An Investigation into the Problems Encountered in Genre-based Texts Rendered from English into Arabic by Some Online Software Services

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Abstract
The aim of this paper is to identify the problems that emerge in the target texts (TTs) in using online software services (OSSs) at different levels. The identification of the problems relied on the classification of Nord (2018) in which she classified the problems of translations into pragmatic, cultural, and linguistic problems, in addition to problems that are tied to one particular text such as figurative expressions, neologisms, or puns. The exploratory design under the umbrella of qualitative approach is adopted in this research to seek the quality of OSSs in rendering different texts. To this end, the data were collected from three different journals and from three different registers: political, scientific, and economic. The results showed that the problems had several forms that are included in Nord's classification, as lexical, grammatical, cohesive problems, failing of transferring figurative expressions, etc. which are related to linguistics, pragmatics, culture, and problems of particular source text. Compared to human translation (HT) in its outputs, the products of these OSSs proved that the translations are in need of human interference to amend the TTs via post-editing.

1. Introduction

The acceleration of the huge development in technology led to numerous developments in different fields with various shapes in people's life. Machine translation (MT), particularly, or the OSSs, is one of those technologies which deserve both observation and investigation. MT can be defined as a "translation which is performed wholly or partly by computer" (Shuttleworth & Cowie, 1997, p. 99). This definition indicates that the translation of MT is performed by computer as a whole without any intervention of human translator (HT), or partly that is carried out by both MT and HT.

According to Esselink (2003) a distinction should be made to differentiate between MT tools and Computer-Aided Translation (CAT) tools; the first one is trying to partially replace the translator, whereas the second attempts to provide assistance to the translator in order to prevent the repetitive work, automating terminology, lookup activities, and re-using previously translated texts.

Technically, the system of MT is of two approaches: first, Rule-Based MT (RBMT) in which morphological, lexical, syntactic and functional structures knowledge of the SL and TL are encoded and mapped between them. Second, Statistics-Based MT (SMT) that aligns the data, which is provided statistically, and maps between group of elements in the SL and TL (Hartley, 2009).

Historically, the dream of translating languages by machines began in the seventeenth century and become true lately in the twentieth century. In short, it can be traced back to the pioneers and systems that appeared in the 1950s and 1960s as well as renewal in latter 1970s. The 1980s witnessed the commercial and operational systems that have been brought to view. The continuation of research in 1980s led to new developments in 1990s and on; for which the use of systems has been growing (Hutchins, 1995).

This study is going to investigate the problems that arise from using MT. The rendering of various texts using OSSs is definitely encountered by some translator resulting in problems

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which are going to be tackled in this paper. Somers (2011) stated that the reason which makes the translation difficult for computers is that there is not a simple way of finding and understanding the appropriate meaning for the source text (ST).

A less skilled translator with limited knowledge of translation strategies and techniques may definitely observe that some of the TTs translated by these tools have got many problems when referring to ST. These kinds of problems are daily encountered by translators and translation customers who are using OSSs, and despite the progressive developments of those software services, errors still occur.

According to Arnold et al. (1994), problems of MT can be classified into three categories: (1) problems of ambiguity, (2) problems that arise from structural and lexical differences between languages, and (3) multiword units like idioms and collocations (p. 105). Those problems resemble, to greater extent, what Nord (2018) discussed in her model that classified the encountered problems of translation. This model is going to be adopted and applied for the present research.

1.1. Statement of the Problem

The use of translation every day in most fields in people's life leads to raise many problems that encounter the translators and in somehow might cause difficulties that need to be solved. Many scholars tried their best to theorize translation and its methods, models and classifications of its problems. However, problems still occur.

The artificial intelligence has its share in handling machine translation and its problems. Nowadays, OSSs are used numerously by people who are interested in translation whether they are highly educated or not, and by those customers of translation who use OSSs in their daily activities. The most observed advantage of this MT is the speed of giving the output translation of the texts, which can save time for clients of translation. Nevertheless, the problems still occur and sometimes lead to confusion, mistranslation, or errors committing.

In this study, the researchers attempt to identify some problems of those arise in using OSSs to translate texts from English into Arabic. Further, this paper is going to discuss the translation of each one of these OSSs selected for the study in order to have a clear idea about the problems of translation and the types of such problems in TTs.

1.2. Objectives of The Study

This study will seek to achieve of the following objectives:

1- To identify the problems found in the output of using OSSs at different levels.
2- To examine the quality of the translation output of OSSs in various texts against HT.

1.3. Research Questions

This study seeks to answer the following research questions:

1- What are the problems that emerge in the translation product of OSSs in various texts?
2- How are the translations of the OSSs differ from each other and against HT in terms of product quality?

1.4 Limitations and Scope of the Study

This study is confined to three OSSs, viz., Google Translate (GT), Reverse Context (RC), and Bing Microsoft Translate (BMT) which are widely used among translators and translation customers. The scope of the study is limited to the investigation of three texts selected from three different registers: political, scientific, and economic. These texts were translated by the three OSSs in order to examine the quality of those TTs and comparing them with each other to scrutinize to what extent they reflect the source original texts in conveying meaning. This will definitely lead to make attempts to classify and explain the problems of the OSSs translations.

2.   Literature Review

Baker (2018) discussed some common types of non-equivalence at word level and above word level such as collocations, idioms, and problems of grammatical equivalence, textual equivalence, thematic and cohesive equivalence; in addition to the other problems of pragmatic and semiotic equivalence, which are related to ethics and making decisions according to what is believed to be morally right or otherwise in particular context. More precisely, the difficulties and problems that always face the translators are not only at the word level. There are problems above word level, which are considered more difficult than those at the word level. Baker (2018, p. 53) addressed two types of these problems; they are: "collocation and idiomatic and fixed expressions". She (2018, p. 54) explained that "When two words collocate, the relationship can hold between all or several of their various forms, combined in any grammatically acceptable order".

On the other hand, the idiomatic and fixed expressions are somewhat pliable linguistic structures that provide a variety of form modifications. A fixed expression conjures up in the reader's or listener's mind a variety of associations related to the expression's normal settings of use. In most cases, an idiom does not permit form change. Unless a speaker or a writer is attempting a play on words or intentionally cracking a joke, normally, using an idiom prevents him/her from doing any of the following (Baker, 2018, pp. 69-70):

1-   Changing the order of the words in it.
2-   Deleting a word from it.
3-   Adding a word to it.
4-   Replacing a word with another.
5-   Changing its grammatical structure.

Furthermore, the way we interpret and present experience is not solely influenced by lexical resources. The grammar of our language is another significant component that affects the distinctions we frequently make while recounting experience (Baker, 2018). The two main dimensions of grammar are morphology and syntax. Word structure, or morphology, refers to how a word changes in form to signify particular contrasts in the grammatical system. The core information that must be expressed in a language is determined by its morphological structure; another major problem that emerges mostly in the translation of online services. When translating various texts, this problem is causing lack of the quality of the TT. It can be a matter of serious concern for a number of translators – that is the issue of cohesion.

Halliday and Hasan (1976, p. 4) asserted that cohesion "refers to relations of meaning that exist within the text". There is a cohesion at grammatical level, lexical level, and semantic level as Baker (Baker, 2018, p. 194) stated that "cohesion is the network of lexical, grammatical and other relations that provide links between various parts of a text". In the same way, Larson (1998) described cohesion as a linear that runs through the discourse and weaves the ideas and elements of the text together.

Regarding the problems of translation, Nord (2018, pp. 61-63) divided the problems into three types:

1-   "Pragmatic translations problems which arise from the differences and can be identified by checking on the extratextual factors (sender, receiver, medium, time, place, motive, text function)".
2-   "Cultural translation problems which are resulted from the differences in the norms and conventions guiding verbal and non-verbal behaviour in the two cultures involved".
3-   "Linguistic translation problems which arise from structural differences in the vocabulary, syntax, and suprasegmental features of the two languages".

Beside these problems, there are some other problems like some figurative expressions, neologisms, or puns, which may be specifically tied to one particular source text, as stated by

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Nord (2018). She asserted that the "translation problems will remain problems, even when a translator has learnt how to deal with them rapidly and effectively" (2018, p. 60). This modal is going to be opted for in order to classify the problems of the OSSs and HT.

2.1 Previous Studies

A large number of studies have been conducted in the field of MT and most of them were about one, two, or three OSSs. Besides, the samples were sentences, or words in particular register. However, one of the recent papers conducted by Almanna & Jamoussi (2022) concentrated on dealing with the translation of tense and aspect presentation of sentences from Arabic into English using five OSSs. That paper also focused on using neural MT systems and the post-editing of the output translations of rendering Arabic sentences into English; it is not to evaluate the performance of particular OSS or to make comparisons among them, as Almanna & Jamoussi (2022) claimed.

The other empirical studies that discussed the translation of OSSs are those studies that have compared them to one or two human translators only or those that compared between the OSSs to identify the quality of using those tools.

Regarding the problems of MT, there is a study conducted by Al Shehab (2013) which discussed the problems that emerge through the translation of legal articles by using Google Translate. He examined six English legal articles which have been translated from English into Arabic. After he translated the six English legal articles by Google Translate, those six articles were translated by two professionals at Jordanian universities.

Despite the small sampling he investigated, the conclusion came out to show the translatability of Google Translate as acceptable with the level of semi equivalent. The problems which have raised can be listed below (Al Shehab, 2013, pp. 28-29):

1- The archaic terms

2- Dealing with passive voice.

3- Translating the model "Shall''.

4- Inability to reach the level of professionals.

In addition, to spot light on the comparison between MT and HT, Aslerasouli and Abbasian (2015) stated that "HT's quality was still higher than that of MT" (p. 169). Their research was conducted to examine the quality of MT (i.e., GT) to HT in translating five short paragraphs consisting of political texts as a soft science and physics texts as a hard science. The population were thirty BA students of English translation including males and females. The findings of this study revealed the following (Aslerasouli & Abbasian, 2015, p. 182):

1-   There is statistically a significant difference in quality of HT and MT (i.e., GT) in favour of HT.

2-   Mode of translation affects its quality but texts types do not have any significant effects on translation quality.

3-   No statistically significant relationship existing among translation errors and translation modes.

In this regard, Stankevičiūtė et al, (2017) discussed the issues of using MT mobile apps in translating common everyday language from Lithuanian to English and vice versa. They analysed 400 sentences divided into 200 compound and simple ones in English, and the same division for Lithuanian language following the taxonomy proposed by Vilar, Xe, D'Haro, and Ney (2006). The results revealed that "more than two third of all sentences were translated incorrectly" as (Stankevičiūtė et al., 2017) stated. The errors that came out of this study can be summarized as follows:

1-   Missing word errors.

2-   Word order errors.

3-   Unknown words.

4-   Incorrect word errors.

Zemni et al (2020) compared the asymmetries between two different online software programs (Reverso – Almaany) to identify the appropriate approach of using electronic contextual dictionaries. That comparison was conducted among translation students in two universities: Princess Norah Universities (PNU) and Algiers 2 University. Their study aimed to investigate the effect of social and economic environments on the users of electronic dictionaries. Besides, the study compares the users' attitudes towards using the electronic contextual dictionaries in audio-visual translation. The results of that study showed that Almaany online dictionary did not include the idiomatic or metaphorical meaning which belongs to the lexeme, but it rather concentrates on the denotative meaning. Whilst Reverso Context has greater capabilities in translating terms within the contexts where they are presented. The conclusion revealed that Reverso Context exceeds Almaany on many levels which leads to considering Reverso Context as more reliable on the contextual and cultural level (Zemni et al, 2020).

Furthermore, a study was conducted by Almahasees et al, (2021), that evaluated Google Translate in translating English text related to COVID-19 reports of information which are transferred into Arabic language. The output of Google Translate was analysed in terms of orthography, grammar, lexis, and semantics. The most frequent use of Google Translate was during the COVID-19 crisis in rendering information and reports of World Health Organization (WHO) and other organizations. This showed that Google Translate cannot handle such texts and committed some errors. Those errors can be summarized as follows (Almahasees et al, 2021. P, 2071):

1- Deleting words that should exist in the target text.
2- Adding words that did not exist in the source text.

Additionally, the researchers concluded that, in order to avoid those errors which were committed by Google Translate and took 3.90% among other errors, the suitable method is the interference of humans. This interference can judge the quality of the machine translation system and can lead to terms of adequacy, fluency, and intelligibility of the output, (Almahasees et al, 2021).

3.   Research Methodology

3.1 Research Design

This research adheres to the exploratory design which comes under the umbrella of qualitative approach, and it seeks to examine the quality of three OSSs and to compare the outputs of these software services with HT in rendering various texts from English into Arabic. To insure a justified analysis and authenticated results, the same texts handled via these software services are also given to a professional translator who rendered them into Arabic. It additionally seeks to classify the problems that arise in the target texts. The data collected for this research were translated from English into Arabic by the three OSSs with three different texts, i.e., political, economic, and scientific registers. More specifically, the data were collected from the online editions of the following newspapers:

1-New Scientist- dated 07.09.2019.
2-USA Today- dated 16.09.2020.
3-The Economist UK- dated 14-20.11.2020.

3.2 Tools of Translation

The tools used in translating these various texts are three OSSs that are well-known among researchers, translators, and online translation customers. All of these three support Arabic language in their sets of language pairs. They are as listed below:

1. Google Translate: it is a form of neural MT that automatically translates text into more than 100 languages. According to statistics, more than 5 billion people around the world use Google Translate and process more than 100 billion translations of words every day. Moreover, GT is available as a website which can translate between languages online, and its offline feature can be used in mobile app after downloading the pair of languages in question (Adewusi, 2021).

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2. Reverso Context: Reverso is a company that focuses on artificial intelligence-based language tools, translation assistance, and language services. These include NMT (Neural Machine Translation) based online translation, contextual dictionaries, online bilingual indexes, grammar and spelling checkers, and combining tools. In 2013, Reverso Context released a bilingual dictionary tool powered by big data and machine learning algorithms. Its tools support multiple languages, including Arabic, Chinese, English, French, Hebrew, Spanish, Italian, Ukrainian, and Russian (see https://en.wikipedia.org/wiki/Reverso_(language_tools)).

3.Bing Microsoft Translator: this is a multilingual MT cloud service offered by Microsoft. Businesses can also get text and audio translation across the cloud with Microsoft Translator. Text translation services are offered through the Translator Text from a free tier that supports 2 million characters per month to a commercial tier that supports billions of characters per month. According to the timing of the audio stream, it offers voice translation through Microsoft Speech Services. The program provides text translation between 110 languages and language variants. Additionally, it supports multilingual translation tools like Skype Translator, Microsoft Translator, and Live Conversation for Skype for Windows Desktop (see https://en.wikipedia.org/wiki/Microsoft_Translator).

4. Analysis and Discussion

As noted earlier, the data collected were chosen from three various journals including three different texts representing three registers: political, economic, and scientific. These texts were translated by three websites of translations service: Google Translate, Reverso Context, and Bing Microsoft Translator. Each of which was used to translate the three texts as in the following paragraphs, and then at the end of these software services translated texts, the HT was posed merely for immediate comparison to show the accuracy or the shortcomings of such OSSs in handling these texts in particular:

4.1   The political Text (source text)

The accords won rare bipartisan plaudits from lawmakers with caveats. "As we learn more about the full details of both agreements, questions remain – specifically, regarding the commitment that the UAE has received from the Trump Administration to purchase American-made F-35 aircraft," said House Speaker Nancy Pelosi, D-Calif (Collins & Shesgreen, 2020).

4.1.1   TT by GT

حازت الاتفاقات على استحسان نادر من الحزبين من جانب المشرعين مع محاذير. وقالت نانسي بيلوسي، رئيسة مجلس النواب: "بينما نتعلم المزيد عن التفاصيل الكاملة لكلتا الاتفاقيتين، لا تزال هناك أسئلة ـ على وجه التحديد، فيما يتعلق بالالتزام الذي تلقته الإمارات من إدارة ترامب بشراء طائرة أمريكية الصنع من طراز."F-35
Google translate, 05.06.2023

4.1.2   TT by RC

وحظيت الاتفاقات باستحسان نادر من الحزبين من المشرعين مع تحذيرات. وقالت رئيسة مجلس النواب نانسي بيلوسي، ديمقراطية من كاليفورنيا: "بينما نتعلم المزيد عن التفاصيل الكاملة لكلتا الاتفاقيتين، تظل هناك أسئلة ـ على وجه التحديد، فيما يتعلق بالالتزام الذي تلقته الإمارات من إدارة ترامب بشراء طائرات F-35 أمريكية الصنع."
Reverso Context, 05.06.2023

4.1.3   TT by BMT

ونالت الاتفاقات استحسانا نادرا من الحزبين الجمهوري والديمقراطي من المشرعين مع محاذير. "بينما نتعلم المزيد عن التفاصيل الكاملة لكلتا الاتفاقيتين، لا تزال هناك أسئلة ـ على وجه التحديد، فيما يتعلق بالالتزام الذي تلقته الإمارات العربية المتحدة من إدارة ترامب بالشراء طائرة F-35 أمريكية الصنع"، قالت رئيسة مجلس النواب نانسي بيلوسي، D-Calif.
Bing Microsoft Translator, 05.06.2023

4.1.4   TT by HT

نالت الاتفاقيات استحساناً نادراً من الحزبين المُشَرِّعَين، مع وجود محاذير تكتنفها. وبهذا الصدد نوهت رئيسة مجلس النواب التابعة للحزب الديمقراطي في كاليفورنيا نانسي بيلوسي قائلة: "على الرغم من التساؤلات التي تثيرها كلتا الاتفاقيتين، إلا أنه قد ظهر لنا المزيد من التفاصيل الكاملة لهما، وأخص بالذكر الالتزام الذي تلقته الإمارات العربية المتحدة من إدارة ترامب لشراء طائرات F-35 الأمريكية الصنع".

4.1.5 Comments

As can be seen in the translations of the political text by the three OSSs plus HT, all of them followed the Arabic language order of sentence by starting with the verbs: نالت، حازت، حظيت. However, the verb "نالت" seems to be more appropriate than the other two verbs for such context of agreement between the members of the political rivals in the US. The differences among these OSSs and HT are as follows:

1-   In GT, RC, and HT, the statement of "*said House Speaker Nancy Pelosi, D-Calif*" was translated in accord with the Arabic grammar, which preferred the direct speech rather than indirect speech. While Bing Microsoft Translator kept following English style and mentioned it at the end of the paragraph. This is not the conventional way of Arabic quoting verb that usually comes at the beginning.

2-   GT and BMT failed to render the meaning of the abbreviation "D-Calif" which means "Democrat from California". However, RC and HT succeeded to convey such meaning.

3-   GT and BMT also failed to translate the phrase "*to purchase American made F-35 aircraft*" as they translated it to "شراء طائرة أمريكية الصنع من طراز F-35", and that makes no sense that the American commitment to UAE to buy only one aircraft. The correct transfer of this translation was by RC and HT which translated it into plural noun in Arabic.

4-   HT shared the mistranslation with GT and BMT in rendering the word "caveats" and mistranslated it as "محاذير", which is inaccurate translation. RC transferred it into "تحذيرات", which can be accepted, but it is not the accurate equivalence, the appropriate meaning is "تحفظات، تخوفات". The American Heritage Dictionary defined the word "caveat" as: "a warning or caution". The Arabic dictionary of El-Waṣeeṭ gives the meaning of "المحذور" the singular of "محاذير" ; as it clarifies it in Arabic as: "ما يتّقى ويُحترز منه" (2005, p. 162).

4.2   The Economic Text (source text)

A reckoning for the sector began with what looked like a shot across the bows of China's largest financial-technology group. The suspension by regulators on November 5th of Ant Financial's $37 bn initial public offering with less than 48 hours' notice was at first interpreted merely as a warning to its founder, Jack Ma, who had previously criticised China's state-owned banks. But on November 10th the publication of an extensive draft of new rules for technology groups laid bare the state's ambitions to bring to heel not just Ant, but the whole of China's tech industry. (The intimidation game, 2020, p. 58)

4.2.1   TT by GT

بدأ الحساب للقطاع بما بدا وكأنه طلقة عبر أقواس أكبر مجموعة تكنولوجيا مالية في الصين. تم تفسير تعليق المنظمين في الخامس من تشرين الثاني (نوفمبر) للاكتتاب العام الذي تبلغ قيمته 37 مليار دولار لشركة Ant Financial مع إشعار مدته أقل من 48 ساعة في البداية على أنه مجرد تحذير لمؤسسها، جاك ما، الذي انتقد سابقًا البنوك المملوكة للدولة في الصين. ولكن في العاشر من تشرين الثاني (نوفمبر)، كشف نشر مسودة شاملة للقواعد الجديدة لمجموعات التكنولوجيا عن طموحات الدولة في تحقيق ليس فقط Ant ، ولكن صناعة التكنولوجيا الصينية بأكملها.

Google translate, 05.06.2023

4.2.2 TT by RC

بدأ حساب القطاع بما بدا وكأنه لقطة عبر أقواس أكبر مجموعة تكنولوجيا مالية في الصين. تم تفسير تعليق المنظمين في الخامس من تشرين الثاني (نوفمبر) للاكتتاب العام الأولى لشركة Ant Financial بقيمة 37 مليار دولار مع أقل من 48 ساعات "في البداية على أنه مجرد تحذير لمؤسسها، جاك ما، الذي انتقد سابقًا البنوك المملوكة للدولة في الصين. ولكن في العاشر من تشرين الثاني (نوفمبر)، كشف نشر مسودة شاملة للقواعد الجديدة لمجموعات التكنولوجيا عن طموحات الدولة في جلب ليس فقط النمل، ولكن صناعة التكنولوجيا في الصين بأكملها.

Reverso Context, 05.06.2023

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4.2.3 TT by BMT

بدأ حساب القطاع بما بدا وكأنه لقطة عبر أقواس أكبر مجموعة تكنولوجيا مالية في الصين. تم تفسير تعليق المنظمين في 5 نوفمبر للطرح العام الأولي لشركة Ant Financial بقيمة 37 مليار دولار مع إشعار أقل من 48 ساعة في البداية على أنه مجرد تحذير لمؤسسها، جاك ما، الذي سبق أن انتقد شركة الصين المملوكة للدولة بنوك. ولكن في 10 تشرين الثاني/نوفمبر، كشف نشر مسودة شاملة للقواعد الجديدة لمجموعات التكنولوجيا عن طموحات الدولة لإخضاع ليس فقط النملة، ولكن صناعة التكنولوجيا الصينية بأكملها.

Bing Microsoft Translator, 05.06.2023

4.2.4 TT by HT

حظي القطاع باعتبار بدى وكأن سهماً عابراً أطلق من أقواس أكبر مجموعة للتكنولوجيا المالية في الصين. وفي بادئ الأمر، تم تفسير تعليق الجهات الرقابية لشركة آنت المالية الاكتتاب العام الأولي لها في 5 نوفمبر بقيمة بلغت 37 مليار دولار خلال فترة إشعار نقل عن 48 ساعة على أنه مجرد تحذير لمؤسس المجموعة جاك ما، وهو الذي انتقد في وقت سابق بنوك الدولة في الصين. وفي 10 نوفمبر تم نشر مسودة أولية مستفيضة حول قواعد جديدة تم وضعها لإخضاع الشركات التكنولوجية، كاشفة عن طموحات الدولة لإخضاع الصناعة التكنولوجية في الصين كلها، بما في ذلك شركة آنت.

4.2.5 Comments

As it can be observed, the rendering of the texts from English into Arabic was not that kind of easiness. The problems that emerged and differences among the three online software services can be explained as follows:

1- All three OSSs failed to translate the phrase "*with what looked like*". It is translated literally into "بما بدأ وكأنه", and by HT it is transferred into "باعتبارٍ بدى وكأنه", and that is inaccurate. It can be translated as "بما يشبه" because the next idiom to this phrase will determine the right meaning of this phrase.

2- All three OSSs and HT failed in rendering the meaning of the idiom "*a shot across the bows*" into "لقطة/ طلقة عبر أقواس". This translation is inaccurate. The right meaning of this idiom can be explained by the online dictionary of Meriam-Webster as "*a warning to not do something or to stop doing something*".

3- The name "*Ant Financial*" was not translated at the beginning and kept as it is in English in the target texts, whereas it is mentioned and translated into "النملة" at the end of the paragraph except GT kept it in English. In addition, that rendering is not transferring the exact meaning. All of these three OSSs did not give any further explanation about the nature of this "*Ant Financial Group*". The HT transliterated it into "آنت". It is also worth mentioning that the term 'Ant' was translated into Arabic in its plural form by RC, which is an error at the morphological level in Arabic that might give the impression of plural term of these insects as if it is dealing with a whole group of such creatures rather than a metaphorical use of the word in a single form for a commercial entity.

4- RC mistranslated the plural "48 hours" into Arabic and translated it as "48 ساعات". That transferring violates the Arabic rules of agreement in both gender and number.

4.3 The scientific text (source text)

Gravitational waves, which stretch and compress space-time, emanate from massive objects smashing together. The Lase Interferometer Gravitational Wave Observatory (LIGO) has seen the waves from more than 30 such events since 2015. Another detector, Virgo in Italy, has also come online. Multiple detectors make it possible to find more signals and figure out where they came from more precisely (Crane, 2019, p. 17).

4.3.1 TT by GT

تنبعث موجات الجاذبية، التي تمتد وتضغط على الزمكان، من تحطيم الأجسام الضخمة معًا. شهد مرصد موجات الجاذبية بمقياس التداخل الليزري (LIGO) الموجات من أكثر من 30 حدثًا من هذا القبيل منذ عام 2015. كما تم إطلاق كاشف آخر، برج العذراء في إيطاليا، على الإنترنت. تتيح أجهزة الكشف المتعددة إمكانية العثور على المزيد من الإشارات ومعرفة مصدرها بدقة أكبر.

Google translate, 05.06.2023

4.3.2 TT by RC

تنبع موجات الجاذبية، التي تمتد وتضغط على الزمكان، من تحطم أجسام ضخمة معًا. الليزر شهد مرصد موجات الجاذبية بمقياس التداخل (LIGO) موجات من أكثر من 30 حدثًا من هذا القبيل منذ عام 2015. كما ظهر كاشف آخر، برج العذراء في إيطاليا، على الإنترنت. تجعل أجهزة الكشف المتعددة من الممكن العثور على المزيد من الإشارات ومعرفة من أين أتت بدقة أكبر.

Reverso Context, 05.06.2023

4.3.3 TT by BMT

تنبعث موجات الجاذبية، التي تمتد وتضغط الزمكان، من الأجسام الضخمة التي تتحطم معا. شهد مرصد الموجات الثقالية للتداخل الليزري (LIGO) الموجات من أكثر من 30 حدثا من هذا القبيل منذ عام 2015. كاشف آخر، العذراء في إيطاليا، قد دخل أيضا على الإنترنت. تتيح أجهزة الكشف المتعددة العثور على المزيد من الإشارات ومعرفة من أين أتت بشكل أكثر دقة.

Bing Microsoft Translator, 05.06.2023

4.3.4 TT by HT

تنبعث موجات الجاذبية الممتدة والضاغطة للزمان والمكان (الزمكان)، من الأجسام الضخمة المتصادمة ببعضها. وقد شهد مرصد الموجات الثقالية بمقياس التداخل الليزري (ليجو) موجات لأكثر من 30 حادث تصادم منذ عام 2015م. كما تم تشغيل كاشف برج العذراء (فيرجو) في إيطاليا، وتتيح أجهزة الكشف المتعددة إمكانية العثور على مزيد من الإشارات، ومعرفة مصدرها بشكل أدق.

4.3.5 Comment

Here, in the TTs of the three OSSs and the HT of the scientific texts, the problems which emerged among those texts can be explained as follows:

1-   The problems that were shown in the political and economic texts can emerge here. For instance, the three OSSs transferred the compound noun "space-time" into "الزمكان", and there is no such word in Arabic language. The HT translated it correctly at first; however, he repeated the mistake of OSSs, and that is not accurate.

2-   In addition to the problems at the lexical level, there are also problems that emerged clearly at the grammatical level in this text such as the translation of RC: " الليزر شهد مرصد موجات الجاذبية بمقياس التدخل".

3-   Another problem, in all TTs and not particularly for scientific text, is the cohesion; except in the translation of HT which was more cohesive than OSSs. There is no coherence among the sentences of the TTs of OSSs, and that leads to producing a very poor translation of the source text (ST).

5. Results

The question under discussion is: What are the problems that emerge in the translation product of OSSs in various texts? To answer this question, three texts were selected: political, economic, and scientific to be translated by three OSSs: Google Translate, Reverso Context, and Bing Microsoft Translator in order to identify the problems and the differences that emerge among these online software services in rendering various texts. The results revealed the following:

1.   Problems at the lexical level included the mistranslation or failing to translate words, abbreviations, compound nouns, acronyms, and sometime they lack explanation. Examples for the compound words are: "الزمكان، النمل، محاذير", and for the abbreviation: "D-Calif., and for the Acronyms: "Ant financial". It is worth mentioning that there is a support in literature for the findings of the present study. These kinds of problems that were classified by Stankevičiūtė et al. (2017) are in congruence with this study findings as in the case of word missing errors that occurred in the translation of GT above in rendering the abbreviation "D-Calif". Further, there is the problem of deleting words that should exist in the TT, and this fact goes in accord with what has been stated by Almahasees et al., (2021). Unknown words are resulted from

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inappropriate transfer of words such as when translating the word "space-time" into "الزمكان"
by all three OSSs and HT.

2. Problems at the grammatical level included the errors of word order and passive voice
such as "شركة الصين المملوكة للدولة بنوك" and "الليزر شهد مرصد موجات الجاذبية"; however, HT is free
of this kind of problems. In this result, Al Shehab (2013) and Stankevičiūtė et al. (2017) pointed
out to the fail of the OSSs to deal with word order and passive voice.

3. Problems at the pragmatic level which were found in all of the three OSSs; that is, the
failure to translate the idioms and phrasal verbs as in rendering *"what looked like"* and *"a shot
across the bows"* "طلقة/ لقطة عبر أقواس", "بما بدا وكأنه", even the HT shared this problem with
OSSs in handling this type of idiomatic expressions.

4. Problems in cohesion which emerged in all the translations of the three OSSs texts and
led to misinterpreting the meaning of these translations. However, in terms of cohesion, HT
turned out to be a translation par excellence. Al Shehab (2013), and Aslerasouli & Abbasian
(2015) demonstrated that OSSs (i.e., GT) could not reach the level of professionals.
Consequently, the significant differences of the quality were in favour of HT.

5. To evaluate the quality of the three OSSs, there are slight differences among them
including the mistranslation at lexical level, whereas the translation of HT was mostly accurate,
and it was more cohesive than OSSs translations despite some minor errors at the lexical level
in this regard.

6. The OSSs shared the use of literal translation in rendering the texts from one language
into another, which led to mistranslation of words, idioms and figurative expressions, and could
not tie-up the ideas of the TT.

In concentrating on the translations of OSSs of the three various texts, it can be seen that GT
and BMT shared some likeness with translations of HT in rendering texts, particularly in lexical
and pragmatic levels, whereas the differences can be observed clearly with RC, as Zemni et al.,
(2020) concluded that RC is considering more reliable on the contextual and cultural level.

6. Conclusion

At the end of this research, the objectives were to find out the problems that emerge in using
OSSs in translating various texts as well as to examine the quality of these translations. The
answer of the first question revealed that there are problems at lexical, grammatical, and
coherent levels, whereas the answer of the first part of the second question of the quality of
OSSs revealed that all three OSSs shared common problems at all levels mentioned above
besides literal translation that led to mistranslation at word and above-word level. RC turned
out to produce more reliable translations than GT and BMT; however, it committed blunder
mistakes in word order and figurative expressions. As for the second part of the second
question, all in all, the HT was the most accurate translations in comparison to those OSSs,
especially at cohesion level and the endeavour of avoiding literal translation.

To sum up, users of MT may feel some sort of apprehension regarding the quality of the product,
but this practice gains so much interest all over the world. There have been some consistent
developments taking place in the improvement and updating of these OSSs and how to handle
accurate translations. Looking at the product of such machines online fifteen years ago was
absolutely different from what is seen today. Although fully accurate products are far reached
targets for the foreseeable future, OSSs are gaining very many customers that are mounting in
numbers day by day. As a suggestion, human post-editing effort is a must in all cases of MT
products because of the lack of total accuracy in such activity of such robotic wide spread
practice. Handling a bulk of material for translation is beyond human capability, and total

dependence of MT yields no perfect accuracy and quality. To solve this disparity, a mixture of both machine and human translation activities are to take part. The outcome of such bulky works is in need for human checking to refine such translation and to align it both lexically and semantically to make it in natural congruence of its context as well. As it has been outlined above in this research, the study is limited in both materials and tools. Finally, further research on OSSs may be extended to include more texts (materials) for translation from various registers and more (tools) online services to check precisely both quality and accuracy of such online practice of translation.

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دراسة للمشكلات الناجمة عن ترجمات برامج الترجمة الآلية عبر الانترنت لبعض أنواع من النصوص من الإنجليزية إلى العربية

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الملخص

تهدف هذه الورقة البحثية إلى التعريف بالمشكلات التي تظهر بمستويات مختلفة في النصوص المترجمة ترجمةً آلية ودراستها. وقد أعتمد تحديد المشكلات في هذا البحث على تصنيف كريستين نورد (Nord, 2018) التي صنفت مشكلات الترجمة تصنيفاً تداولياً، وثقافياً، ولغوياً، بالإضافة الى المشكلات المتعلقة بنصٍ محدد، مثل التعبيرات الاصطلاحية، والكلمات الجديدة وذات المعنى الجديد، أو التلاعب بالألفاظ. وتم استعمال منهج البحث النوعي من أجل النظر في كفاءة برامج الترجمة الآلية في نقل المعنى في النصوص المتنوعة، والتي أُستخدمت فيها بيانات من نص سياسي، وعلمي، واقتصادي وهذه النصوص مأخوذة من ثلاث مجلات مختلفة. وقد أظهرت النتائج أن المشكلات أخذت أشكالاً عدة، والتي لم تخلو مما صنفته (Nord,2018)؛ على سبيل المثال: مشكلات مفرادتية وأخرى قواعدية، ومشكلات تتعلق بوحدة النص وترابط أفكاره، وقصوره في نقل التعبيرات الاصطلاحية والتي تندرج تحت مظلة المشكلات التداولية واللغوية والثقافية سابقة الذكر. وختاماً، عند مقارنة هذه الترجمات بالترجمة البشرية أثبتت النتائج أن مخرجات الترجمة الآلية لابد وأن تخضع لتدخل الانسان في تعديل النصوص المترجمة باستخدام تقنية المراجعة والتحرير البعدي، أي تحرير نصي بشري للنص الذي تمت ترجمته آليا.