connection with the technological improvement of

empirical methods for the study of speech sounds and their perception. In particular, the research is also relevant because of the comparative nature between the two languages - Bulgarian and French, as well as because of the didactic focus on the methods of teaching French pronunciation and the processes of its acquisition by Bulgarian learners in a learning environment through perceptive and productive techniques.

3. Knowledge of the problem

The quoted bibliography (195 titles), as well as the contents of the first and second chapters, show the author's good awareness of the current state of acoustic research in general and of acoustic research on French and Bulgarian vowels in particular, and they also testify to the applied familiarity with the subject under study. The exposition shows an awareness of the technical tools and models for acoustic analysis, of a well-founded criterion for the selection of empirical material, and an awareness of the theories and methods for the acquisition of phonetics and phonology in language learning.

4. Research methodology

The PhD student uses an innovative approach in the acoustic analysis of French non-nasal vowels and Bulgarian vowels, both in stressed position, where the analysis takes into account not only the traditionally seen relationship between the first and second formants (F1 and F2), but also the values of the third formant (F3), which has been found (Chistovich and Lublinskaya 1979) to be relevant to the perceptive evaluation of sounds because listeners integrate the peak values of the second and third formants if their frequency differences do not exceed 3-3.5 Bark. For this reason, not only the peak values of the two higher formants in the front non-labial vowels are taken into account, but also the average values of the two acoustic zones, with the results of the two-formant model of analysis indicated in blue to make the difference to the results of the three-formant ('acoustic-phonetic') model, indicated in red, stand out. The work convincingly defends the thesis that the values of the F3 are relevant for the comparative analysis of French and Bulgarian vowels, both front and back, and the results obtained are more effective for the purposes of foreign language learning in French pronunciation and the perception of differences in timbre, in the voicing characteristics and in the functionality of French vowels by Bulgarian learners. Thus, the dissertation confirms the method introduced in the acoustic analysis of French and Bulgarian vowels in the publications of the Scientific Advisor (e.g. Nikolov 2016, Nikolov and Husein 2017). In addition to realizing continuity of ideas and methods, it allows to systematize the contrast between French and Bulgarian non-nasal vocalic systems especially in the area of front vowels, where French distinguishes a series of non-labial and labial vowels.

I believe that the choice of empirical material is appropriate because the speech of radio presenters from French and Bulgarian national media is close to the spoken norms and could be taken as a representative and standard sample of the vocal systems of both languages. Reducing the

variability to minimal levels, in my opinion, benefits both the comparative aspect of the study and its didactic focus. I find the acoustic considerations of choosing male voices as the empirical basis of the study to be valid.

The last but not least, I would like to point out that the continuity and consolidation of the language school is also observed in the decision of the PhD student to process the empirical material with the phonetic module of *TREFL* - *Translation REference Library*, designed and created by her Scientific Advisor, Assoc. Prof. Dr. Roussi Nikolov, with the parallel use of the *Speech Analyzer* software system. It turns out that the technical approach yields positive results in teaching French pronunciation to native speakers of Bulgarian in a learning environment and optimizes their efforts in learning French vowels.

5. Characteristics and evaluation of the dissertation work and contributions

Rosina Kakova's dissertation covers 162 standard pages. It consists of an introduction, three chapters, a conclusion, a statement of scientific contributions, a declaration of originality and reliability, appendices and a bibliography.

The Introduction (pp. 4-7) succinctly and comprehensively sets out the relevance of the topic, the object of study, the aims, objectives and methodology, including the choice of acoustic analysis programs. Chapter One (pp. 8-48) discusses the current state of experimental phonetics and presents the acoustic characteristics of French and Bulgarian (non-nasal) vowels in a strong position on the basis of comparative studies on the topic. Chapter Two (pp. 49-86) discusses and justifies the choice of acoustic analysis method, presents the content and conduct of the experimental study and its results, and discusses theories of French pronunciation acquisition. The Chapter Three (pp. 87-111) describes the theories and methods of teaching Phonetics in foreign language education for the purpose of applied French phonetics for Bulgarian students. The conclusion (pp. 112-114) summarizes the accomplishment of the tasks and the objectives. The statement of scientific contributions (p. 115) has a concise, comprehensive and credible content. The Appendices (pp. 116-145) contain the empirical material of the dissertation in the form of audio files, text files, segmented recordings, and screen shots of the spectrograms and of the formant structure of the fronted non-nasal vowels [i] and [e] in French and Bulgarian. A declaration of originality and reliability of the conducted research (p. 146) and a bibliography (pp. 147-162) follow.

I believe that the dissertation on modern acoustic phonetics with a comparative character between French and Bulgarian non-nasal vowels with didactic orientation of the obtained results is a well-structured and responsibly conducted independent study of a relevant scientific problem. It has achieved its main objective of making a comparative analysis of the results of the classical vowel model and of the optimized acoustic-phonetic description of vowels in the spoken norms of Bulgarian and French, justifying its applicability in the acquisition of vowels in the foreign language teaching of French. I agree with the scientific contributions mentioned.

6. Assessment of the publications and personal contribution of the PhD student

Rosina Kakova is the author of three papers published in the Scientific Proceedings of Plovdiv University "Paisii Hilendarski", book Philology, issues 58, 59 and 60, respectively in 2020, 2021 and 2022. The articles are attached in electronic version, listed and indicated in the Author's abstract.

The article *Acoustic description of nasal vowels helping students learning French as a foreign language* (2020, 443-449) presents the acoustic characteristics of nasal vowels in modern French based on the two-formant model, justifies the acoustic similarity between the nasals [œ] and [ɛ̃], and also introduces the consideration of F3 as the closest to F2, with which they form a geometric mean and are united in a "representative psychoacoustic formant" with perceptive weight.

The paper *Acoustic modelling of vowels with optimized reading of perceptive data* (2021, 349-355) motivates the topic, developed in the PhD thesis, about the necessity of reading the values of F3 in the acoustic structure of French front vowels based on the method of Chistovich and Lublinskaya (1979) and using the approach and software of Roussi Nikolov (2014, 2016).

The paper *Methodological features in the acoustic description of vowels* (2022, 453-460) justifies the appropriateness of the acoustic-phonetic method (Nikolov 2017) for identifying phonological units with a relevant features, combining acoustic and perceptive evaluation, by applying it to the analysis of the French front unrounded (non-labial) vowels [i] and [e].

These three contributions deal with the content of the dissertation, and the last two follow quite literally its argument. The topic of French nasal vowels, the subject of the first mentioned paper, is touched upon in the first chapter (pp. 29-31) of the dissertation, but has not found a place in the acoustic analyses developed in the second chapter, probably because French nasal vowels have no equivalent in the Bulgarian vocal system.

7. Author's abstract

The abstract consists of 32 pages, which reflect the circumstances of the public defense of the dissertation, presenting in a condensed but comprehensive and credible form the structure, subject, aims and objectives, method of research, results, scientific contributions and the specialized literature quoted in the Abstract.

8. Recommendations for future use of dissertation contributions and results

The method of comparative study and acoustic description of French and Bulgarian vowels in stressed position can also be applied in other comparative studies with other Romance languages.

The results of the study are encouraging and applicable to foreign language learning and the practices of acquisition and production of other Romance languages phonetics taught to Bulgarian learners in a classroom environment.

I would recommend the publication of the dissertation as a monograph and would encourage Rosina Kakova to present her work and achievements also at a scientific forums and other journals.

CONCLUSION:

The dissertation contains scientific-applied results, which represent an original contribution to science and meet all the requirements of the Law on Development of Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for implementation of LDASRB and the relevant Regulations of the Paisii Hilendarski University of Plovdiv. The submitted materials and dissertation results comply with the minimum national requirements for the award of PhD Degree.

The dissertation shows that the PhD student ROSINA KAKOVA has in-depth theoretical knowledge and professional skills in the Professional scientific field 2.1. Philology, PhD Programme in Romance Languages, demonstrating qualities and skills for independent scientific research.

Due to the above, I confidently give my *positive assessment* of the research presented by the above peer-reviewed dissertation, abstract, results and contributions, and *propose to the honorable scientific jury to award the educational and scientific PhD degree ("doctor") to ROSINA KAKOVA* on Higher Education and Research Area: 2. Humanities, Professional field: 2.1. Philology, PhD Programme in Romance Languages.

21th of March, 2025

Sofia

Author of the Statement:

(Assoc. Prof. Vesela Chergova, PhD)