Translation Theories in Computer Translation

Engliana
Universitas Indraprasta PGRI – Jakarta
engliana.seok@gmail.com

Abstract

There have been changes in recent years in the study of translation and languages due to advancement and development of technology including language processing for translation tools. Therefore, translation theories should raise an awareness of the needs for technology and software as parts of translators' workbench. This paper provides insights into computer translation through the viewpoint of translation theory. It felt that the modern-day translators - professionals and amateurs as well as translator-researchers and language specialists – should be informed about this, aiming to increase awareness on the relationship between translation technology and translation theory. At the end, the journey arrives at the conclusion that both human translators and machine translation come upon problems during the process of translation.

Keywords: *translation theory*, *computer translation (CT)*, *Transtool*

1. Introduction

The discussion of this paper is concerning about any influential factors of translation theory which possibly affect translation result using Computer Translation or CT. CT or also known as Machine Translation (MT) is an advancement of technology in translation to aid translators during their works and also a part of translators' workbench. In this paper, the writer focuses on translation procedures for a reason that the CT is often used to help human translator transferring sentences, which is considered not thoroughly related to the whole texts and in this matter of system. Moreover, this paper mere discussion is on *Transtool* alone although there are many other systems offered the similar benefits yet the writer thinks by focusing on one system, the analysis can be done thoroughly rather than mentioning all the systems all together.

There are three chapters in this paper on which consist of Introduction, Discussion and Analysis and Conclusion. Introduction chapter explains the background of the study and some relevant theories. The second chapter describes the translation process using *Transtool*, translation rules applied in the system,

translation theory applied as well as several examples of translation result of *Transtool*. Theories from Newmark, Nida, Larson, Baker as well as other scholars are used to support arguments, opinions and ideas of the writer of this paper in order to achieve the purpose of this writing.

2. Discussion

2.1. Concept of Translation

The nature of translating is about reproducing "the receptor language the closest natural equivalence of the source language message, first in terms of meaning and secondly in terms of style" (Nida & Taber, 1982, p. 12). It is therefore meaning and style are the core subjects in translation that if any of the major requirements are put aside as consequence the result cannot transmit the intention of the text or even the author. Nonetheless, quality of both meaning and style also should be questioned by translators, as it has been mentioned above: it has to have "the closest natural equivalence" afterwards, a translation result can be considered as well-qualified text of target language if the language flows naturally and it is expected that readers would think they read as in their natural language.

According to Nida and Taber (1982) on the issue of equivalent of translating, "the best translation does not sound like a translation … That is to say, it should studiously avoid 'translationese' … with resulting unfaithfulness to the content and the impact of the message" (p. 13). This means that the naturalness of SL is strictly maintained and should be well-preserved because if the texts are being over translated or less translated involving structure and meaning. The unfaithful result is about the translated text does not reflect the writer's intention of the SL thus the text is considered defying the key principles in translating.

Larson (1998) said that this kind of natural translation is said as meaning-based translations in which he explains that "meaning-based translations make every effort to *communicate the meaning* [italics added] of the source language text in the natural forms of the receptor language. Such translations are called **idiomatic translation**" (p. 15). The point on which Larson wanted to emphasis is that the translating is to achieve natural communication between the SL and TL which values authenticity of the message and considers as 'normal' language in

the receptor's day to day language. It is therefore Larson considers that idiomatic translation as a final result a translator should aim to.

Moreover, idiomatic translations are not only considering the meaning or message of the source language but also other such as grammatical constructions and choice of lexical items. Although the natural forms of receptor language is transferred by a translator, "translations are often a mixture of a literal transfer of the grammatical units along with some idiomatic translation of the meaning of the text … A translator may express some parts of his translation in very natural forms and then on other parts fall back into a literal forms" (Larson, 1998, p. 16-17).

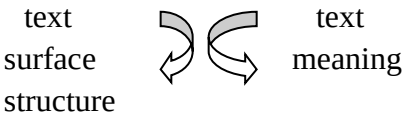
Therefore, a good translation can be measured by testing "dynamic equivalence: the form is restructured (different syntax and lexicon) to preserve the same meaning" (Nida & Taber, 1982, p.173). It can be inferred from the statement that a good translator should focus on the meaning of the languages, able to transfer the SL into TL without lessening or adding more meaning mentioned either explicitly or implicitly in the texts and ignore any personal problems in transferring that may result a bad translation. Even though the target text has to go on several procedures that change its syntax and lexicon, the point here is to make the translation is worth reading and does not read like a translation in the receptor's language. The word 'dynamic' here also means that although there are magnificent changes in both structure and language yet they are effective in transferring the right message of intended text to its readers. If the translator can produce this kind of translation, then he may be called a good translator for a reason that translation issue is about transferring exactly the same meaning and being understood into receptor's language.

2.2. Translation theory and CT

According to Kelly (1987) Machine Translation (MT) or also called Computer Translation (CT) is "the transfer of meaning from one natural (human) language to another with the aid of a computer" (p. 6). Thus MT is more or less as an attempt to make language transfer process easier, which consists of a combination of source language decoding and target language decoding. Through

this decoding and encoding operations in the computer, MT can be carried out by a data processing machine.

Problems in CT or MT are mostly on lexical ambiguity, syntactic techniques, semantic barrier, "no 'understanding' beforehand" (Wilss, 1982, p. 232) and textual as well as contextual understandings. In many cases of MT, text meaning is transferred without previous text meaning perception which can only be performed by human translator and this 'beforehand' understanding is one of the problems dealt by any translators. The syntactic techniques deal with sentence construction including grammar, word order, compound words etc which has to do with surface structure of an MT result in which it is in many cases translators or users should include pre- and post editing into account when they use MT program. Whereas the ambiguity in lexical meaning usually comes immediately after MT transfers the construction of SL. In MT result, the meaning of outside and within the context of the text are often found disconnected to each other and for this reason a translator should be concise with the sentence 'kernel' when editing the result especially when having MT translates complex sentences. In other words, most of the translation result in MT would be best describe in the following frame:



Grammatical form may change in the process of translation without changing the meaning yet it is very hard to preserve the meaning constant. In the semantic structure of language, translators have to be aware of **deep** or **semantic structure** and **surface** or **grammatical structure** since both of these structures affect the form and meaning of translating. Look at the following example of MT system *Transtool*:

SL language					
Page met the chief neurosurgeon outside ICU					
Breakdown of SL language					
Page	met	the chief	neurosurgeon	outside	ICU
***Transtool* result**					

Halaman	jumpa	kepala itu	neurosurgeon	ICU	(di) luar
Proofread result of TL language					
Page	bertemu dengan	dokter kepala	bedah syaraf	itu	di luar ICU

The MT result of translating an English text into Indonesian text has an outstanding difference in meaning which makes the TL language does not make sense to readers. For instance, 'Page' in SL text is a name of a character therefore it should not be translated because it violates the principle of translation in translating proper names. It says that "normally, people's first and surnames are transferred, thus preserving their nationality" (Newmark, 1988, p. 214), and for the reason to 'preserve' the character's name 'Page' should remain in the original text so the identity is preserved since 'Halaman' is uncommon name in Indonesian culture unless the text deals with certain cultures in Indonesia. If so, then the translator or editor should carefully choose the meaning before transferring into form. Another thing is the prepositional phrase *di luar ruangan UGD*, *Transtool* has translated an incorrect meaning because it translates 'outside' at the end of the sentence. Since it is a preposition, it should be place at the beginning of the intended place, which is *'UGD'*. Then the translator should translate *'ICU'* because '*UGD'* is the Indonesian word which has equivalent meaning to the source text.

Likewise, Nida's methodology of translation which shows contrary to linguistics theory prefers to start working on the deep structure of the source language to the target language for a reason of his belief that translations should 'preserve the same meaning' as he had mentioned (as cited in Gentzler, 1993, p.56) that:

> It is both scientifically and practically more efficient (1) to reduce the source text to its structurally simplest and most semantically evident kernels, (2) to transfer the meaning from source language to receptor language on a structurally simple level, and (3) to generate the stylistically and semantically equivalent expression in the receptor language.

Therefore, by having an understanding of what the text's intentions before generating the 'transferred understanding' into surface structure of the new language and reducing any possible inefficiencies and inaccuracies in the translating process, then the acceptable and efficient translation is to result. So Nida concludes the following methods: analysing SL surface structure, going to SL deep structure, then transferring into TL deep structure and finally arranging into TL surface structure can be considered as the method to achieve the highest equivalent level of translation. This 'kernel' issue is what he called as being able to "determine the 'flavor and feel' of the message" (as cited in Gentzler, 1993, p. 57) in which translators should truly know the language.

Klein points out that translation requires three types of knowledge (as cited in Wilss, 1982, p. 232), they are (1) real world knowledge, (2) situational knowledge and (3) text-internal knowledge. According to these knowledge base, therefore we can say that MT merely deals with the last area that is through text-internal approach because a computer program cannot 'read' or sense the 'flavour and feel' of the text like human translators do when they translate. Newmark (1991) states that "translation is concerned with *moral* and with *factual truth* [italics added]" (p. 1) and this statement is to clarify that translators, being a professional one, should meet certain requirements that make them to be able to weight several text values such as culture, setting, traditions, norm etc. instead of knowing merely the language so the translating process does not restrict only with transferring grammatical features.

Equivalence becomes the primary topic for most of translators, in this case are human translators. Furthermore since MT has become a part of translation tools due to the rise of technology and electronic advancement, it creates other various discussion topics of the value of equivalence in translation. As cited in Wilss (1982), Švejcer says that "equivalence is one of the central issues in the theory of translation and yet one on which linguists seems to have agreed to disagree" (p. 134). This seems that the problem of equivalence has become a problematical ever since.

Kelly (1987), in his discussion in a chapter *Why MT is Difficult*, is picturing eight levels of problems of MT, they includes similar list of tasks

performed by an interpreter: "word identification, word recognition, term recognition, syntactic analysis, understanding, language transfer, target language arrangement and utterance" (p. 43). However, according to the writer, there are only six points that will be discussed as they are considered as the most relevant and occurring factors in using MT. These following paragraphs are discussing those issues along with their correlations to related translation theory.

a. Word identification

In the first problem of identification, Kelly points out that computer translator do have limitation in identifying grammar or spelling errors thus it is impossible for the computer to 'read' as human do since they only read codes. Therefore, it is important for translator to re-check a sentence before having them translated using the machine in order to avoid more errors in the result.

b. Word recognition

He argues that "… different *forms* of a word can cause difficulty for a computer" (Kelly, 1987, p. 45). For instance, in English one word can have many different forms, which eventually carry out dissimilarities in meaning because forms of a word usually correlate to each other through function and relation. In this matter, collocations are the best example. A word *pay* have many forms, such as *pay attention*, *pay a visit*, *pay roll*, *pay station* etc and all the basis meaning of *pay* is affected by the other words collocated with it. If we translate *pay attention* into Indonesian using *Transtool*, the phrase presumably will sound like a word-for-word translation *membayar perhatian*, which is supposed to be *memperhatikan*. MT system would have been able to translate their meanings if only it had been updated with collocation dictionary in the system, otherwise the translator must edit the result and find the appropriate equivalent.

c. Term recognition

Additionally, idioms and proper names that do not exist in the "dictionary" used by the system will either be translated literally, or simply remain untranslated. It is suggested by Kelly (1987) that "… dictionaries for complete MT must (and do) contain many lengthy idiomatic expressions,

multi-word terms and (even if inserted only for the translation of a single document) proper names. And the dictionary look-up procedures must be able to access these terms after finding out the root form of each of the words of the term" (p. 47).

For this reason, if the translator is familiar with the SL, one can often make sense of the translation with the awareness that certain features of the original language structure and form will affect the translation. For instance:

English	*pig in a poke*
MT (*Transtool*) result	*Babi di (dalam) suatu kantung*

The MT result clearly shows that the *Transtool* system uses surface structure analysis to transfer the clause without weighing and identifying an idiom in the intended clause which requires deep structure analysis in which the human translator has to search for the meaning of SL. Therefore, it is best for the translator after finding the meaning of the SL, he or she can transfer it into the TL meaning before restructuring the grammatical units of the TL language at the end of the process. The best expression for the English idiom *pig in a poke* which has a meaning of "an unseen bargain; something accepted or bought without looking at it carefully" (Pig in a poke, 1975, p. 264) in Indonesian is *(bagai) membeli kucing dalam karung*.

Although the SL *pig* and the TL *kucing* (= *cat* in Eng.) literally seems have no correlation at all in the surface structure yet both of them are signalling a significant cultural identifications of western and eastern cultures. The 'beforehand' knowledge of cultural values of Indonesia, it is suggested during a post-editing stage that the human translator weighing if he chooses the correct word to replace *pig* into another which does not offend any culture setting and tradition as well as still carry the meaning of the message. Hence, it is very much important to perform pre- and post-editing in advance.

d. Syntactic analysis

This is also has to do with lexical items or words in sentences where every language has different combinations and distinguishes into concepts and meaning components. At its simplest an analyzer may just identify acceptable word-class classification.

MT uses two kinds of grammatical models (Kelly, 1987, pp. 48-49): the first one is the familiar phrase-structure model (Figure 1) which signifies that all elements in a sentence depend upon the subject whereas the dependency model or dependency analysis (Figure 2) depends upon the verb of the sentence.

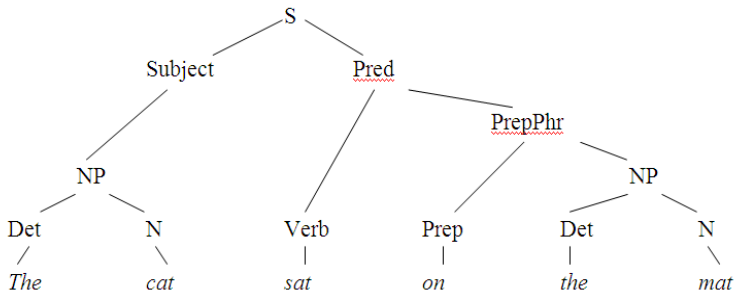


Figure 1

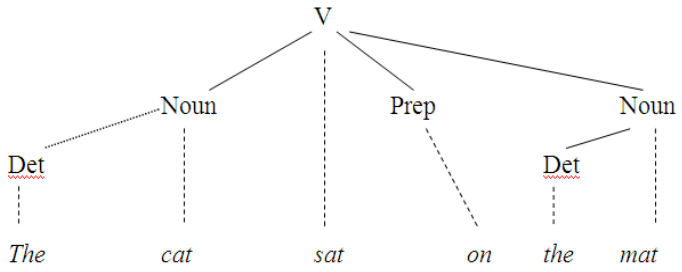


Figure 2

However if the system has to give description of natural language, this grammars are inadequate as 'the' have no context whatsoever to the text. They are unsuccessful to relate different structures having the same functional relationships, for example, *The teacher gave the students homework yesterday* and *Yesterday the teacher gave homework to the student*. Presumably there are some errors may occur in the result.

Another way to overcome these deficiencies in the result is by developing equivalent 'surface' structures from the same 'deep' phrase structure by transformational rules which "modify the deep structure, resulting in the surface structures – all sentences in a given language" (Gentzler, 1993, p. 43).

e. Understanding

Kelly (1987) states that:

> In the context of MT I will offer as a definition: Understanding is the *internal representation* [italics added] of the information contained in a message, and the *integration of that representation* [italics added] with all other possible messages that constitute our perception of the real world. (p.49)

The 'internal representation' relates to the core and intention of a sentence functioned and interrelated items in the sentence. For example:

English *I first saw Emma Harris when I was ten*

Transtool *aku pertama gergaji Emma Harris ketika aku adalah sepuluh*

The emerging error in *Transtool* result is the meaning is not communicated well, it is rather misinterpret by the system. In the first clause, we can notice the striking word *saw* is translated into *gergaji*, which surely that is not the meaning of the SL. It signifies that *Transtool* cannot locate a change of verb from *see* into *saw* in past form; therefore it transfers another semantic category. Secondly, the next clause I was ten does not correctly translated because the meaning is confused with the auxiliary usage *was* where it is explaining the age of the character. The correct Indonesian expression for this clause is *aku berumur sepuluh tahun* and this issue signifies that again *Transtool* cannot 'understand' context and 'think' logical structure.

Another example can be seen from the following English sentence translated into Indonesia.

English	*eating is very necessary*
Transtool	*makan adalah [yang] sangat perlu*

The problem here is the expression of the TL language. Although the surface structure has the correct result yet the TL sentence is not communicative enough. The reason is because the system cannot allocate the meaning. The auxiliary is translated in equivalent level.

f. Target language arrangement

TL arrangement according to Kelly (1987) manages to carry out the following actions:

> Having got the information – the words for the target language, we still have to arrange them in the correct order for that language and apply any agreements that are needed, and make other modifications. (p. 55)

Kelly points out the problem of word order of the MT result need to be taken into account. The term 'modification' here conveys as an action taken by human translator to make adjustment in both deep (semantic) and surface (grammatical) structures of the TL text to make sure that the **form** and **message** between the SL and TL are in line. For instance, look at the following example of *Transtool*:

English	*the man knifed him to death*
Transtool	*orang [laki-laki] menikam dia sampai mati*

The word order in the sentence coveys a similar meaning to the SL yet it is not the appropriate expression of Indonesian natural language. *the man* should be modified into *laki-laki itu* in order to present both form and meaning in a correct order of the natural target language and as a result an equivalence is achieved as well as faithful translation.

After comprehensive project of Heidleberg University, Wilss (1982) concluded that the MT result still requires human involvement in order to be called as final result acceptable to readers:

> An outstanding aspect for the assessment of the operability of such projects is the required degree of manual (i.e. human) pre-editing and/or post-editing of MT results, because the volume of pre-editing and post-editing is a very important cost/efficiency factor. Hence, from a cost/efficiency point of view, an MT system requiring no pre- and/or post-edition of MT results would be optimal. So far, however, none of the practice-oriented MT projects can manage without pre- and/or post-editing. (p.237)

Although the approach made by the project concluded that MT system could manage and reflect human translation procedures without human intervention, yet presumably Wills seems to doubt the 'optimal' result of MT system. Most post-editting are done by translators and are used to producing high quality texts. They are likely to apply the same sort of output standards to their translations and those standards are usually practiced theory of translation. One more thing, these translators will need to refer more to the source language text when the output is far beyond their expectation and this is when a full construction of text happens. Generally, familiarity with the source language texts and the natural target language text is required here so as to minimize the time consumed in post-editing process.

3. Conclusion

In other words, the differences in human translators and machine translator are truly significant although we cannot deny that human almost impossible to compete with the speed of the machine in translating a sentence. Several important points have already made in analysing translation theory in the machine translation so far.

First, they have a similar task that is translation on which transferring of form and meaning take into account. From this common task, however, the problems of equivalence have started to emerged where skewing of meaning takes place in translation from the machine to achieve the authenticity of natural

language and faithful translation. The core of this problem is the working system has limited capability in weighing some basic factor that influence text the most such as cultural word, communication situation, linguistics, human experiences or previous knowledge and understanding, etc. Those are the elements in which the machine cannot deal with even with up-dated electronic dictionary. For this reason, translation equivalent is to become serious issue in MT.

Translators and the machine also encounter challenges in transferring surface structure consisting lexical, syntactical and grammatical issues and deep structure relying upon the concept of meaning. Again that translation is about procedure which includes a process of decoding and encoding language code into appropriate equivalence and it is to say that MT has limited choice in the process.

References

Gentzler, E. (1993). *Contemporary translation theories*. London: Routledge.

Kelly, I. D. K. (1987). Computer translation of natural language. In W. Goshawke, I. D. K. Kelly, & J. D. Wigg (Eds.), *An overview of machine translation* (pp. 1-69). Wilmslow: Sigma Press.

Larson, M. L. (1998). *Meaning-based translation: A guide to cross-language equivalence*. Lanham: University Press of America.

Newmark, P. (1988). *A textbook of translation.* New York: Prentice Hall.

Newmark, P. (1991). *About translation*. Clevedon: Multilingual Matters Ltd.

Nida, E., & Taber, C. R. (1982). *The theory and practice of translation*. Leiden: E. J. Brill.

Pig in a poke. (1975). In *A Dictionary of American Idioms.* Woodbury, N.Y: Barron's Educational Series, Inc.

Wilss, W. (1982). *The science of translation: Problems and methods*. Germany: Gunter Narr Verlag Tübingen.