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THE ROLE OF COMPUTATIONAL LINGUISTICS AND INFORMATION TECHNOLOGY IN DIGITAL LINGUISTICS

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ABSTRACT

This article talks about the formation of the science of computer linguistics as a result of the positive cooperation of computer technologies and information technology with the science of linguistics.

Keywords: Computational linguistics, mathematical linguistics, phonetic subcorpus, lexicographic subcorpus.

INTRODUCTION

Today, information technology and computer are gaining importance. The computer is entering all areas of society day by day. This is the reason for the emergence of new directions. In particular, as a result of the positive cooperation of computer technologies and information technology with the science of linguistics, the science of computer linguistics was formed. This science arose in the 50s and 60s of the 20th century, and it is called by different names: computational linguistics, mathematical linguistics, quantitative linguistics, engineering linguistics, etc. Over the past half century, a number of scientific and practical results have been achieved in the field of computer linguistics: an automatic translation system was created in natural language, an automatic search system for information in the text was developed, a system for automatic analysis and synthesis of spoken speech was created, a number of linguistic problems were solved. solving computer programs were developed, human-machine (computer) communication was optimized, Natural Language Processing system was formed. Although significant progress has been made in these areas, the listed issues have not yet been fully resolved. Because human language and thinking have a mysterious essence, there are many aspects of it that we do not understand. This requires continuous research in the field of computational linguistics.

There are many monographs, scientific journals, and textbooks in the field of computer linguistics in English, Russian, German, French, and Spanish. Strengthening research on computer linguistics in the Uzbek language is one of the most urgent tasks facing Uzbek linguistics today. We can see a number of scientists who have conducted research on computational linguistics. Among them are "Speech and Language Processing" by D. Jurafsky, J. H. Martins, "Computational linguistics" by R. Grishman, issue 24 of "Novoe v zarubezhnoy

lingvistike" magazine (Computer Linguistics), G. G. Belonogov's "Computational Linguistics and Prospective Information Technology" by G. G. Belonogov. ", "Computer Linguistics" by Yu.I. Shemakin, "Structural Linguistics: Roots and Directions" by A. Nurmonov, "Computer Linguistics" by A. Polatov, S. Muhamedova.

The current century is an era of innovative digital technologies and processes that connect all aspects of society and create mass information space. Information in such a space will be digitized and transformed, will have a convenient digital form for perception, understanding, understanding and evaluation in any format. In general, the basis of these processes is public information. Modern society is actively developing under the influence of information and network technologies, which are the main factor of important changes taking place in the communication field. These changes fundamentally affect the modification of modern linguistics, its divergence and convergence. The active development of modern society, the demand for new knowledge from various fields of science and technology has led to higher education, in particular, linguistics and teaching and learning of languages, the widespread involvement and use of innovative information and communication technologies (ICT) and tools. brought The digitization of social environments has made it crucial to clearly define digital teaching and learning opportunities in the context of language education. The combination of digital information technologies and linguistics opens up the opportunity for society to solve many important tasks in the field of humanitarianism, and as a result, it will be possible to change the idea of the globalization process of the concept of information in the linguistic field.

In this day and age, it is becoming more and more difficult to avoid technology and it is taking over almost every aspect of our lives. Based on the requirements of the times, it is important for a linguist in his professional activity to obtain the latest, reliable and comprehensive information about languages, new scientific developments in this field. The internet plays a major role in obtaining various types of educational, professional, linguistic, social and daily information. The global Internet is a fast and comprehensive system, a combination of different hardware platforms that run applications designed to solve a wide range of problems. In addition, the Internet is an open system: you only need to write a query in the search section, and you can quickly get an answer to any topic. Thus, linguists now have a variety of sites, content, platforms, and instant messages at their disposal.

The issue of education cannot be ignored either, because basic knowledge and skills are clearly formed during the educational process. Speaking globally, many changes are taking place in the entire modern digital world, in the field of learning, in the field of education. Interactive technologies were previously actively used by teachers as a teaching method in educational activities. Now, innovative digital and information technologies open great opportunities for all participants of the educational process. The combination of information technology and education opens up the possibility of solving many important problems for a person.

The use of information and communication technologies is closely related to the inclusion of digital media in foreign language learning, initially computer-based exercises aimed at supporting language learning in the acquisition of grammar, vocabulary and pronunciation. and was closely related to practice activities. This perspective has been replaced by a new

approach to technology in foreign language teaching, and mass media has become an important tool for global interaction and global literacy.

Incorporating new technologies into any international foreign language classroom seems to be an important tool for the development of foreign language acquisition, as it increases students' motivation and communicative competence. Many new devices have appeared to help language learners learn a foreign language autonomously. Corpus implementations are very popular in foreign language teaching and are very useful assets for teachers to create their own teaching materials or to allow students to do research for themselves.

Having a corpus of real language not only helps students clarify their assumptions about the correct ways to use the language, but also helps teachers learn about the most common combinations and thus teach them based on authentic materials. allows you to create your own worksheets.

Modern times have encouraged us to use tools like Skype, Zoom, Loom, and podcasts more innovatively, which contribute to a more independent way of learning and make it more interactive. Digital media also offer several ways to improve traditional skills material development and student feedback. One is the use of software that can provide multimedia annotations and promote word recognition, allowing teachers to use programs such as e-learning or educational testing services to teach foreign language learners grade-level texts. allows you to quickly translate into the appropriate language. While traditional classrooms focus on the formal features of written language, digital media provide a variety of options for developing writing and supporting writing. On the other hand, there are different types of grammar tutoring websites that provide individual grammar practice. With regard to speaking and listening skills, digital media can provide computer-based individualized feedback on speaking and opportunities for student-directed listening activities. The benefits of such activities can also be found on websites, where they allow learners to control the pace, pause, or repeat parts of speech (eg http://EnglishCentral.com).

In addition, these manual-based options using digital technology help students practice listening and speaking skills by allowing them to download podcasts, a variety of authentic materials, and upload their own files for reading outside of the classroom. gives Digital technologies have transformed teaching and learning around the world since they first appeared and have since become an integral part of our daily lives.

In modern society, the quality of education is influenced by the effective intervention of the teacher or the educational technologies or resources used in foreign language classes. Therefore, digital technologies not only speed up the learning process and make it significantly easier, but also make the learning process more interactive and cognitive. In addition, new methods of testing and preparing such assignments can open up a platform for systematic reflection of student learning, allowing teachers to review the results immediately after completing the assignments. In this way, they can raise the educational process to a much higher level.

Therefore, the application of information technologies to the educational process not only helps to solve any problems (passivity, bad grades, backwardness, fatigue, etc.), but also manages the creative potential of a person through the process of selection from the point of view of perception. Language learning, including information technology, helps to focus and thus

develop different types of memory. Their attention is not of a thinking nature, but mobilizes them into action, because their response is needed as a reaction to the stimulus on the screen. It's no surprise how much technology can help self-learners. Factors such as visualization, the ability to change the pace and format of learning materials, and artistic license allow digitization to become an integral and important part of reducing student burnout. One of the advantages of digital technologies in supporting foreign language lessons is that teachers have unlimited opportunities to organize their lessons with creativity.

Technological innovations help to effectively organize group and independent work in seminars, and this leads to the improvement of practical skills and competencies of students, thereby individualizing the language learning process of students and increasing their interest in language learning. In this way, teachers develop not only cognitive activity in students, but also their creative potential.

Given all the advantages of digital technologies, it is important to consider that their excessive use, even misuse, can impair the learning process.

Although technologies play an important role in education, they must be properly integrated into the teaching process along with new learning models. The implementation of digital technologies in foreign language teaching has its own characteristics, but it depends on the teacher's ability to choose the right educational strategy and digital tools, which in turn will help students affect the success rate.

The main stages of the correct use of information technologies in language learning:

Important features of global development are determined by the introduction of technology into the fields, the formation of computer programs, and the process of integration. Currently, in the process of global integration, the creation of an information system based on natural language has become a vital necessity. Today, raising the status of the Uzbek language and bringing it to the ranks of prestigious languages is one of the most important needs. Computational linguistics is one of the opportunities created to fulfill this need. Computer linguistics plays an important role in bringing the Uzbek language to the world level, including it in the list of world languages, and language learning and teaching. Computer linguistics mainly depends on information and communication technologies. Computational linguistics brings together different fields of science. These include machine translation, computer dictionary, building national machine funds and national corpora, among others. The issues studied in computational linguistics can be grouped as follows:

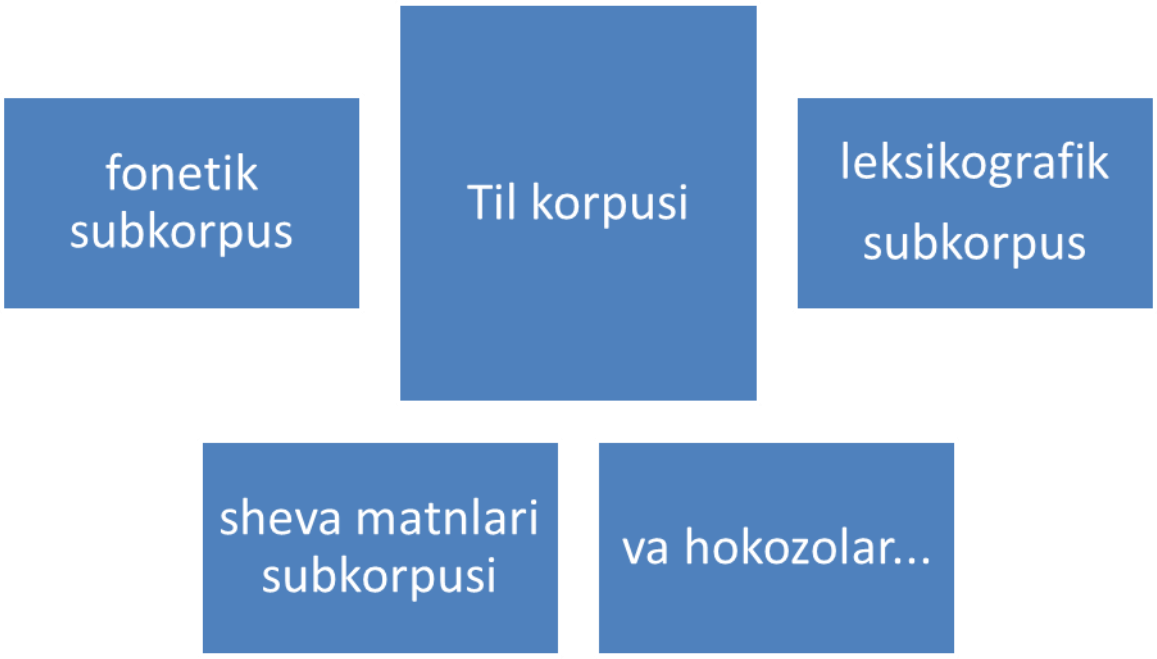
Natural language processing (It provides syntactic, morphological, semantic analysis of the text.);

- Automatic text translation systems;
- Selection of facts, data, information from texts;
- Creation of expert systems-knowledge system;
- Creating questionnaires (dialog);
- Optical character recognition. (For example: Fine Reader);
- Automatic speech recognition;
- Automatic speech synthesis;
- development of information-search systems;
- Corpus Linguistics (including creation and use of electronic corpus of texts);

➢ **Creation of electronic dictionaries.**

An information search system based on an electronic collection of texts in a specific language is called a corpus. A national corpus language represents all its variants at a certain stage of its existence.

Corpus linguistics is a branch of linguistics that deals with the creation and use of text kernels. One of the primary tasks of linguistics should be the creation of a national language corpus that incorporates all the unique features of the language.



The table above facilitates the research process of linguist researchers. For example, GRAC (Maria Shvedova, Ruprecht von Waldenfels, Sergiy Yarygin, Andriy Rysin, Vasyl Starko, Timofij Nikolajenko and others (2017-2022): GRAC: General Regionally Annotated Corpus of Ukrainian. Electronic resource: Kyiv, Lviv, Jena. uacorpus. org) . The General Regionally Annotated Ukrainian Corpus (GRAC) is a large representative collection of Ukrainian texts, which comes with a program that allows you to match subcorpora, search for words, grammatical forms and their combinations, and process query results. . Through it, it is possible to sort the survey, obtain balanced samples and collect various statistical data.

The corpus can be used for in-depth language learning, as well as for writing textbooks, student dictionaries and exercises using examples from real texts, taking into account frequencies, collocations and more.

A corpus does not represent a standard standardized language; it includes words and phrases that do not belong to the current standard norm. The corpus spans the period from 1816 to 2021 and contains more than 90,000 texts by about 26,000 authors.

The use of new information technologies in education makes it possible to see the student as the central figure of the educational process and leads to a change in the way of relations between its subjects. At the same time, the teacher ceases to be the main source of information and takes the position of a person who organizes and controls the independent and cognitive activities of students.

Teachers don't have to be technology experts. At the same time, they need to be knowledgeable about the digital components of the learning and teaching process so that they can increase students' interest in following it. It is important that teachers are not transmitters of knowledge, but guides and assistants of the educational process. Computational linguistics is inextricably linked with the theory and practice of linguistics, cognitive psychology, mathematics, informatics, and philosophy, and it covers issues related to the aforementioned fields. The study of computer linguistics helps to understand the unique system of language, its value in the form of symbols, signs, models, social functions, introduction to new information technologies, theoretical issues of linguistics, cognitive psychology, logic, philosophy, mathematics. serves to master.

Computational Linguistics is not just a field formed from the merger of computer science and linguistics, but covers a wider range of issues. Computational linguistics is the scientific interpretation of language from a computer perspective. Scientists are trying to build computer (formal) models of various types of language phenomena. Such models are based on knowledge, rules or data, facts. Specialists in computer linguistics can approach the issue scientifically, that is, they can express information formally, from the point of view of a computer system, and interpret it through linguistic or psycholinguistic facts.

Currently, the task of computer linguistics is determined by the creation of systems of speech recognition, speech synthesis, voice automation, search engines, text editors, language learning materials of practical importance. Scientists have evaluated the automation of intellectual processes with computers as an important means of creation.

Using computers to prove theorems, draw pictures, and play chess is the first result of research on artificial intelligence. The creation of software that models human mental activity has led to the emergence of expert systems that solve complex problems in certain fields. Computational linguistics is a field based on socio-economic and scientific development. The main goal of computer science is to provide communication between man and machine. Among the achievements in the field, one can mention the achievement of artificial language and machine learning. Now the main task is to create "artificial consciousness", which ensures that the machine - computer moves based on the situation.

Currently, the process of computerization is taking place at different levels in the countries of the world. Regardless of the level of progress, humanity has understood the incomparable role of information technology in society. Digitization of all spheres of human activity is an important task of society and a factor of social development today. In particular, we have already considered the importance of digital technologies in the development of the field of linguistics. The role of information technology in learning new languages is incomparable.

The development of the science of computer linguistics, the creation of software for various purposes, serves to ensure the development of other areas of linguistics. "Computer Linguistics" helps to eliminate cases of violation of orthographic standards, as well as non-grammatical expression. Computer linguistics is of great importance in the statistics of linguistic data and in the creation of dictionaries of various contents. This science has a positive impact on the development of not only linguistics, but also other fields.

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