Linguistic Terminology and its Production Transformations in Light of Computational Lexicography and Artificial Intelligence

المصطلح اللّسانيّ وتحولات إنتاجه في ظلّ الصّناعة المعجميّة الحاسوبيّة والذكاء الاصطناعيّ

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Abstract: This article addresses the transformations in the production of linguistic terms in light of the development of computational lexicography, with a particular focus on their use. The study highlights the contribution of natural language processing and machine learning techniques in term extraction, usage analysis, and the construction of conceptual relationships within specialized linguistic fields. Furthermore, the article emphasizes the significance of digital terminology and term banks as practical manifestations of computational lexicography, and their role in achieving terminological standardization and enhancing storage and retrieval mechanisms. The research concludes that artificial intelligence constitutes an effective tool for advancing terminology production; however, its efficiency remains contingent upon integration with human linguistic expertise to ensure conceptual accuracy and scientific relevance.

Keywords: linguistic term; computational lexicography; artificial intelligence; digital terminology; term bank.

ملخص :يعالج هذا المقال تحولات إنتاج المصطلح اللّساني في ظل تطور الصّناعة المعجميّة الحاسوبيّة مع التّركيز على دور الذكاء الاصطناعي في إعادة تشكيل آليات البناء المصطلحيّ وضبطه، كما يسعى البحث إلى إبراز إسهام تقنيات المعالجة الآليّة للّغة والتّعلّم الآلي في استخراج المصطلحات وتحليل استعمالاتها وبناء علاقاتها المفهوميّة داخل الحقول اللّسانيّة المتخصصّة، كما يبرز المقال مكانة المصطلحيّة الرّقميّة وبنوك المصطلحات بوصفها تجسيدا عملياً للصّناعة المعجميّة الحاسوبيّة ودورها في تحقيق التّوحيد المصطلحيّ وتحسين آليات التّخزين والاسترجاع، وخَلُص البحث إلى أنّ الذكاء الاصطناعي يمثل أداةً فاعلة في تطوير إنتاج المصطلح اللّسانيّ غير أنّ فعاليته تبقى رهينة بالتكامل مع الخبرة اللّسانيّة البشريّة بما يضمن الدّقة المفهوميّة والملاءة العلميّة.

كلمات مفتاحية: المصطلح اللّسانيّ، الصّناعة المعجميّة الحاسوبيّة، الذكاء الاصطناعي، المصطلحيّة الرّقميّة، بنك المصطلحات

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1. INTRODUCTION

Accelerated cognitive and technological transformations - especially in the field of artificial intelligence and natural language processing - have produced a new reality of linguistic terminology production that has revisited the traditional methodological foundations of the lexical industry. The industry has moved from descriptive models based on individual human effort to computer models based on the analysis of extensive textual corpora, and the investment of intelligent algorithms in extracting terminology, building it, and linking it to accurate conceptual networks. In this context, artificial intelligence has become a critical element in the development of mechanisms for the production of the linguistic term because of its potential to automatically identify terminological units, monitor their semantic transformations, and adjust their relations within the conceptual system of specialized linguistic fields. It has also contributed to overcoming a number of terminological problems, such as: terminological chaos, semantic instability, and others.

In parallel, digital terminology and terminology banks have emerged as an advanced manifestation of the computational lexical industry, as these banks have transformed into dynamic intelligent systems capable of continuous modernization, integration across languages, and linking terms to their use and knowledge contexts. The integration of AI technologies has contributed to enhancing the efficiency of these banks, whether at the level of building terminological entries, improving search and retrieval mechanisms, or supporting conceptual consistency within the linguistic fields.

However, this profound technical shift raises a central scientific problem concerning the limits of artificial intelligence's contribution to the production of the linguistic term and its ability to understand the linguistic and cognitive peculiarities that govern the formation of the term and its dynamics within the scientific discourse. Hence, the problem of this article is determined by the following question: **To what extent has the computer's lexical industry and artificial intelligence contributed to reshaping the mechanisms of producing the linguistic term? What are the limits of integration between automated processing and human linguistic competence in building digital terminology and term banks?**

Proceeding from this problem, the article aims to analyze the role of artificial intelligence in the production of the linguistic term, and to reveal the contribution of digital terminology and terminology banks in achieving standardization and terminological control while identifying the methodological challenges involved.

2. Artificial Intelligence and Term Production

In recent decades, the terminology industry has undergone a remarkable transformation as a result of the employment of constantly evolving information technologies. The computer has provided a rich digital environment that facilitates access to its contents and their automatic processing which has contributed to accelerating the processes of collecting, organizing and analyzing terminology. A number of researchers have addressed this transformation since the early 1990s. Some of them compared traditional approaches in terminology work with methods based on computer tools, highlighting the possibilities offered by the latter beyond the limits of manual processing. Other researchers have also emphasized the increasing importance of modern technologies, especially with the emergence of electronic text blogs and their potential to extract terms and their contexts accurately and quickly. These developments have also contributed to improving methods of organizing terminological data within digital carriers, which paved the way for the development of a new concept of computing-based terminology or what can be called the computerized terminology industry (Mary, Claude Lum (2012), p. 34), in this argument and through the increasing reliance of the terminology industry on informational applications and automated language processing, which are among the main pillars of artificial intelligence. The reference to automated terminology collection, analysis, and extraction from blogs and their organization within digital carriers reflects the transfer of terminology from traditional manual work to automated work based on algorithms and smart systems. The concept of **terminology** is highlighted as a direct result of this interaction, as it relies on smart tools capable of learning, organizing, and linking concepts, which enhances the accuracy and effectiveness of terminology work.

Terminology has undergone successive transformations throughout its history, but these transformations have accelerated in recent years as a result of the systematic reliance on huge text corpora and the use of computer technologies in processing them. This was clearly reflected in the nature of the terminology's work, as automated analysis of electronic corpora allowed the detection of linguistic patterns and relationships that were going unnoticed in manual processing. These tools also enabled quick access to data and organized it in multiple ways according

to research needs, which made terminology studies more accurate and comprehensive. The impact of these technologies can be linked to the impact of advanced measurement tools that reveal details that previous devices were not able to show (Mary,Claude Lum(2012) p. 37). The deep transformation that terminology science has known is due to the accelerated development of information processing, a transformation that is closely related to artificial intelligence applications, especially in the field of natural language processing. The systematic resort to huge textual corpora reflects the dependence of modern terminology on smart technologies capable of analyzing huge quantities of linguistic data that exceed the human ability to manually assimilate. Therefore, this development reflects an increasing fusion between terminology and artificial intelligence, as smart technologies have become a structural element in the development of terminology research and the renewal of its methods.

3. **The use of computers in the manufacture of general and specialized dictionaries:**

Modern technologies are a crucial element in enabling the Arabic language to keep pace with contemporary transformations, as the development of its teaching and learning is no longer possible in isolation from the employment of various technological media. These technologies have contributed to providing a wide system of educational means, such as language laboratories, audiovisual media, advanced projectors, educational television, in addition to computers and the Internet. This development has enhanced opportunities for individual learning, as the learner can progress in acquiring knowledge according to their own abilities, pace, and personal interests. This type of education also supports the realization of the principles of self-learning and lifelong learning, as well as reaching high levels of mastery(Mahmoud, Ahmed Al-Sayed (2016), p. 16), and the employment of computers in language studies has contributed to the formation of a knowledge path known today as linguistic engineering, where computers are no longer merely a technical tool, but also a knowledge medium in language analysis and teaching. Early applications of this trend emerged in the field of language education, as pioneering experiences in computer-assisted Arabic education have emerged since the 1970s, including a university experience in the United States that sought to integrate computer processing into the teaching of Arabic to non-native speakers.In the same context, other efforts tended to make use of computational capabilities in the statistical processing of language, both at the level of observing the most commonly used vocabulary and at the level of tracking common structural patterns, which paved the way for the emergence of quantitative approaches in the study of

linguistic structure. This trend has also been reflected in the manufacture of educational materials, as the construction of language textbooks has been reconsidered in the light of the data derived from the computer analysis of linguistic codes (Al Qasimi, Ali (2019), p. 661). The use of computers has not been limited to theoretical linguistic processing, but has led to the emergence of linguistic engineering as an independent scientific field, which is a practical extension of artificial intelligence in language. Example such as computer-assisted Arabic language teaching and common vocabulary and structure statistics, illustrate how a computer can systematize language knowledge systematically and accurately. Here, the relationship of terminology to artificial intelligence is manifested in the unification of vocabulary and terminology and the adjustment of structures, which makes it easier for the machine to perform educational or statistical tasks efficiently. Thus, terminology becomes a fundamental knowledge base for linguistic programs and applied linguistic computing, as it enables artificial intelligence to assimilate language within specific contexts and precise methodology.

The terminology industry includes a set of activities related to the acquisition, collection, classification and organization of terms within a harmonious cognitive system. Terminology addresses the theoretical problems posed by the study of terminology, and seeks to build a conceptual framework that helps to interpret it and understand the mechanisms of its operation within specialized fields. In this context, **Alan Wray** reiterated the distinction between applied lexical work and the theoretical study of vocabulary, highlighting the difference between the production of lexicons as a practical activity and research into the structure and functions of vocabulary as a stand-alone scientific field (Mary, Claude Lom (2012) p. 33). In this regard, it is clear that the terminology industry goes beyond just collecting words to organizing and analyzing them within a systematic framework, while terminology science is studying the basic issues associated with them and proposing conceptual frameworks to understand them. Here is the importance of terminology for artificial intelligence, as it provides an organized and structured knowledge base that machines can rely on in acquiring vocabulary, linking it to contexts, and classifying it in a way that facilitates automated processing. Thus, terminology becomes a key pillar for converting language into computationally processable data accurately and effectively.

The computer has become a pivotal tool in contemporary lexical work, as it contributes to the construction of lexicons and the processing of their linguistic material with high efficiency. An example of this is the preparation of the Cree-Algonquian dictionary at **the** University of Manitoba under the supervision of **Christopher** Wolfart, an example of the use of computational techniques in the documentation and study of languages. Computers are also used in the field of machine translation, and one of their models is the "Probe" program developed by Adnan Idan to translate English scientific texts published on the Internet into Arabic with a relatively high accuracy rate. Besides, computer systems play an important role in storing, organizing and retrieving scientific and technical terms according to the needs of researchers and translators (Al Qasimi, Ali (2019), p. 662).

The fields related to computer employment in linguistic studies are wide and complex, which requires independent and in-depth research in each of them. Despite the remarkable progress achieved in the development of computer applications oriented to applied linguistics, such as machine translation and language teaching, these technologies are still in development, and not all computer capabilities inherent in this field have been exploited so far **(**Al Qasimi, Ali (2019), p. 662).

3. 1 The importance of the computer in the manufacture of the general and specialized lexicon: The basic value of the computer in lexical work stems from its great ability to absorb a huge amount of linguistic data and organize them according to standards established by the researcher. These capabilities allow the lexical material to be stored and processed flexibly, allowing modifications, deletions or additions to be made with little difficulty. As a result, updating and expanding the lexicon becomes an easy process, and it is also possible to produce and publish it in full or in separate parts. Thus, the computer provides an organized digital archive of linguistic information that can be referenced and invested with high efficiency (Al-Samarrai, Ahmed Hashim (2013), p. 5), and this archive is characterized by two things :

3. **1.1 Automatic memory capacity**, one of the most important advantages of the computer is its large storage capacity, as it can store huge linguistic codes that are difficult to accommodate in paper containers without the need for large physical spaces. This capacity has made it possible to treat the linguistic material as divisible, codable and processable data, which has allowed researchers to build

comprehensive linguistic databases that are easy to update and invest in linguistic research

3. **1. 2 Speed in responding and retrieving information**, the computer is also very fast in processing and retrieving data, as the required vocabulary or structures can be accessed in a very short time compared to manual search in large volumes. The importance of this speed lies in reducing the effort and time that was spent on paper checks, making the computer an effective tool in lexical studies that require accurate and frequent tracking of linguistic material (Samarrai, Ahmed Hashim (2013), pp. 5-6).

3.**1.3 Supporting multilingual processing and translation development,** the importance of the linguistic computer was not limited to storing lexical material, but extended to enabling simultaneous processing of more than one language within a single digital environment, which supports the development and improvement of machine translation systems. This linguistic integration also allows the researcher to access specialized scientific terms across multiple fields of knowledge, which contributes to overcoming the difficulties of manual collection of terms and unifying them within interconnected digital systems (Al-Samarrai, Ahmed Hashim (2013), p. 6) .

3. **1. 4 Representing the network structure of vocabulary,** the computer contributes to building organizational representations of lexical material in the form of networks or trees that show the relationships between roots, formulas, derivatives, rules, and terms. This type of organization makes it possible to highlight the internal links that govern the linguistic system, which helps the researcher to understand the structural and semantic relations between the vocabulary of the lexicon more clearly and accurately.

3. **1. 5 Semantic analysis of lexical material,** the computer provides the possibility of conducting in-depth semantic analyses of lexical material, beyond the formal description of words to explore the moral relationships that bind them. This process is important because it enables the researcher to access the conceptual structure of language and link its elements within organized semantic networks, an aspect no less valuable than the collection of linguistic material itself (Samarrai, Ahmed Hashim (2013), pp. 6-7).

3. **2 Justifications for the use of computers in general and specialized lexicography**: Although the Arabic lexical heritage provided pioneering models that were accomplished by pure individual efforts, as in the works of Al-Khalil bin Ahmed and Ibn Manzoor, contemporary cognitive and technical transformations have produced a linguistic and terminological reality that exceeds the limits of individual human capacity in collection and classification. Hence the need to employ the computer in the lexical and terminological industry, not as a substitute for scientific effort, but rather as a supporting tool that enables the absorption and systematic organization of the great expansion of knowledge.

The call for the use of the computer in the storage, processing, translation, coordination, standardization, documentation and dissemination of scientific and technical terms is based on an increasing awareness of the importance of the term specialized in supporting scientific, economic and social development, and on the realization that the digital environment provides more effective conditions for controlling and managing this terminological balance (Al-Qasimi, Ali (2019) p. 662). The call for the use of the computer in the storage, processing, translation, coordination, standardization, documentation and dissemination of scientific and technical terminology in the Arabic language as one of the foundations of socio-economic development, and from the awareness that this will be done better using the computer. The following are the most important justifications for the use of computers in terminological work:

3. **2. 1** The **magnitude of the terminological balance and the impossibility of individual knowledge of it**. The rapid growth in the number of scientific and technical terms is one of the most prominent challenges facing contemporary terminological work, as one individual, or even a limited team, can no longer comprehensively understand the terms of one scientific branch. Estimates in some engineering fields indicate the existence of huge numbers of specialized terms, as well as the continued generation of new terms at an accelerated daily pace, especially in languages with a wide scientific presence.

In the face of this increasing terminological accumulation, resorting to computers becomes a methodological necessity and not only a technical option, as it allows storing this huge balance of terms, processing, classifying, and retrieving them efficiently, in a way that ensures keeping pace with scientific development and adjusting terminological interviews in different languages (Al Qasimi,Ali (

2019) p. 663). The justifications for using the computer in the manufacture of general and specialized dictionaries, especially in the scientific and technical field. Traditional dictionaries, despite their historical successes such as **Al- 'Ain** for Al-Khalil and Lisan Al-Arab **for Ibn Manzur**, were limited by man's ability to collect and organize manually. Computing enables terminology to be stored, processed, translated, formatted, standardized, documented and disseminated more efficiently, which is vital to support economic and social development. The text highlights that the volume of scientific and technical terms is enormous, as the number of terms in a single field such as electrical engineering reaches millions, with dozens of new terms being generated daily, making reliance on computers an indispensable necessity to ensure that terminological knowledge is organized and retrieved quickly and accurately.

Thus, the relationship of terminology to artificial intelligence is clear: terminology provides the conceptual and methodological structure that enables the computer to deal with the huge amount of terminology, which increases the effectiveness of linguistic applications and artificial intelligence in the scientific and technical fields.

3. **2. 2The role of the computer in speeding up translation and supporting the translator**. The use of the computer in storing and processing terms contributes significantly to speeding up the translation process, even in cases where full machine translation is not possible. Computers not only provide the Arabic equivalent of the term, but also provides the translator with rich information that helps him accurately understand the context and use the term correctly. This information includes the scientific field to which the term belongs to, its meaning, the common linguistic contexts in which it is contained, in addition to its morphological and parsing characteristics, and other data that enhance accuracy and speed in translation work (Al-Qasimi, Ali (2019), p. 663). The benefit of using a computer in accelerating the translation process, whether manual or automatic, by providing the translator with accurate terminological information immediately. The computer not only provides the Arabic equivalent of the term, but also provides the translator with its context, scientific field of specialization, significance, and morphological and parsing behavior, thereby increasing the accuracy and speed of translation. Here, the importance of terminology is evident in artificial intelligence, where the rules governing terminology and its contexts provide what enables

intelligent systems to provide reliable and comprehensive information that helps to understand and process language more accurately.

3. **2. 3Improving the quality of translation through computer comprehensiveness**. Employing computer in the translation of terms contributes to raising the quality of translation significantly, thanks to its ability to provide the exact meaning of each term within the cognitive context of each scientific branch. The semantic meaning of the term may change depending on the scientific or technical field in which it is used, which makes relying on a single lexicon insufficient to list all the various connotations of the term, no matter how large this lexicon is. As for the computer, it allows the researcher or translator to easily see these nuances, which enhances accuracy and reduces errors resulting from generalization or omission (Al Qasimi, Ali (2019), p. 663). Therefore, the use of the computer in translating terms improves the quality of translation because of the comprehensiveness of the information it provides, as it can clarify the exact meaning of each term according to the field of scientific specialization. The meaning changes according to the field and what the paper dictionary cannot cover, the computer can organize and display accurately. Here, the role of terminology in artificial intelligence appears, as automated systems are provided with structured and accurate data for terms and their contexts, which ensures a more correct translation and alignment with scientific and technical use.

3. **2. 4Easy to develop and update the terminology balance,** the computer is an effective tool for developing the inventory terminology balance, as it allows adding new terms, modifying existing ones, or deleting inappropriate ones, without the need to reprint the lexicon as in paper copies. The computer also allows for the rearrangement of terms and their classification according to different fields of knowledge, which makes the process of updating the terminological balance continuous and flexible, and ensures that linguistic and terminological resources remain in line with scientific and technical development (Al Qasimi, Ali (2019), p. 663). The computer allows for easy updating and development of the terminological balance stored electronically, which is difficult or impossible in printed dictionaries. New terms can be added, old terms can be modified or deleted, and they can be reclassified according to the scientific field easily and quickly. Here, the importance of terminology is evident in artificial intelligence, as it provides the conceptual and methodological structure that allows the machine to dynamically

manage the termbase, which supports the accuracy and flexibility of automated processing of language and scientific applications.

4. Terminology bank and its role in supporting translation and terminology work

A term bank is a type of database designed to collect a stock of scientific and technical terms with their meanings and additional useful information about them, and may include one or more languages. This type of bank is a practical tool for translators and terminologists seeking to limit, organize, standardize, or facilitate retrieval of a particular type of terminology.

When the name "term bank" is applied to the database, it means that the records do not include general words, but are limited to **specialized terms**, which distinguishes them from traditional dictionaries. These banks may specialize in a specific field, as in the case of the terminology bank of Siemens in Munich, which focuses on terminology related to electrical engineering and stores it in several European languages in addition to Arabic, to facilitate the translation of the guidelines accompanying electrical products and ensure the accuracy and clarity of guidance for users (Al Qasimi, Ali (2019), p. 272). The terminology bank represents a form of specialized computing, as it focuses on terminology and related information, and allows them to be systematically organized and processed. Its usefulness lies in several main axes, including storing terms classified according to general and precise disciplines, showing the term with its equivalent in one or more languages, and providing a definition for each term that helps to understand its semantic meaning. The Bank also contributes to facilitating the manufacture, renewal and output of lexicons of terms for printing easily. It supports the work of specialized translators by providing them with accurate terms when needed. The bank of terms is used via digital terminals or through electronic media such as CDs, which gives this digital environment flexibility and efficiency in managing terminological balance (Al-Samarrai, Ahmed Hashim (2013) p. 08)

The terminology centers are not limited to the compilation of scientific and technical terms, but extend to include their own studies and research. One of the most prominent of these centers is the International Information Center for Terminology (Infoterm) in Vienna, Austria, which was established with the help of UNESCO to achieve three main objectives:

✓Develop terminology theory at both the public and private levels.

✓Promote collaboration among all terminology stakeholders.

✓Establishing an electronic network to document terminology(Al Qasimi, Ali (2019), pp. 272-673).

This center shows the importance of international coordination in the field of terminology, as it provides a research and methodological environment for the study and standardization of terms and the exchange of information between researchers and translators around the world, which enhances the effectiveness of the use of computers and digital systems in modern terminology work (Al Qasimi, Ali (2019), pp. 272-673).

Hence, a center such as this inevitably uses its terminology bank not only to store terminology, but also to compile studies and research related to it and information on the centers developed by the beneficiary institutions, as well as their specialists. Therefore, the terminology bank is a specialized database that collects scientific and technical terms with their meanings and additional information about them, in several languages when needed. Translators and terminologists use these banks to limit, harmonize, and standardize terminology, making them a central tool in modern terminology work. Specialized banks not only store terminology, but also collect studies, research and related information, enabling comprehensive knowledge documentation. This is where the relationship of terminology to artificial intelligence is evident, as these banks provide structured and accurate data that intelligent systems can rely on in language processing, translation, and specialized analysis with high efficiency.

4. 1 How the automated terminology bank works: How the automated terminology bank works means the method of working and dealing with the bank, and this is done as follows:

4. 1. 1 Collecting and preparing linguistic material, the process of preparing term banks begins with the compilation of the associated linguistic material, which includes terminology and its various information, from diverse and multiple sources. Among the most prominent of these sources are public dictionaries and specialized dictionaries, whether monolingual, bilingual or multilingual, according to research need, in addition to glossaries of terms accompanying the conclusion of

scientific and technical books, and lists issued by language councils, academic institutions, universities and specialized institutes.

This process also includes dealing with specialized texts, which requires considerable efforts to extract terminology from their actual contexts as contained in the original texts. This systematic compilation is an essential step to ensure the accuracy and sustainability of the terminology database, as it establishes a reliable balance that researchers and translators can rely on in various scientific applications (Zarara, Najat (2015), p. 26). An important source of terminology is the scientific and technical texts themselves, but this source is not used by many terminology banks, because it requires great efforts to process texts and extract terminology from their actual contexts.

Each term is then recorded on a card or fragment containing multiple metadata, including the Arabic equivalent of the term, the scientific or technical field to which it belongs, the source from which it was derived, the context in which it was received, as well as any other information that may be useful to users of the term bank. These cards do not have to be arranged according to a specific system, such as alphabetical order or domain classification, as the computer can organize and retrieve them quickly and efficiently. The philosophy of working in term banks is based on delegating automatable work to the computer, and avoiding doing it manually as long as it can be automated more accurately and quickly (Al Qasimi, Ali (2019), p. 674).

After completing the terminology collection and documenting its information and interviews, researchers prepare the wording of the record for each term, where the data is recorded on a card or fragment that includes the interview or interviews in other languages, the scientific or technical field of the term, the source from which it was derived, the context in which it was mentioned, and any additional information that may be useful to researchers or students. These cards do not need to be arranged according to a specific system, as the computer can carry out this process with greater efficiency and accuracy, which facilitates the organization and retrieval of information without the need for manual effort (Button of Survival (2015), pp. 26-27).

4. 1. 2 Introducing the linguistic material, at this stage, terminologists prepare a form dedicated to entering information into the computer, and then specialists in

the field of informatics transfer the data of the fragments to these forms and store them inside the computer, and process them according to a specific automated program. The input process can be done using a keyboard and a screen displaying information, instructions and questions, or through paper cards or tapes, where the computer stores data in an orderly manner in the database to facilitate its retrieval when needed. The term bank also allows shareholders and beneficiaries to access this data via a terminal, through which they can enter their inquiries or requests, so that the answers appear directly on the screen, with the possibility of printing or saving them on tablets or cards for documentation and later use (Zarara, Najat (2015), pp. 27-28).

4. 1. 3 Developing or updating the linguistic material, updating the linguistic material includes modifying existing information, deleting what is no longer appropriate, and adding new data as needed, and these processes are supervised by terminologists directly or periodically. The process begins with the design of a form to enter data into the computer, and then the researchers' assistants transfer the content of the fragments to these forms. The computer operators then enter the data into the system, where it is stored and processed according to a pre-determined program. The input process can be carried out using a terminal consisting of a keyboard and a screen, which displays information, instructions and questions, and produces orderly and accurate answers that are easy to refer to later (Al Qasimi, Ali (2019) p. 674). When the information is entered, the computer stores it in order in its database according to a pre-agreed program, so that it is easy to retrieve this information or some of it upon request .

A term bank provides shareholders and beneficiaries with access to information through a terminal consisting of a keyboard and a display. Users can enter their queries or the data they wish to add, and the answers will appear on the screen immediately. The system allows applications to be submitted in multiple forms, such as: determining the Arabic equivalent of an English term, arranging a French list of certain terms with their meanings in Arabic, inquiring about the definition of a specific term, or extracting complete lists of specialized terms such as atomic radiation protection terms in English with their definitions, and other similar functions (Al Qasimi, Ali (2019) p. 674). Researchers collect terms from: dictionaries, glossaries, lists of compilations, and scientific texts while recording information such as: the Arabic equivalent, the scientific field, the source, and the context on fragments or cards. Terminologists design forms to enter these data into

the computer, and the system operators enter them to be stored by the computer and processed according to a pre-defined program. The system allows beneficiaries via a terminal interface to enter their questions or requests, such as the definition of the term, the Arabic equivalent, or specialized terminology lists, so that the computer displays the results immediately. The computer also makes it easier to arrange, update, categorize, and retrieve terms quickly, highlighting the role of terminology in providing AI with a structured knowledge base and accurate processing.

The linguistic data bank goes beyond merely storing words; it extends to include complete texts, and the computer carries out all operations related to them. These operations can be summarized as follows:

- ✓ Storing texts fully and systematically.
- ✓ Utilize them to clarify the contexts of the use of words and terms.
- ✓ Study of different morphological structures and drainage patterns.
- ✓ Analysis of grammatical relationships between vocabulary within texts (Samarrai, Ahmed Hashim (2013) p. 08).

4. 2 Components of Terminological Bank Architecture: Terminological bank architecture can be divided into three main components:

4. 2. 1 Entrance: The entrance consists of three digits:

4. 2. 1. 1 Terminology processing field: This field is intended to put the information related to each term on a special tab.

4. 2. 1. 2 Multidimensional monitoring: It includes two types of monitoring, the first is concerned with reviewing the information provided in terms of type and quantity, and the second focuses on monitoring computer systems previously equipped with inspection codes to ensure the accuracy of the data.

4. 2. 1. 3 Information processing field: It is concerned with reviewing the entered information after converting it to the computer language and classifying it according to the appropriate standards.

4. 2. 2 Storage: All terminological fragments are stored in central memory and accessory memories, so that they remain available for processing and retrieval later.

4. 2. 3 Deliverable: It includes all the information requested by the bank user, and this information can be classified into two fields:

✓Accurate information relating to a single term or a specific set of terms.

✓Comprehensive information related to the entire content of the bank in a specific field of knowledge (Zarara, Najat (2015) p. 28).

4. 3 The use of computers in linguistic statistics: The role of statistics in the linguistic domain is no different from its role in other scientific fields, as it is assigned three main tasks:

4. 3. 1 Quantitative evaluation of some qualitative characteristics of language: This evaluation includes calculating the rates of use of letters and words, morphological forms, poetic scales, and types of grammatical methods, in addition to the relative distribution of actions, whether represented or correct, and cases of singularity, deuteronomy and addition, or different inflectional cases(Ali, Nabil (1988), p. 130).

4. 3. 2 Quantitative characterization of some linguistic relationships: It is the study of the relationships between the elements of language in a quantitative way, to determine their patterns and distribution and to draw statistical conclusions related to them (Ali, Nabil (1988) p. 132)**,** and thus the role of the computer has evolved from a mere computational tool to an intelligent machine effective in language processing, which forms the basis of linguistic artificial intelligence, and these applications vary between surface statistical processing and deep treatments based on precise linguistic foundations. Here, the relationship of terminology to artificial intelligence is manifested in providing the computer with linguistic units and precise concepts that can be measured and analyzed. Linguistic statistics also contribute to the detection of terminological regularities within specialized texts. Thus, the terminology becomes a cognitive framework that guides the use of computers in the service of language and its automatic understanding.

5.Conclusion

This article highlighted that artificial intelligence has become a structural element in the transformation of the production mechanisms of the linguistic term, as it has provided advanced capabilities in the automatic extraction of terms, the analysis of their uses, and the building of their conceptual relationships within specialized linguistic fields, which contributed to the development of the computer lexical industry and the reduction of the manifestations of terminological chaos. However, this shift - despite its technical effectiveness - remains governed by methodological limits related to the ability of intelligent models to represent the precise semantic and deliberative dimensions of the linguistic term.

In this context, the research confirmed that digital terminology and terminology banks have been transformed thanks to the integration of artificial intelligence technologies into dynamic systems that are effective in organizing and updating terminological knowledge and achieving greater conceptual uniformity and consistency. However, the effectiveness of these banks remains dependent on the extent to which terminological building standards are set and the linguistic and cognitive peculiarities of specialized fields are taken into account.

Proceeding from this, the relationship between artificial intelligence and terminology production opens up future research horizons based on the development of integrative models that combine the automated processing of language and human linguistic experience and enhance the interoperability of term banks and multilingualism. This trend will contribute to the consolidation of a more mature digital terminology, capable of responding to contemporary cognitive transformations and ensuring the accuracy and scientific effectiveness of the term.

6.bibliography:

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