

OPINION

By Assoc. Prof. Dr. Boryana Tomova Rogozherova¹

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Assoc. Prof. in the professional field of 2.1. Philology, scientific specialty of *Applied linguistics – English*

concerning the acquisition of the scientific degree of *Doctor of Sciences* in the doctoral programme of *Theory and practice of translation*, in the professional field of 2.1. Philology, higher education field 2. Humanities, with applicant Chief Assistant Dr. Velislava Raykova Stoykova

1. Significance of researched problem in terms of its scientific and scientific-applied characteristics

Dr. Velislava Stoykova's thesis entitled *Machine Translation Approaches to the Bulgarian Language* is a serious, topical and innovative scientific work with interdisciplinary dimensions. The study, resulting from many years of author's research within the Bulgarian and some foreign languages, at all levels of linguistic description, as well as from her competences in the field of computer linguistics, considers three formal language theories (FLT) application, in terms of Bulgarian language description, aimed at the creation of software for the purposes of machine translation (MT) from and into Bulgarian. Studied problem significance is due, on the one hand, to its complexity with respect to generating not only grammatically correct, but also stylistically adequate translation equivalents while translating in one and both directions, and, on the other, to the fact that, notwithstanding computer linguistics intense development, there has not been published serious and systematic research as to FLT application effectiveness and limitations with respect to the Bulgarian language yet.

2. Justification of thesis objectives and tasks

Dissertation work main objective, and namely, FLT presentation with respect to Bulgarian language computer description (and to other languages, to some extent), preconditioning MT carrying out, is justified in the perspective of the examined problem topicality. The examination of characteristic features of individual FLT, such as DATR, UNL and SE, which represent three approaches to MT generation, are tasks, leading, on the one hand, to revealing computer linguistics achievements within the framework of translation, with

¹ Boryana Rogozherova publishes her scientific works under the name Boryana Ruzhekova-Rogozherova.

respect to the Bulgarian language, and, on the other, to establishing considered approaches limitations as to semantic equivalence achievement and, likewise, to referring to MT offered opportunities in providing assistance to human translation.

3. Congruence between chosen methodology, research methods and the thesis objective and tasks

Translation represents a highly cognitive activity related to the “transfer” of meanings, sometimes rather complex and multilayered, from a source language to a target language. Translation process complexity derives from a diversity of factors types, such as typological, stylistic, cultural, ethnographic, sociolinguistic, etc. It does not rarely occur in cognate languages even one and the same meaning (*tertium comparationis*) to be interpreted through the assistance of formally different means², and, sometimes through categories belonging to another language level or sublevel. The accomplishment of translation equivalence satisfactory degree frequently proves to be a challenge to human competences, and therefore, to a greater extent to these ones of the machine.

Translation process central objective is the achievement of translation equivalence, which in both cases, human translation and translation generated by a machine, is obtained by means of contrastive analysis (CA) implementation, in theoretical and practical perspective, as a result of the above mentioned translation complicatedness factors. Thus, logically, CA namely represents the methodology in the framework of which the thesis is developed while examining FLT (DATR, UNL and SE) aimed at the formal machine representation of systems and of their components at various levels of language description in the source language as well as in the target language. In human translation *tertium comparationis* (a concept well clarified by the applicant) is the meaning of the message, whereas in MT, the concept applies to the implemented in the specific case FLT.

4. Thesis scientific and scientific-applied contributions (description and evaluation), including the presence of original scientific contribution

The thesis is original and has scientific contributions in theoretical and practical perspective as for the first time in literature considering MT problems from and into the

² Contrastive studies witness to the fact that even though categories pertaining to examined languages may be equivalent in terms of form, these categories can be partially convergent in terms of meaning; they can sometimes exhibit entirely differing values due to uses specifics, which is a serious prerequisite to the occurrence of a negative transfer (interference).

Bulgarian language three essential approaches (DATR, UNL and SE) have been examined in detail and systematically in terms of opportunities offered by these FLT for language machine analysis and, correspondingly, for MT. Thus, for example, Dr. Stoykova writes about, illustrating by means of appropriate examples, DATR and UNL use in Bulgarian nominal inflection representation; UNL application in presenting possessive and reflexive possessive pronouns in Bulgarian, English and Russian; MT between Bulgarian and Slovak languages through the assistance of UNL and SE; MT of mathematical terms between Bulgarian and Serbian. The thesis author's conclusion as to the examined FLT needs to be likewise put forward, and namely, that DATR and UNL use generate more successfully grammar translation equivalence, whereas SE leads to better equivalence at semantic level. Another important contribution is MT limitations establishing as well as highlighting MT auxiliary part in human translation process.

5. Evaluation of publications presented with the thesis: number, type of editions they were published in

Dr. Stoykova incorporates in her thesis 12 publications written in English, out of which 8 individual and 4 co-authored ones. These works were presented at prestigious conferences treating computer linguistics and IT issues and published in renowned editions, e.g., *Springer* and *Elsevier*. References section includes 5 supplementary thesis author's publications.

6. References by other authors, scientific press opinions, etc.

Dr. Stoykova publications were referred to in scientific literature mainly in sources referenced and indexed in world-renowned databases; her works are read on the Internet likewise. The applicant takes part with her publications in research networks.

7. Opinions, recommendations and notes

The thesis is logically and coherently structured, the introduction presenting methodology, within the framework of which discussion develops, along with thesis main directions; conclusions are systematized with respect to separate chapters as well as concerning the whole work.

Thesis summary reflects completely and accurately the examined problems and states explicitly scientific work contributions.

I would recommend that the work *Machine Translation Approaches to the Bulgarian Language* be published after it has been revised at some places in terms of verbal expression. I

would likewise venture to note that conclusion (rf. 5.4) „It is important to note that all discussed MT approaches to the Bulgarian language ... being limited to the linguistic data they process“ should take into consideration not only extralinguistic factors, but also purely linguistic ones, at all levels of language description (text one, including); these factors can be completely taken into account in the process of translation exclusively by a human translator.

The thesis significance is likewise revealed in terms of applicant's overall scientific production, encompassing not only articles and conference papers, but also a monograph, national and international research projects, two of which she was responsible for.

8. Conclusion containing a clearly defined positive or negative thesis evaluation

The thesis is in compliance with the requirements (exceeded to a great extent in terms of 4 - 11 indicators) of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its application as well as of the Ordinance on the Development of the Academic Staff of NBU.

I declare with conviction my positive evaluation of the thesis and vote that Dr. Velislava Raykova Stoykova is awarded the scientific degree of *Doctor of Sciences* in the professional field of 2.1. Philology, scientific specialty of *Theory and practice of translation*.

13.09.2022 / Sofia

Signature:

/Assoc. Prof. Dr. Boryana Rogozherova /