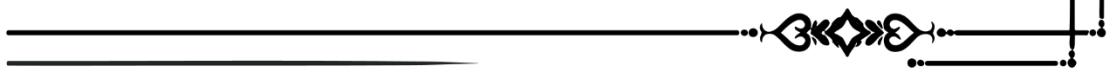# Obstacles Facing Machine Translation

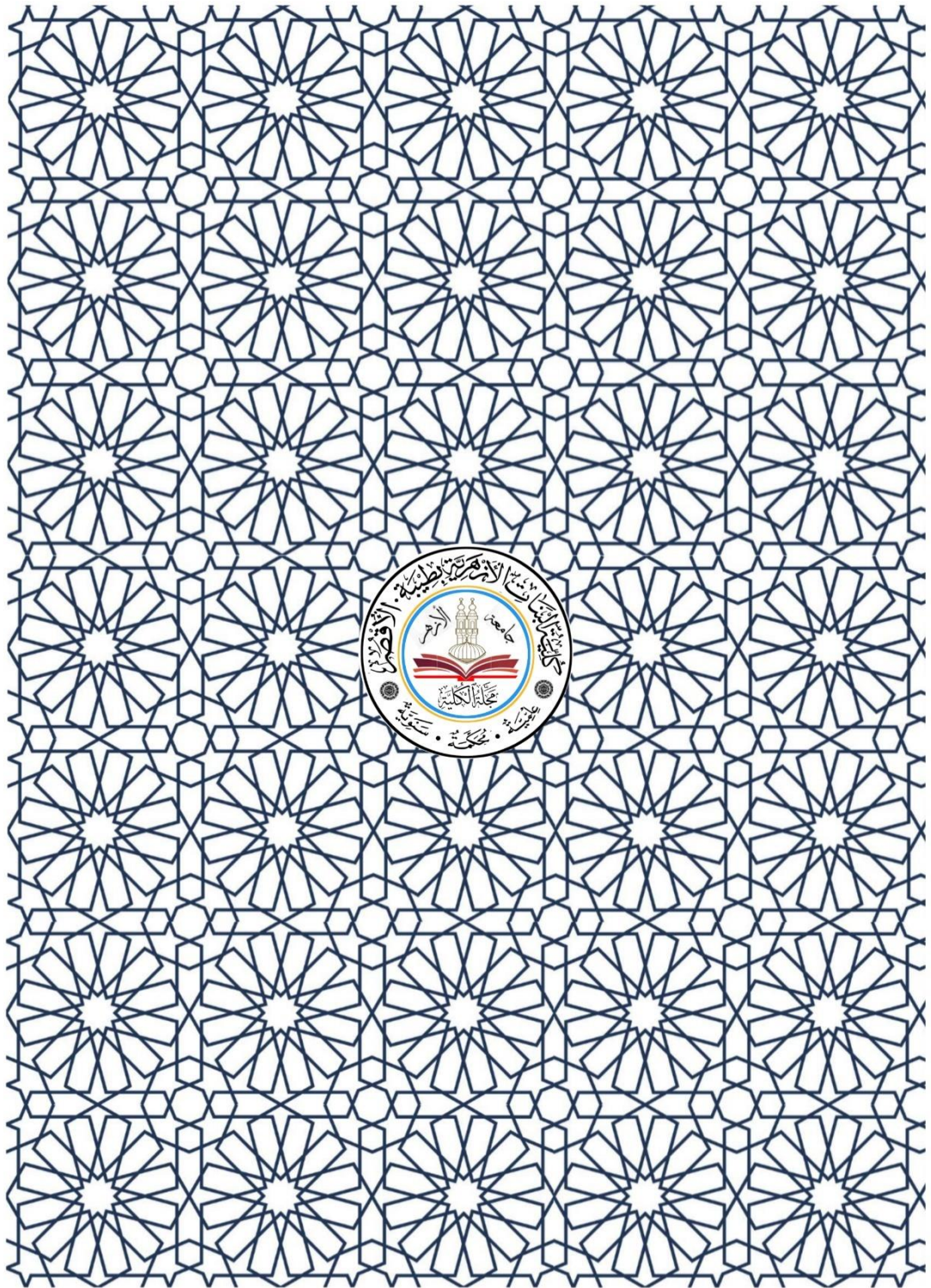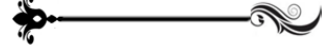**Salim Abdu Muhammad Arishi**

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Obstacles Facing Machine Translation

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Abstract 20233

Machine translation became one of the results of technological development that many translators, researchers and different people became dependent on machine translation. The current research is intended to investigate the various obstacles and difficulties that oppose machine translation. The research aims to highlight the issues and problems that machine translation suffers. In addition, it aims to find appropriate solutions that lead in the future to benefit from machine translation on a large scale. The research followed the descriptive approach in order to investigate the data on the topic of machine translation and the obstacles it faces through extrapolation and review of previous research. The researcher concluded that the establishment of a computerized Arabic dictionary and a linguistic repertoire in the target language languages is one of the most important steps that contribute to the development of the field of machine translation from and to Arabic. The researcher recommended that the translator should not take the translation target from the machine translation site and put it directly without review, but should review and edit it if he finds an error. Emphasis should be placed on the various forms, because one word means multiple things and meanings, due to the form and the syllable in which it is found.

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المستخلص العربي:

أصبحت الترجمة الآلية إحدى نتائج التطور التكنولوجي حيث أصبح العديد من المترجمين والباحثين والأشخاص المختلفين يعتمدون على الترجمة الآلية. يهدف البحث الحالي إلى دراسة مختلف العقبات والصعوبات التي تعترض الترجمة الآلية. يهدف البحث إلى تسليط الضوء على القضايا والمشكلات التي تعاني منها الترجمة الآلية. بالإضافة إلى ذلك، تهدف إلى إيجاد الحلول المناسبة التي تؤدي في المستقبل إلى الاستفادة من الترجمة الآلية على نطاق واسع. اتبعت الدراسة المنهج الوصفي لتقصي البيانات الخاصة بموضوع الترجمة الآلية والمعوقات التي تواجهها من خلال استقراء ومراجعة البحوث السابقة. وخلصت الباحثة إلى أن إنشاء معجم عربي محوسب ومخزون لغوي بلغات الهدف من أهم الخطوات التي تساهم في تطوير مجال الترجمة الآلية من وإلى العربية. أوصى الباحث بألا يأخذ المترجم هدف الترجمة من موقع الترجمة الآلية ويضعه مباشرة دون مراجعة، ولكن يجب مراجعته وتحريره إذا وجد خطأ. يجب التركيز على الأشكال المختلفة، لأن الكلمة الواحدة تعني أشياء ومعاني متعددة، بسبب الشكل والمقطع الذي توجد فيه.
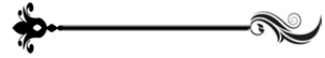
Introduction:

The translation is a concept that means transferring the meanings and concepts of a text from one language to another, taking care of accuracy and style. Also, these matters require understanding and awareness of the basic text, expression, and interpretation of the content and style in another language **(Chaume, 2018, p2).**

The translator has to study and master the two languages he is translating from and the one he is translating into. There are two known methods of translation. The first is based on the literal translation, adherence, and meanings of the vocabulary of the underlying text and its translation into the other language (**Jakobsen, 2006, pp. 95–105**). The second method is based on awareness of the general meaning and then expressing it in the same way as the translator. It is also necessary for the translator to recognize the symbols recorded in the written translation and the sounds spoken in the interpretation, that is, he reads the written symbols of the language through which he is translating, in the event that the text is written, or he recognizes the sounds of the language that he listens to in the case of being an interpretation **(Schleiermacher & Bernofsky, 2021, pp. 51–71).**

The vast technological development that the world is witnessing today has helped to make a big leap in the machine translation branch because machine translation was able to take large forms of development, and thus machine translation became able to translate articles and large texts with acceptable quality and speed (**Poibeau, 2017, p5**).

Despite this development, machine translation cannot be fully relied upon, and this is because there are many problems that people face when resorting to machine translation. Through this study, the most important problems facing the individual when using machine translation such as Google Translate will be addressed.

This article does not aim to present the pervasive technical situation in the field of machine translation, but rather it is concerned

with explaining the difficulties and obstacles that must be eliminated, under the pretext of establishing active and effective systems and devices, characterized by having high capabilities and skills, especially in the field of machine translation. Also, this type of translation addresses a set of difficulties that can be divided into two main groups.

Statement problem:

Everything that surrounds us today has a great relationship with the Internet, as Internet of Things is an essential element in daily life. Even science and knowledge have become dependent on technology and Internet to a large extent, and one of these sciences is translation. Translation is greatly needed today, not only in our studies, but also in our work when dealing with foreign languages. When speaking, we need to translate sentences in our conversation with others **(Somers, 2011).**

Thanks to the Internet and technology, translation has become much easier than before. It is fast and easy to write a sentence on a machine translation site and immediately know its translation. However, it is not that easy, as there are difficulties and obstacles facing the translator when using machine translation sites, the most famous of which is the inaccurate literal translation. There are also other obstacles facing machine translation or those who perform machine translation. Therefore, the research problem can be formulated in the main question: What are the Obstacles Facing Machine Translation?

Literature Review:

1. Machine Translation:

1.1 Machine Translation definition

Machine translation is a concept that refers to the rapid and instantaneous translation of a specific text from the native language into the target language through the advantage of artificial intelligence and machine learning. At the present time, scientists and researchers are witnessing a high and increasing demand for machine translation, especially because it has become more accurate and efficient due to the
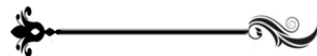
introduction of artificial intelligence techniques **(Garg & Agarwal, 2018).**

2.1 The importance and advantages of machine translation

The advantages of machine translation can be summarized as saving time, effort and money. Because machine translation enables individuals to translate quickly, which is what individuals need most of the time to quickly understand the content of the text. Looking at it from another side, it can be used in projects that require delivery at a specific time, because the speed offered by machine translation enables individuals to understand certain records in another language in a few minutes or even seconds (**Alqudsi & Shaker,** 2014, p 549–572). And despite the fact that the specialized professional translator provides the client with high quality and efficiency without a doubt. But most of the time, the automatic translation feature is sufficient to meet the work need, which saves a lot of time, effort, and money.

The time and effort is evident through the cost. Because time is expensive these days in particular, machine translation is considered suitable in terms of cost, as it allows clients to translate text without a high cost. It's very easy, and the less time you have to translate the text, the more time you have to complete any other task **(Zheng & Birch, 2020).**

In addition to another importance, which is evident in the benefit of machine translation in saving effort, which means leaving space for professionals to translate really difficult texts that cannot be translated through machine translation, such as cultural and sentimental texts. Despite all the improvement in the field of artificial intelligence techniques, of course, the machine cannot distinguish between right and wrong, between the real and the unreal in a particular culture.

Some point out that the vast improvements that have become available in the branch of machine translation have become a threat to the actual profession of translation because it is possible to dispense with professional translators or even reduce their role to be the main dependence on machine translation (**Moorkens, 2018, p 375–387**). This works to save time, effort and money, especially for multinational

organizations that are constantly in need of translation, which makes them allocate huge budgets for translation. But the translation job is like it is one of the jobs that made technology subject to its requirements and needs, and from this standpoint, the important question here that the translator must ask himself is: What are the skills and capabilities that he must possess in order to keep pace with the development that the world is witnessing today?

There are many methods through which machine translation can be exploited and used to provide texts bearing the advantages of machine translation and the advantages of human translation, including (**Tomás & Casacuberta, 2003, p 27–34**):
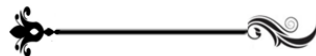
- Machine translation and editing

It takes place by automatically entering the translated text into computer-assisted translation sites and programs (CAT Tools), and then reviewing and editing it by professional translators (**Zaretskaya, 2015, p76–89**).

- Editing and machine translation

In this type, the opposite happens, by modifying the text concerned with the translation and writing a simple language that the computer can process and calls this language (Machine Acceptable Language).

Interactive:

In this type, there is cooperation between the machine and the translator. It is a computer software technique that can predict the translated text, taking into account all available data. And in the event that the prediction is wrong, the translator can give notes on the text through which the program can predict a new text based on the new data entered by the translator. This process takes place over and over until the translation is matched to the translator's expectations and predictions. But the difficulty here lies in the extent of the importance of the translator in front of the computer screen, and this is to monitor the validity and accuracy of the translated text (**Qiao & Wang, 2017, p 6705–6714**).

It is also possible to reap great benefit from machine translation in the Arabic content that is available electronically, because the world today is in dire need to increase the collection of Arabic terms, meanings and texts on the Internet, and therefore the cooperation of machine translation with human translation will raise the content in all fields.

However, this thing with the Arabic language is somewhat difficult, and this is because the automatic programs that allow automatic translation of all kinds from the language into the target language are very few. It is because of these few that programs do not offer proper translation services and features. A number of problems became apparent in machine translation from Arabic into English or any other language.

2. Arabic language and machine translation: problems and solutions

One of the most important problems that machine translation faces in the Arabic language is the "diacritical" problem. Despite the numerical attempts of a number of programs to write diacritics, the highest degree of accuracy that this type of program can reach does not exceed 95%, and the error rises in The formation of the last words, which makes the reader expect formation according to his linguistic outcome (**Alqudsi & Shaker,** 2014, p 549–572).

In addition to the existence of other problems that are evident through the systems of automatic translation of texts from Google Translate, which relies in translation on textual comparisons of the entered meanings, and this leads to the presence of many errors.

An example of this is the menu in an Arab restaurant, which leads to disasters with the absence of the element of human liberation, as shown in the picture (**Niehues & Waibel,** 2016, p23):

Because in the Arabic language, the word "حمام", with its good formation, means a type of bird or one of the main dishes. But through the machine translator and with the absence of diacritics, it translates it

literally as "حمّام" and with stress placed on the letter ح, so its meaning is "Bathroom" in the target language.

In order to avoid such problems, it is necessary to comprehend and understand the nature of the Arabic language, which contains the characteristic of parsing, which raises the difficulty of not obtaining an integrated automated system that can complete the translation from and to the Arabic language well (**Niehues & Waibel, 2016, p23**).

In order to do this, it is necessary to create a system loaded with a huge amount of inputs that can be translated automatically, in addition to that it must contain large information and data that includes all linguistic rules and conditions, and design a model that works on linking two abstract semantic or cognitive models, which includes a sound linguistic and semantic structure.

In addition to trying to design programs for the automatic formation of texts that have not been formed, and thus the machine or human translator can better understand the content, and thus complete the translation with higher efficiency (**Jean- françois Hüe, 1993**).

In the end, it must be noted that communication between individuals focuses on a number of factors other than language, and these factors such as the cultural, cognitive, and local context, and this makes human references to the text an important matter, and this is to fix any error and explain any information that the automatic translator cannot reach. This makes machine translation subject to human control and supports it, not the other way around. And if reference is made to the skills and capabilities that must be available in the translator, because the translator who wants to keep his profession must acquire many skills and capabilities that make the text more efficient and thus the translator becomes the civilized mediator between different cultures.

*There are a lot of problems and obstacles that an individual may face when using machine translation in the Arabic text (***Awadh**, 2020, p 1987–2002)**:
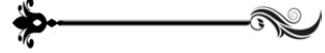
1. Machine translation is inaccurate: The lack of accuracy in translating texts is considered one of the most important problems facing an individual when using machine translation such as Google Translate, because machine translation is based on artificial intelligence technology, but one of the disadvantages of machine translation is that it does not provide an accurate translation of the text, and therefore it can be used to know the content and content of the text (**Huang, 2011**).

2. Contains errors: Machine translation has many errors because it is able to recognize a large number of cultures and meanings contained in the text.

3. Poor machine translation: This is considered one of the important problems that any person who does machine translation will face, because machine translation provides a translation of the text in a way that is not good, because machine translation gives importance to the wording, and therefore the translated texts are criticized for poor language. This is why after translating the text The individual prepares his coordination to avoid mistakes.

4. Does not take into account the linguistic rules: In many cases, machine translation does not care about the linguistic and grammatical rules.

5. It cannot be relied upon in scientific research and university theses: Therefore, due to the presence of many problems in machine translation, its inaccuracy and containing many errors, it is not possible to rely on machine translation in writing theses and scientific research because it does not provide the appropriate meaning of the text.

Through the previous presentation, it is noted that the Arabic machine translation has many problems and cannot be relied upon in research and scientific theses due to its inaccuracy and complete validity (**Awadh, 2020, p 1987-2002**).

To ensure the success of machine translation, the following are presented and presented some of the necessary foundations and conditions *that must be met under the pretext of achieving sound machine translation systems:*

1. The first condition: The first condition requires the issuance and development of a grammatical model that constitutes the common grammatical field for all human languages, bearing in mind that dictionaries are expected to be distinguished by grammar and foundations, or that grammar is mixed with dictionaries. From here begins to carry out a process whose goal is to establish unification and compatibility of grammatical models with the implementation of the best and effective information with attention to the implementation time and knowledge of the difficulties and obstacles and finally reach the comprehensive linguistic processing.

2. The second condition: One of the basic conditions on which the second condition is based is that a semantic model be issued that indicates flexibility and provides a comprehensive and focused presentation of the etymology and meanings of the language (correct syntax). These models also allow the idea of issuing effective information into practice.

3. As for the third condition: In addition to the above, the third condition is based on the existence of an important and basic definition of the theory of establishing a relationship between the two grammatical and semantic models. But in the beginning and above all, each of the two models is characterized by the existence of complete independence away from each other. This part is considered the most concentrated among the rest of the other parts in relation to the general model. In fact, the accuracy of the automated device and the limits of its scientific capabilities depend on the existence of models concerned with linking syntax and semantics. The linkage theory between the grammatical and semantic models is illustrated by defining the models of language presentation when syntax is combined with semantics (**Awadh, 2020, p** 1987-2002).

4. The fourth condition: The fourth condition requires some models capable of linking two abstract and defining semantic models that take into account the peculiarities of each language. For example, the following borrowing from English, i.e. French, cannot be translated as follows:
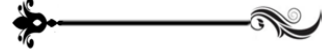
- الأمواج القارب يشق: The boat plow the waves

- الأمواج القارب يحرث : Le bateau labored les vagues.

Fifth condition: The fifth and final condition is concerned with identifying and defining the grammatical and semantic sectors in a manner that confirms and guarantees to a certain extent avoiding erroneous translations (in this regard, the literal electronic dictionary represents the highest point for this determination. The small dictionaries used by the traveler also provide a thumbnail of these limits, and electronic translation systems try push those boundaries even further). On the other hand, there is a practical evaluation system for translation based mainly on theory whose aim is to calibrate the measurement of the grammatical domain (observing the grammatical complexity of the formulas processed) and the measurement of the semantic domain (observing the complexity of the semantic concepts processed) (**Jean- françois Hüe, 1993**).

3. Solutions to overcome the problems and obstacles of machine translation

(1) Sub-editing

This step is intended to review the machine-translated text and edit literal spelling errors as well as grammar errors. For this method to work, the person doing the translation must be at an intermediate level of the language in order to be able to do the editing (**Quinn, 2012).**

(2) study the figure

Human languages appear scripturally and are articulated in complex lexical elements that are interconnected. But the linear feature of all these writings and elements is common to many human languages, and depending on this, the general translation of the language-specific grammar takes place through the machine that is able to make modifications to the basic lexical elements and through the help of a machine or other technology that helps to formulate the basic rules that are from during which translation is produced. The meaning of this statement is that the machines operate based on modern lexical

elements through the lexical units that have been changed. However, following these methods and the way in which the process occurs varies from one language to another if the general grammar of a language is recorded in lexical elements that fall within the conditions that are consistent with these elements (**Bonvillain, 2019).**

Each of the languages is distinguished in its style and grammatical and morphological rules, but in any case, translation cannot take place from the mother tongue to the language to which it is intended to be translated, except after avoiding the difficult problems related to conversion and change from the mother tongue to the target language. Among the things that facilitate the process of transition or conversion is the nature of human languages in that they belong to specific language groups that agree on the same linguistic formulas (**Jean- françois Hüe,** 1993).

And by means and tools that are interested in modifying the translation of the general grammar, and this happens by measuring the difficulties that characterize these constants, a definition of the grammatical dimension of languages can be formulated. Scientific and linguistic proof It can be noted that the higher the grammatical distance between the two languages, the greater the difficulty in machine translation. An example of this: The French language has a grammatical dimension with the German language when compared to the English language (**Behling & Law, 2000).**

In order to activate a distinguished and active machine translation system, a strong and broad outcome is required for each of the languages to be translated automatically. As for the rules, this is a very necessary stage and must be carefully tested.

which includes the following translation. With regard to grammar, the machine must contain large and sufficient data containing the content of the grammar adequately. As for the dictionary, it must be distinguished by the necessary abundance and the introduction of all vocabulary whose function is to find solutions to many problems related to the semantic aspect.
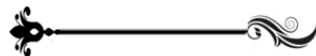
It is possible to choose the grammatical data that helps the machine translation, and the selection of the grammatical data is important and its active role should not be overlooked. The performance of the machine translation system depends mainly on the accuracy and efficiency of the selection. As for the aspect of grammatical processing in the literary translation system, it is considered the easiest aspect compared to the previous aspects, because each language has its own grammatical structures that distinguish it from any other language, and most of the time it is difficult to be translated into another language because the other language has its own structures. that distinguish it from others (**Jean- françois Hüe,** 1993). It is important to point out that the problems related to grammar often lie behind the problems related to semantics, which are difficult to address.

(**3**) Study the meaning

The semantics that was described through a specific human language indicates the problematic use, and this is because translation works to convey the experiences and experiences that individuals lived and used, and because the semantics of any language contains the temporal and spatial experience and the rational experience of the users of the language in addition to their dreams, hopes, perceptions and everything that goes on. around them **(Phillips, 1959, p 184-192).**

Therefore, semantics is the expression of signs, sources, and interactions between the actual units it represents. And these signs function is to create harmony and balance between the units and elements at a time when the relationships work on their cohesion in order to define their meanings and components (**Jean- françois Hüe, 1993**). With the aim of building a harmonious and integrated model for semantics, it should be noted that finding the knowledge and experiences of language users is a difficult situation. In order to reach a solution to this obstacle, it is necessary to consider and study in detail all the units and elements of the semantics of this language. In this mode, each component or unit can be classified and included under a specific term

To be among the terms that fall within the concept of semantics, which has been referred to in a good way by perceiving all relations in a direct form (by extension or expansion) or to be represented in an implicit form (by assimilation). As for the level of abstraction with regard to the semantic world, it corresponds to the degree of relation that the implicit formulations take. Because human language is a union between the external constructive grammatical model and the internal constructive semantic world (**Willgerodt & Ceria, 2005, p 231-239**). However, the theory that indicates a relationship between the two models will not work yet.

Thus, the problems that result from theories similar to this theory can be placed among the most difficult problems. Which articulates knowledge of the world through language which is actually the proximate signifier of that knowledge. Because language in this situation is the means that allows individuals to increase their knowledge and the method that reflects the new knowledge of individuals, in addition to that it is a means that may be individual or collective that helps to adopt and document the knowledge outcome of the distinguished worlds in a semantic way, which has never stopped improving (**Jean- françois Hüe, 1993**).

Depending on what has been presented, accurate translation from the mother tongue to the target language is expected to show practical solutions to solve the problem of automatic assimilation of texts because it is difficult to achieve (**Ping, 1996, p74-83**). Therefore, it is possible to activate machine translation systems, provided that they allow constraint of the grammatical and semantic sides at a sufficient level so that languages can be represented through accurate models. In addition, the determined efforts must be based on the grammatical and semantic sides, in addition to the combination, homogeneity, and harmonization between the two sides of grammar and semantics. It is necessary for the designers of automated translation systems to know the theoretical limits of this type of translation, and through this, the loss of time and effort is avoided, and it is considered one of the important and effective attempts for the machine to reach its goals (**Jean- françois Hüe, 1993**).
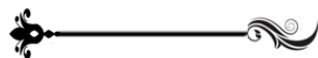
Conclusion

This research indicates finding an idea aimed at the development of machine translation among the world languages, leading to the remarkable progress in this field, especially; Statistical translation. The research also copes with the appropriate situation of machine translation derived from the Arabic language, and the issues and difficulties it faces. Hence the discrepancy and clarity of the stages that must be followed in order to reach a high level of progress in this field. Where dictionaries and concepts are a basic factor in the field of translation, as it is the most advanced linguistic shame, and statistical operations in it constitute an important and necessary part of the elements of machine translation.

For this reason, the establishment of a computerized Arabic dictionary and a linguistic repertoire in different languages is one of the most important steps that contribute to the development of the field of machine translation from and to Arabic. In addition, the research also touched on the various aspects of machine translation, rapid translation, translation in different languages, and programs that contribute to assisting human translation and computer translation, and to putting translation on the Internet. The research aims to highlight the issues and problems that machine translation suffers from and from the Arabic language. At the present time, it aims to find appropriate solutions that lead in the future to benefit from machine translation on a large scale.

the most we can talk about; His grammatical elucidation may not be a fact within the text he wishes to translate but rather a basic knowledge of the language's speakers. Whereas, the semantic signs of a people who direct all their interests in the navy, for example, differ greatly from the semantic signals of another people who direct all their interest in agriculture. From this field, it can be said that knowledge of a specific language is in fact a comprehensive presentation of grammar

(dictionaries and grammar), bearing in mind that the relevant semantic fields are known to speakers of the language.

Through this research, it is clarified that the reading of the Arabic language written in unformed letters should be known by the reader in order for him to make the correct formation without his eyes seeing the diacritical marks. In this way, he uses his experiences and skills that he studied and qualified for in the prime of his scientific life in terms of the rules of syntax of the Arabic language. As for the person translating the spoken word, he is thus able to distinguish the sentence he is translating, whether it is an interrogative sentence, an adverb, or an admiration, without finding any kind of question and exclamation marks.

Thus, the translated person returns to the lexical elements, which are words and idiomatic expressions, and realizes their concept through their various linguistic and social contexts, and then emphasis should be placed on the various forms, because one word means multiple meanings and things, due to the form and the syllable in which it is found. Where there is a problem of the meanings of words pervading the various shapes and syllables (i.e., the multiplicity of meanings), in addition to the presence of verbal co-expressions (words that are similar in their writing or the way they are pronounced and vary in their meanings, for example the human eye and the eye of water) and there are idiomatic expressions. These expressions, as it becomes clear to us, constitute a major problem for translation in general and machine translation in particular.

Recommendation

The person who translates must clarify and analyze the concept and stand on some points and the shadows that derive from it in the meaning, especially metaphorical ones and others, in order to determine the relationship between this basic meaning and its branches,
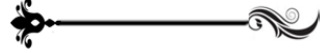
and between the meanings and concepts that can be compatible and linked to it in one way or another.

The translator should not take the translation target from the machine translation site and put it directly without review, but should review and edit it if he finds an error.

Emphasis should be placed on the various forms, because one word means multiple things and meanings, due to the form and the syllable in which it is found. Where there is a problem with the meanings of words that are pervasive in various shapes and syllables (i.e., multiple meanings).

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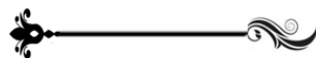
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