

Read the Input Text and take notes and check comprehension in preparation for the ESACb EoS Reading and Writing Exam. You should **not** attempt to memorise whole sections of the text to reproduce in the exam as this will be penalised.

## **Input text**

### **Machine Translation**

Information technology has significantly changed how information is communicated across the globe. Thanks to the use of emails, social media and shared databases, the world now seems to be a much smaller place. Yet the issue of language barrier still remains, hindering effective communication between people if the information is presented in a language the recipient does not understand. This deficiency calls for a technological solution, a solution that can remove this language barrier for those who do not share a common tongue.

Machine translation (MT) is the automated process in which texts (or speeches) are translated by computer software from one language (the source language, e.g. English) to another (the target language, e.g. Chinese). MT was initiated by computer scientists decades ago, but it is a relatively new concept for the general public. Early MT software adopted dictionary-based methods, using entries in a language dictionary to find equivalents in the target language before applying grammatical rules to the translated words. A key issue with this type of MT is that a single word can have multiple meanings (polysemy), and finding the most appropriate equivalent in the target language can be problematic.

Furthermore, if the two languages are not close, the dissimilarity in grammar can present significant challenges for accurate translation. Current MT methods are more advanced, benefiting from increasingly powerful computers and larger databases. Statistical Machine Translation (SMT) is the most common MT method today. As the name suggests, this method uses statistical models (such as Bayes) and vast amounts of language data to find the most probable translation based on the relative frequency of how a given phrase in the source language has been translated into the target language. In this way, SMT essentially 'guesses' the most likely translation to address the issue of polysemy. A more sophisticated but less common method is Neural Machine Translation (NMT), which imitates the thought process of human translators and builds an artificial neural network to 'learn' how to translate. NMT can improve its

performance over time. Examples of current NMT software include Google Translate, WeChat Translate and DeepL.

Machine translation is fast and inexpensive, offering clear benefits to individuals and businesses who cannot or do not wish to use human translators. MT engines can process millions of words per hour and produce reasonably accurate, usable translations in nearly any language. It is often perceived as the cost-effective option that can also provide the added benefit of saving time. For instance, a user can simply type or copy a text into an online translation tool, such as aforementioned Google Translate, and the translation will be produced within seconds or minutes, depending on the length of the text. In addition, Google Translate, like many other MT software, offers its service free of charge. This is clearly an advantage of MT over human translators. One other benefit of MT is easy accessibility. Translation can be done anywhere and at any time on portable devices, such as smartphones and laptops.

In 2020, a survey of over 2,800 small and medium enterprises (SMEs) published by the European Commission revealed that while an overwhelming majority of SMEs still preferred human translation for business activities, such as negotiating contracts and dealing with the public sector in another country, over 70% said MT was nonetheless useful for their businesses. When deciding whether or not to use MT, the most important factor for SMEs was accuracy, followed by ease of use, cost and speed. The majority of SMEs regarded social media (80%), gathering information (70%) and chatbots (60%) to be the main uses of MT. Machine translation is also a good choice in situations where having the materials translated by a human translator would take too much time. For example, MT can be used to translate PowerPoint presentations, intranet bulletins and other similar documents, particularly when the need to translate these documents is urgent.

Some believe that the quality of machine translation is invariably inferior to that of human translation. Converting text from a source language (e.g. Chinese) to a target language (e.g. English) is complex and intricate because a number of variables have to be considered during the process, such as vocabulary, sentence structure, style, fluency and cultural context. Translating any of these elements incorrectly can produce a translation that is unfit for purpose, causing

misunderstanding and failing to fulfil one of the most important aims of translation: retaining the meaning and integrity of the original text. It has been claimed that MT is able to produce translations that are reasonably accurate at times. Google Translate can be over 90% accurate when translating between English and Spanish. The accuracy rates drop only slightly, ranging between 80 to 90%, for languages such as Chinese, Korean and Tagalog. However, Google Translate performs significantly less well with certain languages such as Farsi (67% accuracy) and Armenian (55% accuracy).

MT often produces translations that are adequately comprehensible but may be unnatural or robotic. Some MT software adopt the 'literal translation' method, translating text word-for-word. This is particularly a problem if there are considerable grammatical differences between the two languages (such as Chinese and English). The translation may contain numerous errors due to problematic sentence structure and mistranslation of words and phrases. It can be a serious issue, particularly for businesses that generally require high quality translation for their marketing and public relation purposes. Poor translation can indeed increase the risk of significant reputational damage, leading to loss of revenue and clients.

Human translators are usually fluent in both the source and target languages. Good translators also understand the nuances and subtleties of both languages and consider the linguistic and cultural differences between the two languages while translating. Moreover, many human translators possess sufficient knowledge of certain fields (such as mathematics and computer science). Their professional expertise (and 'domain knowledge') can deliver high-level accuracy and sophistication that are required for important, professional documents. The 2020 European Commission survey reported that most respondents preferred human translation in formal situations, for example, when negotiating and signing contracts, resolving conflicts around commercial transactions, dealing with the public sector abroad and conducting marketing and promotional activities. It is believed that in these important situations, human translators are more suitable as they are more 'trustworthy', resourceful and adaptable than machine translation. This assumption seems reasonable, considering that less sophisticated MT software often leave words or phrases untranslated if they cannot find equivalents in the target language. The main issue with human

translation is the time it can take to produce an accurate translation, particularly when compared with the fast speed of its machine-based counterpart.

Speed may be crucial in the age of information explosion. The impact of the abundance of information in our time suggests that it is indeed challenging for humans to deal with this excess of information, let alone to process and translate all that information. This 'overload' of information can, however, provide opportunities for Machine Translation software to improve themselves as they can exploit the huge amount of data available to enhance their performance to rival experienced human translators. Other MT exists that is similar to AI, which can deal with the ever-expanding databases built on former translations, while a phrase-based translation program can develop its skills by trial and error using powerful processors.

The question is: how good can MT be?

(Wordcount: 1216)