Digitization of the Arabic Language Between Reality and Expectations

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Abstract— It is not hidden of anybody now what the world is going through a Technological breakthrough, In the light of a scientific revolution and information and technology is characterized by high speed and efficiency, , And there is no doubt that the Arabic language challenges the current and future multiple, which requires the advancement of reality to keep pace with the worlds of digitization, which affected all disciplines, so that This research paper aims at locating the factors behind the growing interest in the computerization of Arabic Language. It sheds light on the efforts exerted in founding this newly established branch of knowledge, identifies the obstacles facing its progress and puts forth the possible solutions for them. This paper shows forth the gradual stages of the development of the science of Computational Language in contemporary Arab Studies and the advancement of Arab linguistic research in the field of computational linguistics. It aims at proposing a constitutive project for the establishment of an Arab Computational Linguistics that follow a firm practical and theoretical methodology in applying computer sciences in solving the linguistic issues. Using the method of induction and descriptive. It introduces a proposal for the syllabus of computerization of the Arabic language as a newly introduced part of the Arabic language programs Universiti Sultan Zainal Abidin. Besides, the paper within hand calls for the introduction of a new specialization subordinate to the Department of Arabic Language under the rubric of "Bachelor of Arabic language computerization ". It also confirmed the necessity of deploying computer awareness among scholars of Arabic and encouraging universities to customize new courses based on the computerization of the Arabic language.

Keywords: Linguistic computing, computational linguistics, language computing applications, Arabic language computing, digitization of the Arabic language.

1. INTRODUCTION

The world has witnessed a great leap of informatics, which has made science and knowledge a great asset in the need for critical thinking and mind to activate the use of this vast

information, including To achieve the needs of society and achieve the means of prosperity and progress in security and

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security; therefore must be concerned about the need to adapt our Arabic language by all systems [1].

And the reader of the field of linguistic computing or computer linguistics finds the studies related to them and the scientific research that I have dealt with has increased to an acceptable extent and has flourished in these times in our Arab world and there are a number of researchers are quite good in this field where the convergence of linguistics and computer science [2]. It is a "very wide-ranging scientific and applied field, as it is known, covering various applications such as computer language instruction, automatic typographical correction.

Computers have revolutionized what modern science has achieved in technological progress. Computers have become the most important needs of our contemporary lives. They contribute to the creation of solutions to many complex life problems by communicating and dealing with computers through a special language. In developing and modernizing them [4], [5].

Computerized word processing is becoming more and more popular when it is designed, published, printed, or stored. These texts constitute a linguistic material that can be directly inserted into information processing [6]. Hence the need for the Lassanians to familiarize themselves with the information methods so that they can easily access dictionaries in hundreds of thousands of entries. From a database according to its software and its uses.

The use of computer technology in grammatical studies has become urgent in our time because the use of computer in the work of language has spread widely, and linguistic studies on this basis, a development comparable to modern development in other types of human activity, especially intellectual activity, which is the language The most important means, and the work has shown in this aspect that grammatical studies can emit more precision, accuracy and correction and progress to the best and most useful to study, using computer technology [7].

The interconnection of linguists and Hasawabis calls for a number of basic hypotheses, the most important of which is that the work of computers should be a means of service to linguists, not an exclusive one. This does not mean stagnation

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of the current status of the Arabic language, but leaves it to the linguists and scholars, According to the opinions and jurisprudence of computer specialists or the authorities designed for him, including the secretariat in the representation of Arabic language by the computer, and requires full understanding of the possibility of the introduction of Arabic into the computer, and the possibility of processing within the computer in addition to the possibility of printing normally.

Arab linguists and Arabists can provide them with a prominent position in the field of computer linguistics and play a prominent role in enriching them if they have given their main attention to subjects and aspects related to the Arabic language and the introduction of information technologies in the Arab homelands. We can say that computational linguistics is the result of this follow-up with the computer, but serves the purposes associated with it; it seeks to solve the complex problems related to language computing and digitization.

There is no doubt that the Arabic language has many current and future challenges, which require upgrading its reality and overcoming the situation of marginalization, stagnation and neglect in dealing with its problems related to the dangers of globalization, hegemony and dependence. These problems must be faced by Arab contribution to the production of the information society.

The computerization of the Arabic language is very important and can not be ignored or ignored, especially since computer and information studies have achieved many great results for Arabic in the field of language learning, localization, linguistic statistics, automatic translation, automatic processing, education and other fields. Arabic language is also facing technical delays because of poor interest in this aspect.

This paper will present a proposal that deals with the laws, rules, characteristics and systems of Arabic language related to the field of computerization of the Arabic language to access the techniques and theories that enable us to develop a computer program that helps us understand the Arabic language technically. In this research we can find out how the trend towards computerization of Arabic language sciences has developed, and the conditions that helped shape this trend, whether official or institutional, as well as knowledge of the dilemmas facing the computer direction in light of the characteristics of Arabic language, programming and computerization. In the treatment of those dilemmas. In this research we can identify the stages of the introduction of computer linguistics in contemporary Arabic studies and the process of Arabic linguistic research in computer linguistics to reach a goal and a big and important milestone that sets us a project for the establishment of Arab computer linguistics, on a practical and theoretical approach at the same time,.

As well as in this research will help with the development of a vision and a proposed proposal for "computerization of language" within the Arabic language program, and computer science programs suitable for students of the bachelor and postgraduate studies at the Universiti Sultan Zainal Abidin (UniSZA) in Terengganu, Malaysia .

2. LITERATURE REVIEW

2.1 Evolution and Emergence

Could say that the science of linguistic computing is "the science that is interested in the employment of computers and the application of the scientific methods adopted in the study of language, especially in the automatic translation, and the distinction of speech and artificial intelligence, that processes carried out by the machine after the human information in a given field.

Computational Linguistics An inter-linguistics system and computer science concerned with the computerization of the linguistic aspects of the queen. It consists of two components. The first is my application and deals with the practical outcome of human language modeling. It aims at producing programs with a lot of linguistic knowledge. The latter deals with issues in theoretical linguistics, Linguistic language that human beings need to generate and understand language.

2.2 The emergence of computer linguistics

The emergence of the computer trend in the study of Arabic language science, and how it began individually and then formally and institutionally, and the most important problems encountered and solutions to address them. The study reached several things, the most important of which are: First: The efforts of linguists and Hashabists should be combined in programming Arabic language systems. Second: The importance of translating the works of Arabic computer linguistics written in non-Arabic.

Third: The importance of Arabic computer programming by Arabs and others.

Fourth: To create a glossary of computer terminology.

Fifth: To recommend that computer linguistics be a curriculum in the relevant departments.

Sixth: The establishment of a special department for language computing.

Seventh: Dissemination of scientific messages starting in Arabic in the use of Arabic as a computer.

In its beginnings, computer linguistics relied on the statistical analysis of vocabulary and then took a very important step in shortening the time by preparing monolingual, binary or multilingual electronic dictionaries. Studies on Arab computer linguistics have witnessed remarkable development. Many Arab researchers have succeeded in characterizing important linguistic topics used in machine translation and Arabic language teaching, while some speak of the crisis of our Arabic language in our time as a candidate for expansion and aggravation under pressure from the demands The urgency of the information age, the widening linguistic gap between us and the developed world and the absence of basic research in the field of Arabic computer linguistics.

Arabic letters are exposed in areas of special cultural status in the Arab countries and in the Islamic world since the late 19th century. It is said that it contains symbols that do not satisfy the expression of the vocal units in the local languages.

The processing of the Arabic language computer "has become today is not inevitable and inevitable, and has emerged several studies and studies tried to insight into the linguistic phenomenon of the aspects of computer processing is a process that seeks to deposit in the computer what is stored by the human mind of the rules and data, and aims to become a computer The adequacy of the methodical performance corresponds to the adequacy of the Arab man who knows his language, who is capable of distinguishing the written and the operative and its composition, and showing the definitions and making them, and understanding the meanings of words and expressions of use.

The statistics explain some of the linguistic phenomena and analyze them, and can deal with the complex structure of the linguistic context shows us the relationships of cohesion and interrelationship between the words and sentence and paragraphs, and the link between the apparent expressions and the lining of signs and meanings, and the computer can provide interactive learning environment, Automatically corrective aid in subjects where learners make mistakes. Computerized translation systems and computer applications were produced, some of which were purely commercial, fed by computers to translate written or spoken sentences and complete terms in specific areas, most important of which are tourism and commerce, related to services such as greetings, inquiries about prices, places.

There are numerous terms used in computer linguistics that researchers have sought to use, whether in foreign or Arabic references, causing problems with the use of the term and its translation into Arabic. The following is a brief description of the stagesof this development: 1- the computer was used in the 1950s and 1960s as a tool for crushing numbers, and its applications were limited to commercial aspects of a digital nature with a view to issuing invoices. 2- Computer development in the seventies to become a machine for information processing in terms of storage, retrieval, deletion and addition. 3- In the 1980s, an information processing machine was transformed into a knowledge processing machine. The critical confrontation between the computer and the language system was thus a tool for the formation of this new mind of computer knowledge. The relationship between language and computer remained unmatched and rooted, With the language of the need to upgrade many of its characteristics and capabilities, to prepare for this exciting meeting, and included the areas of ascendance of increasing the speed of computing, memory capacity, and the storage capacity of magnetic and optical media, and more importantly the upgrading of programming methods, and the best evidence of what the language in the development of the Of the computer, we recall the most basic applications for the sixth generation of computers, developed by Japan, where we note organic bonding between the computer system and its applications and its relationship to language, there are four basic applications for the sixth generation of computers, namely: Expert systems, Automatic translation, Smart systems of man, Computer-aided design and manufacturing applications.

Expertise systems need to store the knowledge on which they base their experience and therefore need language as the most important means of knowledge transfer. Smart systems of robotics require linguistic abilities to accommodate commands and communicate with human beings. , And automatic translation is, by its very nature, a purely foreign application.

2.3 The importance of Arabic language computing

The importance of language has become apparent through the evolution of information systems through its various stages. Over the past half century, the computer has developed qualitative developments, leading to a decisive confrontation with the wider language system. The Center for Social and Economic Studies in Tunis held in 1987 the Fourth International Symposium on Sanyat, and took the theme of "Arabic and media" and addressed the reasons for the computerization of the Arabic language and its revenues and obstacles.

The Kuwait Computer Conference in 1989 dealt with a number of applications related to Arabic computer linguistics, such as translation and grammar learning. The scientific record of the symposium "The Use of Arabic in Information Technology" was organized by Mohammed Ali Al-Zarkan, Linguistics and Arabic Language Programming. The computer, which presented an introduction to a computer system that includes a knowledge base for the Arabic language. In his research, Mansour Al-Ghamdi represented the automatic perception of the weak in Arabic. The barriers to communication between man and computer are vocal. These differences make it difficult to set specific measures for each voice. Abdulrahman Khalid Al-Jabri presented ways of correcting writing errors in his study: correcting errors in written texts using language surplus applied to The Arabic language, and saw Mohamed Kazem crying at the symposium on computers and language in 1992 and the aspects of rooting the system of Arabic language in the work of the early, and hinted at his project in the use of computer programming Arabic grammar.

The conference on the issues of Arabic language and its challenges was held at the Islamic University of Malaysia in 1996 in which Mohammed Akram presented a paper entitled "Computer and morphological analysis in Arabic". Abdul-Qader Fassi Fihri presented a project to generate the term. Abdulrahman Al-Hajj Saleh developed a vision for the development of a linguistic model for the automatic treatment of the Arabic language and produced a collection of books, including Arabic and computer language for Nabil Ali, computer and Arabic language for Al-Ajili and Arabic computer linguistics Computational Linguistics.

A series of programs, such as the computer-based morphological analysis program, were presented to Yahya Hilal, the computer-based morphological analysis program prepared by Mamoun al-Hattab and his colleague, as well as the program issued by the Arab League Educational, Cultural and Scientific Organization (ALECSO). In the development of the Arabic language? And whether this contribution was positive or negative.

The computerization of the Arabic language helps to teach languages both at the level of foreign language and the mother tongue. The computer can be an appropriate means of

teaching the classical, and can be an effective way to eliminate the vernacular by immediately correcting the psalms or replacing the colloquial with the psalm, The formation of late words or other.

The purpose of the computerization of the language is to "provide a comprehensive and accurate description of the computer's language system, enabling it to match the human in its efficiency and linguistic performance, it is able to synthesize and analyze the language, and represents the written drawing with correct dictation, and knows the benefits of the written system what emerged from them and belly, , And builds the formulas of morphology, and create the correct sentences, and express as expressed by the human, computer with his memory absorbed can perform a valid part of this correction task by depositing the vocabulary of the language, if it received the word what he called, if found permission, and if not find them know it is wrong and correct Pronunciation if mites If his tongue, for example, Lord (voice Mdjaz), turning it into a "annoying voice".

The "Spell-eraser", "The Interpreter" and "Literary Analyst" projects are examples of simulations of human-made evidence of language proficiency, models and applications of language representation of computers, and computer sounds can be studied. In some Arab countries such as Al-Dhad, Al-Fayha, Jim, and others, the exits of some of the common Arabic characters are far from the correct Arabic pronunciation. If we compare this with what the early scholars described, the computer may correct this pronunciation and return it to its predecessor.

All indications suggest that the remote communication of Abdel-Waseet will reverse the concept of linguistic communication, which we have become accustomed to upside down, both in terms of the nature of the relationship between the sender and the future or in terms of diversity of forms of communication. The computer helps to find derivatives, and more from the abstract Arabic word, according to the rules of exchange, ie, the transition from roots to their derivatives and more. From the perspective of human language processing by computer, Arabic has proved its quality as a universal language. It facilitates the adaptation of programming models designed for the Arabic language to meet the demands of other languages, especially English, thanks to its linguistic mediation.

Computer linguists aim to identify these forces and believe that by understanding language processes in procedural terms we can give the computer the ability to generate and interpret natural language.

2.3 Elements and Levels

The levels of syntax are phonetic, grammatical, grammatical and semantic, and we can succeed in computing these levels by providing the computer with the grammar rules of language and vocabulary. The automatic processing of language includes two basic parts:

The first part: the programming systems used in computer-based processing of the different linguistic branches such as: 1- Automated morphological system that analyzes the words to their derivational and morphological elements or re-installed of these elements. 2- automatic expression system which expresses the sentence and words automatically. 3- Automated semantic analysis system that

draws the meanings of words based on their context and determines the meanings of the sentences based on the preceding and subsequent sentences, in addition to lexical databases, electronic dictionaries and language engineering methodologies.

The second part includes applications based on the above language systems, which include machine translation, spelling and grammar checking, cross-text indexing and deep search within text content. Basic language processors include the infrastructure on which full-text indexing and storage systems can be built Which passed several stages before relying on the linguistics that provided with practical techniques, which contributed to reducing the size of the program's automated memory and speed up its work and high efficiency.

The systems of indexing across the entire text first depends on the statistical method in which the system calculates the frequency of the word within the text and then match the keywords with this frequency and operate these systems in three stages: 1- Divide the text into a set of words. 2- Delete words that do not have a meaning using a word list called a list of words stop. 3- Calculate the frequency of the word in the text.

The first of the automatic indexing systems used the logic of the Polish, where the links "and - or - not" to obtain documents that address a subject, and then use the system of foggy logic, which is based on the following basis when we ask a question on the search system, it gives the value of (1) and (0) for the word that is not mentioned and then plot the path of these values forming a curve and the results presented are closest to this curve.

All of these techniques did not address the problem of indexing accurately enough so the researchers turned to the treatment of the components of the text in their own words, using linguistics and computer science to create a search engine for automatic indexing across the entire text according to the three levels of language: 1- Morphology, which is concerned with how the word is constructed, its root and the appendages that it engenders. 2- Grammar in which the shops identify the word and its location in the sentence. 3- Semantic and focuses on the meanings of the word and synonyms and metaphor. This analysis has made it more efficient to index and make the results more precise. The size of the engine database has been reduced. To create this database, we have to build a precise language model that takes into account the characteristics of the language and relies on computer modeling techniques.

The field of computer language applications is latent, multiple and fertile, from machine translation to language learning to automatic correction of typographical errors to the verbatim verifier. Computer language applications include linguistic analysis in its levels: phonetic, morphological, syntactic and semantic, all of which serve automatic translation.

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3. RESULTS & DISCUSSIONS

3.1 Arabic Language Computing Challenges:

The challenges facing linguistic computing put the responsibility of the Arab nation, officials and institutions responsible for access to this era of linguistic techniques studied, and it became clear that the following issues must be addressed: 1- Language analysis is a complete analysis in all its branches, semantic, grammatical, vocal and morphological. 2- Studying translation issues. 3- Establishing a complete blog and a historical dictionary for the Arabic language. 4- Unification of a dictionary of everyday life. 5- The establishment of dictionaries for the educational stages. 6- Create more specialized dictionaries.

There are many challenges to our Arabic language, from electronic publishing and the importance of Arabization to the comprehensiveness of the Arabic language system. The computer problem is confronted by the need to consider the challenges of informatics in the Arab world. The issue of computing is multifaceted. The language itself and its nature in its uses informatics.

It has become clear beyond doubt that the Arabic language has the technical flexibility to contain computer systems and software, and to deal with Arabic letters and devices, as well as in spoken speech, sentence, word, and methods.

It also proved the breadth of fields and fields of information usage in the Arabic language, such as communication, creativity, Arabization, storage, education and documentation. This resulted in solving the problems of the Arabic alphabet. Operating systems became available in Arabic and the Arab information market expanded. Microsoft introduced information systems that take into consideration the privacy of our Arabic language.

Other problems surrounding the Arabic language, such as extraction of roots, language algorithms, and application of weights, have not yet been implemented, and the weakness and loss of terminology has become an important obstacle to the Arabization, dissemination and utilization of information.

One of these challenges may also be the lack of conviction by computer manufacturers of the need to devise an Arab operating system for design, development and utilization.

The translation of the computer is required to facilitate dealing with it and using it to teach the Arabic language and its sciences to non-native speakers, and to automatic translation from Arabic to foreign languages. Conversely, statistical translation still suffers from many difficulties. The accuracy in statistical translation depends on the type and accuracy of the ammunition used and the software used.

It should be noted here that the problems faced by computers in the introduction of texts printed through the scanner and that there are characters on the computer knowledge. In order to automatically address these problems, computers use the computer to provide a fixed number of characters, and another to monitor the most common character sequence by percentages of the degree of communion.

However, if our requirement is to enable the computer to identify and correct spelling and typographical errors or to provide alternatives to them, we will suffice with the result of the statistical studies that do not come from the letters in Arabic, and also the extrapolation of the linguistic studies found by those who write in Arabic for reference Hadia in the automatic correction.

3.2 Methodology for Linguistic Computing

For the purposes of computer programming, the concerned computer linguists must follow the descriptive approach. Their aim is to extrapolate the data of the overall system of Arabic, which was written by the Arab scholars in their books of different approaches, both ancient and modern.

However, in this endeavor, they are not only in the conventional description, but beyond that, unless the early ones state that they rely on human intuition.

A basic conception of the method of handling is presented in which the approaches are varied according to the variation of the partial linguistic systems which are integrated between them. These systems constitute the total system of the Arabic language.

3.2.1 Phonetic system characterization

In Arabic, the Arabic translates into thirty-four phonemes; twenty-eight are silent in the Arabic alphabet, and six are represented by the three short, vulgar and vowel movements. On the phonetic side, the phonetic side is defined as the individual at the physical acoustic level. Each sound has a three-dimensional spectral image: a horizontal dimension representing time, a vertical dimension representing the frequency, and a third dimension representing the degree of intensity appearing in black on special paper.

The fact that the characterization of individual voices in this way will lead to accurate results can not be confused, and that decisive limits are represented by decisive mathematical figures that will distinguish each voice from the rest of the votes, a fact confirmed by laboratory experiments at the phonetic level to a large extent; Monitoring cases of relative disparity in the performance of speakers of these voices sometimes represent a real difficulty in representing the voices of the computer, but the performance of the individual may vary depending on his state of health and psychological.

The effect of relative variability among individuals in dealing with the nuances of the agreement between each short plateau and its long form, which is inseparable only in the time it takes, may be in the performance of the two wheels from the pronunciation of the long lines, which is confused with the computer as a short cut. The careful performance of the sounds The short computer absorbed her as long.

Therefore, it is imperative that we provide the computer with a numerical description of the Arabic Phonetic system, which indicates what sounds it receives, and this characterization necessarily differs from the description drawn by the phonologists of the son of the language and the speaker of the other.

3.2.2 Characterization of the phonological system

Arab phonemes are subject to the rules of a phonological control of their sequence in the context of the word or sentence. Phonemes may change in their character as influenced by the preceding or subsequent phonemes.

This means that the phonetic characterization of the Arabic

sounds is not enough to enable the computer to distinguish the phonemes and that it needs another description of what the phonemes of Arabic - in their functional context - are of changes that are governed by phonological rules at the vocal level. The weak letter, for example, increases the length of time it takes to pronounce and dial in the word "want" to pronounce "t" due to the reactionary effect, and the "sabbath" is affected by the effect of the tawhah. The word "whip-sound" may correspond in the context of rhetorical performance, and the "L" does not say if it is followed by a solar letter.

The design of a computer program that interferes with the spoken verbal event and transforms it into a written text requires the identification of those places in which the characteristics of the phonemes are affected and influenced by the adjacent level of the word.

If we go to the level of the sentence, we have to pay attention to what is said from the phonemes and does not write Kaltenoyen and the tide in "this and her sisters - God - but", and also should be made of the phonemes that write and do not speak as a link and solar aches and a thousand "hundred" and tethered at the end and a thousand differences After the group F, and the thousand compartment enclosed by the "L", and we will of course benefit from the same outputs if we want to design a program that recognizes and reads the written, and then we need an additional condition that restricts the text fully entered form; but the assumption that the written text is empty - Not as problematic - as in with The Arabic texts require us to resort to a sound proof in the memory of the computer that makes for each lexical material a corresponding, coherent language with its tribal and remote labels. The most likely word for spoken interviews is "alternatives", the most likely to be the default option, Formal contextual guides assign one of these alternatives, and the signs of expression are lacking in another computer program in which the morphological and coordinate systems are integrated, as will be described in the Arab system of characterization.

3.2.3 Characterization of the morphological system

The morphological system describes that it should first be pointed out that the characterization of the morphological system aims to enable the computer to deal with morphological "morphological units" that form the various linguistic structures. In this regard, we should distinguish two distinct demands.

The first requirement is the ability to "generate" any sound language structures with specific procedural steps in a comprehensive and exploratory manner.

The second requirement is that the computer enables the "analysis" to define the morphological meanings and to break down the linguistic structures into their small morphological units when they appear in the context of the sentence or in the context of the text.

It is true that this demand is a huge and difficult task because the Arabic language is characterized by its multiple patterns and free language. A researcher concluded that the total patterns that can be compiled according to the rules of the systems in Arabic amount to ten thousand styles.

3.2.4 Characterization of the editorial system

This trend is a continuation of the requirement of enabling the computer to read the correct texts of the Arab problem, and we have hinted to the first half to meet this requirement in the characterization of the morphological system of the movements of the building, and remained to meet the remaining half of this subject.

The expression in the classroom is a mental process organized in its own style and its structural model is governed by specific calibrations. It is issued by researchers in four practical steps based on four lists in which each list contains a set of alternatives. Alternatives based on a proven memory in the computer in advance and inferred the evidence of the policy.

However, it would be fine to try another approach in characterizing the computer expression system, and we calculated in this section the need for purpose and purpose of characterization of the system of expression by enabling the computer to assign the movements of the end of the word.

We first need to classify the Arabic word to the building and the teacher, so that the building will be interfering with the computer, in a manner that does not change, so there is no single face to read it or to adjust the latter. We need to limit our effort to the name of the verb and the verb, so we exclude the letters, the past verb, the verb and the nouns; all of them require a single structure in all their contextual contexts and positions, and the order of their control is conditional on the morphological system of its grammatical doors. We will also exclude what comes in the door of the Ma'arab, so that no other movement will change, such as the Muthanna, the gathering of the masculine peace, the five names, the five acts, and the defeated and the defeated, and the other, relying on the correctness of the text from grammatical errors.

It remains to be pointed out that the automatic treatment - on its relative limitations - would accomplish great work and reduce great efforts and provide large sums of money because of the high capacity in the capacity of containment and rapid processing time, the formation of human beings for a book or text, for example will take times of effort and time Which it takes to review that book or text after it has been automatically configured by computer.

3.2.5 Characterization of the Semantic System

The semantic system is the characterization of the semantic system of the Arabic language, the nucleus of the automatic processing and the spine. Most of the processes of automatic processing of linguistic structures are based on and referred to. In the case of computer linguists, the most important of the mabahiths are the meanings of the term "understanding", which can be interpreted as lexical, syntactic, grammatical, metaphorical, or suggestive. It means in human memory everything that comes to the son's mind of language And meanings related to pronunciation.

In fact, the characterization of the semantic system will not be the same as that of other linguistic systems. We do not draw comprehensive rules that organize the particles, but commit ourselves to supplying each lexicon with details of what comes to mind. Grammatical, and contextual contexts, and that the introduction of these relativity into the computer

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is expected to be a network hyperactivity not only in the bilateral relations between the word and its lexical meaning. The word "writer" refers to grammatical significance by the name of the verb and character and relates to the morphological signifier in the name of the actor. It relates to a semantic field of contextual vocabulary and is given to metaphorical and suggestive connotations in other contexts.

In order to establish this semantic system, we may use a bank of Arabic texts whose texts are pre-selected according to scientific criteria accepted by specialists in Arabic so that our description of the semantic system is based on a survey of the conditions of the word and its contexts. The curriculum or the reference of individuals. ; The lexicon of mind should be an objective systematic method of updating whenever there is a need to generate words and whenever the meanings and indications.

4.SUGGESTIONS AND RECOMMENDATIONS

After a scientific discussion on the subject in this research we reached some recommendations such as, Efforts are being made in the field of Arabic computer linguistics between linguists and students in programming, analyzing and manipulating language systems. The need to consolidate the relationship between linguists and Hasabians and make them an integrative relationship; such as the exchange of interests, the exchange between them to the emergence of multiple new sciences and the achievement of computer linguistic gains, some of them a quantum leap, the latest computer in the field of linguistic interpretation in particular. The interrelationship between linguists and Hashabists is based on a number of hypotheses, the most important of which is that computer work should be a means of serving linguists. The prevalent situation that distinguishes between Arab computerists and linguists is that it is not possible to develop the desired software without relying on comprehensive linguistic knowledge. The need to spread computer awareness among linguists from encouraging educational institutions, especially universities, to allocate a course on computerization of the Arabic language, and to find a new specialization in Arabic language, called "Bachelor of Arabic Language Computing", which in turn contains a generation of computer scientists, And computing, and thus be able to better compute.

Also, The development of Arabic search engine is similar to foreign search engines. The need to develop the work of the linguistic councils to meet the challenges of computerization of Arabic and the initiation of software to develop the framework of information technology from the perspective of the Arabic language. The establishment of a department and special decisions in computer linguistics in all Arab departments as is the case in some western universities. Printed theses written in Arabic on the issues of using the Arabic language in the computer. Translation of all scientific works written in the field of Arabic computer linguistics in foreign languages, which were published by Arab and foreign researchers and transferred to Arabic. Manufacture of a common glossary of Arabic linguistics terminology. To be a computer science linguistics as a unit taught in all sections of the Arabic language colleges of arts and languages. The application of developments in the field of automatic translation, and the promotion of scientific

research for the Arabization of computers. Arab software should not be left to Western companies and research centers but should be designed by their children.

Moreover, To create a forum for the pioneers of digital Arabic content from ICT-related institutions and organizations and computer associations. To initiate the development of software programs that allow publishing as many e-books as possible in Arabic. To review the proposed list in the field of computer linguistics, which was mentioned by Dr. Nabil Ali in his book Arabic language and computer, from which to activate research and develop it in this field. The service of Arabic through modern technologies must be in the eyes and hands of its children. The need to take the linguists and the Sahabis working in the development of a new Arabic linguistic dictionary linguistics or the science of modern linguistic studies in the development of software. The need for linguistic work in the fields of facilitating Arabic grammar and computing it to answer its models without difficulty, such as syntax, transformative, and conjunctions, etc.

And, To develop the mechanisms of the lexicon work in its different fields and computing it and to take care of the terms of generation of the term, and to overcome the theoretical frameworks of computerization of the lexicon. To take care of semantic differences that help language engineering and enrich its computing levels of significance and contexts of changing metaphor and so on. The need to develop the work of the linguistic councils to meet the challenges of computerization of Arabic and the initiation of software to develop the framework of information technology from the perspective of the Arabic language. The need to spread computer awareness among linguists from encouraging educational institutions, especially universities, to allocate a course on computerization of the Arabic language, and to find a new specialization in Arabic language, called "Bachelor of Arabic Language Computing", which in turn contains a generation of computer scientists, And computing, and thus be able to better compute.

5.CONCLUSION

The technological development, which does not stop, but is increasing faster day by day, doubles the challenge for academics in this nation to find ways to cope with the acceleration phenomenon that characterized this era. Computer linguistics is a very important means in the civilized response to developments; And its people and their sciences, but the benefit and the combination of the efforts of everyone who contributed in this area and related to the characteristics of Arab recipes and computer has not been integrated as it is in this research with the preservation of credit to those who preceded. I am still in dire need of more studies and applications, and perhaps this research is a finger, even from a distance to draw attention to this field fertile and open field.

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