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idiomatic and metaphorical expression. At present time, they are working on idiomatic dictionaries so that the computer can distinguish the different meanings of the same word.

High speed is another advantage of MT. Human translation is just too slow (2000 to 3000 words a day) and expensive while MT is fast (2500 up to 15000 words per minute) and cheap. MT is sufficiently accurate and good enough in terms of quality and speed in order to conduct most business conversations and execute an e-commerce translation, because it gives an instant idea of the meaning of document or e-mail content. According to Gartner Group (2003) "MT is expected to be among the 100 most important technologies in the 21st century."

Today, there are more low-cost high quality automation translation systems on the market covering more language combination than ever before. According to the sixth compendium of translation software dating from March 2003, there are 152 separate MT systems just for English as source language. In addition, English is translated into 37 different target languages. Thus, Understanding where MT is useful and why, will help ensure successful deployments.

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incorporates the correct language pair dictionary for it if the text does not contain more than three different topics.

Advantages of MT

Many researchers and translators are often disappointed with the output of MT, but the technology is improving and more users emphasize that “MT is not perfect, but it has become an economic necessity(Vander Meer 2003).” Hutchins(2001) confirms the fact stating “The growth of the global telecommunication networks and the internet, making possible immediate communication in many languages, has led to a demand for translating systems and services to deal rapidly in real time with an immense and growing volume of electronic texts of all kinds.” Lou Cremers(2002) has claimed “MT should be regarded as enabling technology which speeds up routine work leaving the translators to apply special domain and language skills.”

Since the world is badly in need of translation(Kay 1997) and the demand will even be higher in the future(EsseLink 2001,Cronin 2003) machine translation is fast becoming an essential technology for globalizing websites. Therefore, it can be used in a number of specific domains and as a tool for getting the gist(Allen 2003).

Experts hope to reduce the rate of errors and improve the quality of MT outputs in the future.According to Transclick Group (2004) “in spite of 5% to 35% error rate in machine translation, we believe we can reduce that error rate by 50% in the next 12 months.” They claim their computer in the future will recognize the context, and import the right

1a. Pre-editing: is understood as the process of identifying problems and, where necessary editing the source text before translating it so that any strings of text that an MT system will have problems with are highlighted and removed or modified in advance. The final aim is to achieve better human readability and clarity of the SL text, as well as better computational processing or translatability.

1b. Post-editing is the attempt to convert raw machine translation output into a product that can not be distinguished from human translation.

2. Controlled Language (CL)

If we can restrict the grammar and lexicon and try to reduce or even eliminate ambiguity and complexity in texts, MT results will be acceptable. Therefore, MT works best in domain specific and controlled environments. The first success in this regard was “Meteo”, a system for translating weather forecasts from English into French which is used by the Canadian Broadcasting service.

3. Use of MT along with TM

Translation Memory(TM) is a computer software program used to create a sentence database of a company's translations, for re-use and on subsequent translations. Therefore, TM should not be confused with MT. The difference is that in Machine Translation (MT) a computer translates the text, while in Translation Memory(TM) systems, the computer restores translated sentences. (Terence 2001, Shuttleworth 2002)

4. Dictionary building and updating

Dictionaries can be customized for translation of dynamic content in specific subject domain so that it first recognizes the context and

Commission use MT only as a first step. Later human translators have to intervene to give the text its final form.

Word-for-word rendering is another problem by MT. The computer can only recognize entries already present in its memory and is incapable of interpreting the logical meaning of a phrase.

As a consequence, machines do not produce perfect quality translation for the time being, and the outcome sound too “literal” and, therefore, awkward. But we should also consider that MT is a means to an end and that translation itself has never been and cannot be “perfect”. As Hutchins (2001) pointed out “there are always other possible translations of the same text according to different circumstances and requirements. MT can be no different: there cannot be a perfect automatic translation.”

Optimizing Machine Translation Efficiency

According to Lorena Guerra Martinez (2003) different approaches can be taken to optimize MT efficiency:

- 1) Human interaction either before (pre-editing), during, or after (post-editing) MT.
- 2) Controlled language (CL).
- 3) MT combined with Translation Memory (TM) systems.
- 4) Dictionary building and updating.

A brief explanation of each will be outlined to present a general overview.

translation.” Hutchins (2003) pointed out that “MT is still better known for its failure than success.”

Baker (1999) has identified three types of general translation difficulties when using MT. The first one refers to distinguishing between general vocabulary and specialized terms. Baker (1999) argues that “A computer or an inexperienced human translator will often be insensitive to subtle differences in meaning that affect translation and will use a word inappropriately.” The second type of difficulty is distinguishing between various uses of a word of general vocabulary. The various meaning of a word such as “run” for which 54 different meanings have been recorded in dictionaries cannot be distinguished by MT. The third type of difficulty is the need to be sensitive to the total context including the intended audiences of the translation. MT cannot taken into account the context and important details such as regionalism.

Another disadvantage of machine translation is that it often takes more time pre-editing and post-editing than it actually takes for translating the text. Martin Kay (1999) also asserts that “few informed people still see the original idea of fully automatic high-quality translation of arbitrary texts as a realistic goal for the foreseeable future. Many systems require texts to be pre-edited to put them in a form suitable for treatment by the system, and post-editing of the machine’s output is generally taken for granted.” He believes that if the translation machine would consult with a human speaker of the SL with detailed knowledge of subject matter, that outcome would be more acceptable. Even some international agencies such as the United Nations and the European

target texts without any human intervention.

Different types of translation

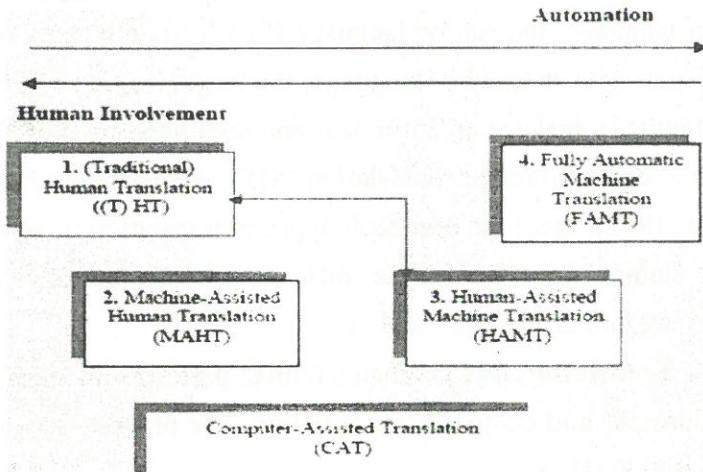


Fig.1 (Hutchins and Somers 1992)

Since machine translators are widely used by organizations and companies around the world, it is worthwhile to look into its reasonable potential and current limitations.

Disadvantages of MT

While MT is an interesting concept and substantially increases the translation speed, the reality is that machine translation is poor in quality. It seems that we cannot have both high quality and high speed at the same time. Language is just too complicated for machines to understand all of the vocabulary, grammar, and context in source and target language. Hutchins (1996) was also very negative about MT. Somers (2003) indicated “MT was slower, less accurate and twice expensive as human

Machine Translation (MT) of written text from one language to another uses specialized computer software programs, that input a text in a certain language, the source language (SL), and deliver its content in an equivalent text in another language, the target language (TL). So, when a computer translates an entire text and then presents it to human, the process is called Machine Translation (MT). According to Hutchins and Somers (1992), there are four basic types of translation in which the degree of human involvement is different. Using an appropriate terminology we can categorize them as :

- 1) **Human Translation (HT)**: When a human performs all steps in the translation process and composes a translation. The process is known as human translation (HT).
- 2) **Machine Assisted/Aided Human Translation (MAHT) or computer Assisted Translation (CAT)**: Translation in which a human translator is responsible for doing the translation. The translator makes use of a variety of computerized tools that can range from automatic lookup programs to systems, which require the translator to approve each sentence. The purpose is to speedup the human translation process.
- 3) **Human Assisted Machine Translation (HAMT)**: The process takes place consulting with a human speaker of the source language (SL) with detailed knowledge of the subject-matter for pre-editing and post-editing.
- 4) **Fully Automatic Machine Translation (FAMT)**: An automatic translation system that makes use of an advanced computational linguistic analysis to process source documents and automatically create

An overview of Machine Translation (MT)

Saed sifarian*

For many years, man has thought of inventing a dream-machine that could remove the language barrier and produce the highest quality translations to mankind. As a result, for more than five decades people have tried to program computers to translate from one natural language to another, and the emphasis has always been on search for methods and theories for the achievement of perfect translation.

Translators, on the other hand, have watched the development in the field carefully. Some of them believed that translation could not possibly be mechanized. Others feared that their profession would be taken over entirely by machines. (John Hutchins-2001)

However, the use of Machine Translation (MT) seems to be inevitable in the 21st century because of the need for rapid information exchange and competing in the globalized market-place. According to ALPAC's report in 1996 (Automated Language Processing Advisory Committee) "MT will be the glue that holds the global information society together." Therefore, it seems essential for everyone to become familiar with its concept.

Key Words: Machine Translation – natural language – mechanized – globalized market-place – Automated Language Processing.

What is Machine Translation (MT)?

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