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Computer (mechanical) translations in future

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Abstract

In the introduction part of this case study, information about how computerized translation programs started to be used as mechanical and theoretical devices is discussed. The contribution of computers in our ordinary lives is not only limited with storing the knowledge or having communication with one another interactively, but also they are effective in realizing the translating process without carrying the necessity of any human translator. Although this situation comes formidable to the ones like us who deal with a translating issue, after analyzing the subject as starting from a concept concerning both linguistics and semiotics, it can be understood that it is not that much scary.

Keywords: Computer (Mechanical) Translation, Future, Linguistics, Semiotics

1. Theoretic Introduction

In the movie "Star Wars" and its five following episodes there are two robots, which know thousands of languages and can do translations as well. Among these languages there are also dead languages, which have not been spoken for a very long time. Although this fact may seem like science fiction to us, in the future we will see that the computer translation (mechanical translation) will play a fundamental role in our daily life. This statement probably will make those angry who earn their living with translations or frighten them. The topic "Computer Translations" gained more and more importance in the last years in frame of the technologic development. The raising power of computer and the globalization is in need of translation programs, which can do qualified translations between many languages. Accordingly we have to ask, what translation actually is? "Only in mechanical translation the translation discrete is produced by the computer. This discreteness does not space out the editing of the raw translation produced by the computer." (Haverkort 2000, P.9) The computer translation is an act, in

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which a written source text is translated into a target text by the help of a computer. Written source text --- Computer (artificial intelligence, solving of the linguistic codes) --- target text

Although the model is very complicated, it seems to be depicted very simply. The computer translation is realized in five steps. Without the linguistic background, these five steps of the computer translation could not be understandable. Human translation and its theory are also based on linguistics. Computer translations and its starting point also depend on the human translation.

In the first step the hard disc of a computer values a certain written text in frame of the semantics. Semantics deals with the meaning of words. At first the words in the source text are translated word by word on the hard disc by the translation program. The difficulty lies in the ambivalence and connotation of the words. In this situation the language families play an important role, because the connotation and ambivalence of sentences or words in the same language family are similar. That's why the translation programs need a dictionary in source and target language in the frame of semantics, which includes connotations and ambivalences. "Those who tried to create translation programs back then thought that it would be enough to put dictionaries in source and target language into the programs." (Sezer 1990, P.39)

"For this, a network of semantic (or relational) relations will be created between the meaningful words of a sentence." (Haverkort 2000, P.9) I.e. the content of the words loses its meaning during translation, which is in need of a new form of expression in target language. "The only difference to human translation is that texts which pose no problem for the human translator can be a problem for the computer, because the computer does not have the necessary comprehensive abilities to understand a text." (Haverkort 2000, P.9)

Some computer programs like www.trados.org have overcome this problem today. Despite all difficulties they put a big amount of translated texts into the hard disc for the translation program. The program values these thousands or millions of translated texts and analyses in which meaning the words were used in general. This fact is called translation pool. I.e. the program today is capable of knowing in which word field a word was used. It would be a utopia that computers would produce 100% quality translations today.

In the second step the morphological elements in the computer software start. I.e. the orthography of words in source and target language are corrected by the computer, e.g. there is no "X" letter in the Turkish language. That's why the program alters the letters into the target language. The morphological elements in computer translations are the easiest step, because these can be solved easily, since there is an international phonetic alphabet.

The third step of the computer translation consists of a mix program, which values the aforementioned four steps in the hard disc. This is a complicated fact in frame of our topic. This step determines the quality of the translation, because now the program sums up the written in the target language. The artificial intelligence here show how near the technology can come to the human translation. In the third step the grammatical norms take place in the translation. The grammatical norms (syntagmatic) play a big role in computer translations.

Every part of speech in a sentence must be allocated for the translation so that the rules of the source language can be translated by the computer. I.e. the structure of the sentences and their build-up and order must be combined in relation to all sentence elements. That's why the sentence due to its function plays a big role in translation: "… the sentence is accepted as the biggest descripted grammatical unit in linguistics in general." (Bünting 1972, P.125) It can be extracted from the quote that the mechanical translation is not based on words but on sentences.

Accordingly the sentence is depicted in the tense form. After the structure of the sentence is present in the source language, the hard disc in the computer needs the valuation level of the language in order to translate the given sentence. This step in the computer translation deals with the structure of the words in frame of the morphemes. I.e. because the morphemes are the smallest units with semantic meaning, they are the turning point in the computer translation, since they are not only units with

semantic meaning but also units with function. Under function, elements like word types, word formation, inflection, declension, affixes, suffixes etc. are to be understood. They are a basis for the language as well as for the translation. "For the machine to replace words in the source language by words in the target language, a native speaker had to deconstruct the inflected words in their basic form and in logic symbols which are understandable for the machine." (Haverkort 2000, P.8) In the last step the software technology translates the given sentence into the target language. I.e. this way the program will not create the meaning of the sentences in the target language but only alter them.This altering consists of suggestions. The success of the program depends on the amount of translated texts, because the experience in software programs is given by the achievements of the translated texts.

1.1.Types of text in computer programs

The types of text in source language in computer translation play the essential role. The success of computer programs in future will depend on types of texts and their comprehension of texts. The software or the program arranges the text not after their specific forms. Whether a sentence is a literary sentence or no is irrelevant. It is important for the program that a text is not just a text but just consists of sentenced which have to be translated. The literary texts are sometimes not translatable, whether they are translated by computer or by human. Generally all kinds of forms of a sentence which are possible in source and target language were added to the dictionary. All kind of forms of the sentence make it possible to open the syntagmatic field, which is made possible in the last step of the computer translation. I.e. the program acts on the assumption that the sentence is structured the way it exists in the software for translation. (www.babylon.com)

Source language (Turkish) Target language (German)
„Bugün ben eve gitmemeyi düşünüyorum", ----------„Komm nach hause abfahrt heute"

If the sentence would be structured like "Ben bugün eve gitmeyeceğim", then it would be a right sentence in frame of semantics, syntagmatic and morphology, which the program can take into consideration. So the orthography has to be correct as well.
The computer system gives the main clause a number, checks to which extend is ordered in the source language, if the order is not valued correctly the sentence in the source language is skipped.

Turkish German
1. Ben eve gidecem---------- Ich bin zu EVE gehen (google translate)
2. Ben bugün eve gideceğim---------- Ich gehe nach Hause heute
3. Dün alışveriş yaptım---------- Gestern habe ich die Shopping
4. Ben bugün eve gideceğim---------- Ich werde nach Hause gehen (trados.org)

The first sentence is dialectic and structure in future 1 and was not treated as a correct sentence by the software. Sentence two was corrected in the source language and ordered correctly by the system. The third sentence brings a new problem, because the word "shopping" is assumed correct in target language, this is debatable. The fourth sentence is an ideal sentence in the source language and target language, because this sentence was translated many times before by the program.

5. Sevmek bin defa ölmek demekmiş --------Lieben soll tausendmal sterben (google translate)
Sentence five was taken from a song. But its equivalence in the German language is not correct. The source language needs correction here. The problem lies within literary text, which cannot be translated by computers. This thought is also valid for the human, who deals with translations.

6. Gün yirmi saat seni düşünüyorum-----Ich denke über 20 Stunden am Tag (google translate)

Sentence six was taken from a poem, which can be translated correctly by a human translator. The difference between human and mechanical translation composes the key point of the topic.

7. Su oksijen ve hidrojenden oluşur---Wasser besteht aus Sauerstoff und Wasserstoff (google translate)

Sentence seven is a scientific text, which can be translated easily and correctly by the computer. Scientific texts are text, which are easiest to correct. The amount of translated texts plays a relevant role here. The mechanical experience shows its advantage in such situations. Accordingly www.trados.org saves similar translated texts in its big hard disc, if the sentences have a similar or the same meaning and analyses the data, how often these sentences were used and in which meaning it was used. This amount or collection of the translated sentences is a sign for successful translation into the target language. This way the criteria of textuality are not taken into consideration. The criteria of textuality are the sentences.

2. Conclusion

Whether computer will do correct translations from source language into target language one day, depends on the primitive software programming of today. The software of computers in frame of translation theories is able to expose restricted texts after correction in frame of grammar. The correct exposure of the structuring of grammar in source language sentences plays the main role in translation. With secondary meanings, ambiguities, complex sentence structures, allegories, metaphors etc. correct translations are removed and there are always unknowable sentences. The linguistic competence of humans is evened out by the translated sentences in the computer translation. The amount of translated texts has the role of linguistic competence in computer translations. I.e. in its hard disc the computer has billions of given texts which were already handled in source and target language. The given translations show how often similar or equal sentences or words were translated in source language. This statistic analysis is an advantage because before starting translating there are translations, words by word, sentence by sentence which are already done.

3. References

Bunting, Karl-Dieter, (1972). Einführung in die Linguistik, *Mit Stichworten zur Pragmatik, Fischer Athennaum Taschenbücher, Frankfurt am Main, 125*

Haverkurt, Kurt, (2000). Lebende Sprachen, *Deutsche Forschungsgemeinschaft 8, Stuttgart*, *8-9*

Sezer, Ayhan, (1991). Hacettepe Üniversitesi, *Bilgisayarlı Ceviri Mümkün mü?39*

google translate

trados.org

babylon.com