Machine vs. Human Translation
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Using computers to translate text from one language to another (referred to as *machine translation* [MT]) no longer faces the same fate as the long awaited videophone; it is a technology being used everyday by corporate communicators worldwide. Despite its increased use, machine translation still has significant and problematic limitations. MT has developed to the point that it is an effective technology if used wisely. If you are responsible for publishing documents for international markets, or manage those who are, you will need to evaluate whether MT is a viable option for your purposes. There are some contexts in which MT is effective and others in which human translators are preferable.

A Brief History of Machine Translation

The idea of converting one language to another--automatically and instantaneously--has been a long held dream of anyone needing to communicate between cultures. This is why computer translation of documents, also referred to as machine translation, has been the focus of intense interest since the advent of programmable, general purpose computers during WWII.

Cold War intelligence spurred the development of machine translation thanks to the stream of documents in Russian gathered by the U.S. military and intelligence agencies during the 50's and 60's. Throughout this period university and government research funding drove the development of MT. By the late 60's, those investments showed few returns and interest in MT began to wane. Funding for such research dried up until the late 70's, at which time advances in theoretical linguistics and the growth of computing and language technology converged, resulting in the first practical MT tools for main frame systems. The impact of the personal computer revolution that began in the 1980's has been the development of PC-based machine translation software.\(^1\)\(^2\)

The most meaningful advances in MT during the 90's have been wider mass appeal (for better or worse), and most recently, the use of "translation engines" on the Internet to allow for real-time translation of websites and email messages.
How Effective is Machine Translation?

MT truly seems miraculous the first time you see it in action. You open a document, select the text you want to have translated and press the "Translate" icon. Depending on how much text you've selected, within a couple of seconds or minutes, there appears your translation in Spanish (or German, French, Italian, etc.). Eureka! It works! Almost. If you are fortunate enough to know the language you have just translated your document into, you will quickly notice problems.

For example, below is a paragraph from Advanced Language Translation's website. We publish part of our site in German, French and Spanish. Our human translators translate these foreign language pages. As a test, we submitted this German paragraph to AltaVista's Babelfish Translation Engine3 (developed by Systrans):

**German Original**
"Advanced Language Translation bemüht sich, nur mit akkreditierten Übersetzern zu arbeiten. In Situationen, in denen das nicht möglich ist, werden sie von Advanced Language Translation direkt vor Ort bewertet und getestet. Hierbei handelt es sich um eine Qualitätssicherungsmaßnahme, die Ihrem Unternehmen garantiert, daß sich Advanced Language Translation um hervorragende Leistungen bemüht, wodurch Advanced Language Translation weiterhin den Ruf genießt, Übersetzungen höchster Qualität zu liefern."

**Machine Translation**
"Advanced LANGUAGE translation strives to operate only with accredited compilers/translators. In situations, in which that is not possible, they are directly locally evaluated and tested by Advanced LANGUAGE translation. Here it concerns a quality assurance measure, which guarantees your enterprise that Advanced LANGUAGE translation strives for outstanding performances, whereby Advanced LANGUAGE translation enjoys further the call supplying translations of highest quality."

**Human Translation**
"Advanced Language Translation endeavors to work with only accredited translators. In situations where this might not be possible they are evaluated and tested in-house by Advanced Language Translation directly. This is a quality control measure that assures your company of Advanced Language Translation's commitment to excellence and guarantees our reputation for producing the highest quality translations."

The MT translation is understandable, but clearly not of publishable quality. I give Babelfish credit for at least offering alternatives in its translation when it found a term ambiguous, which was the case in regard to "Übersetzer" (translator). This example is actually one of the better translations. On the same page there is a paragraph heading that simply reads, "Allgemeine Wirtschaftsübersetzungen" (General
Business Translations), the MT version was "General restaurant translations." The computer did a word-to-word translation of "Wirtschaft", which in German in this context means "business", however, one definition that you would find in a German-English dictionary would be restaurant. This example demonstrates the inherent difficulty in machine translation--the computer cannot discern context and intended meaning the same way a human can.

There are advantages to MT. The primary one is speed. Globalink currently claims that its TranslatorPro 6.4 software can achieve seventeen words per second of translation (this equals 61,200 words per hour). Accomplished human translators can manage about 650 words an hour. The other advantage is drop-dead consistency. You don't have to worry about someone taking too much creative license with your translation or simply forgetting how a given term was translated fifty pages ago, a computer will always translate the same word in the same way. The only downside is that it will also commit the same errors over and over unless you tell it not to.

The last advantage most of us typically think of first is cost. MT is usually perceived as being cheaper than human translation. However, as is often the case when evaluating MT, it depends on how the technology is being used. If you look only at the cost of producing an initial draft of a translation, then MT will almost always be cheaper (excluding the front-end cost of purchasing the MT software). Much of the cost savings is lost once you intend to create market-ready translations.

MT is analogous to being an extremely fast typist. You can type up to 100 words per minute with 30% accuracy, or type at 30 words a minute with 99% accuracy. Being fast is great, but if accuracy is important and must be put back into your translation, then you are losing a lot.

The limitations of MT are clearly recognized by the makers of the software themselves. They are no longer touting 98% accuracy rates (which translates to two errors per hundred words). Globalink, one of the leading developers of MT software, takes a more practical approach in marketing its software and includes this disclaimer about its products:

"A word about language translation software:
Because human language is complex, results will vary depending on the source text for each translation. Therefore, consider your translations as drafts which enable you to quickly and inexpensively handle day-to-day business communications in foreign languages."

Systran, the pioneer of commercial translation software, also has its own caveat:

"Please note: SYSTRAN strives to achieve the highest possible accuracy, however no automated translation is perfect nor is it intended to replace human translators. Users should note that the quality of the input significantly affects the translations."
In general, the current capability of most high-quality MT software applications will allow you to generate draft quality translations. This level of quality can also be referred to as "gist-level" translations. Knowing this, where can you use MT effectively for your international communications?

**Where Machine Translation can work well**

**On the Internet**
MT has quickly shown its value on the Internet. If you can stomach some odd turn of phrase, tortured syntax and quirky word choice, than you can actually get a lot of work done on the Internet using some of the web-based MT technology. It is really great to do research on a Japanese site, mining for information that may take months or years to trickle through traditional communication channels to find its way into standard English publications. You can quickly get the gist of a website, determining if your search is on the right track or not.

MT plug-ins for your email program make it possible to compose a message and then translate before sending it to a colleague overseas. This can also be of great use as long as you write in a very simply, concrete style. You should forewarn the recipient if possible that you are using this technology, so that it will be clear to take what you have written with a grain of salt. (You also don't want them to think that you are a functional illiterate in their language. That's worse than not knowing the language!)

**For Technical Publishing**
MT has been used with success by many companies in preparing technical publications for international markets. A famous example is Xerox Corporation, which has been using Systran MT software since 1978. For MT to be both quality- and cost-effective for technical publications, the following steps must be part of the whole translation process:

- Customized, subject-specific dictionaries used by the MT software must be developed and continually updated by human linguists
- "Controlled Writing" style standards must be used for all source language (English) documentation in order to avoid the "junk in, junk out" rule that governs MT
- Extensive post-editing by human translators must be conducted to ensure quality

When weighing the cost-effectiveness of MT, you must take all the above steps into consideration as well as the front-end costs of purchasing the software to determine if MT will be more beneficial than human translation. If your documentation is of sufficient volume
and falls into a narrowly defined subject matter area, MT may be a good option for you.

**Machine Translation vs. Computer-Aided Translation**

MT has not evolved without important contributions to human translation. When talking about human translation, we might better use the acronym CAT or *computer-aided translation*. Some people view MT as exactly that, but there has been a boom in development of technology that drastically improves the performance of human translators. Technologies using Translation Memory (or TM) are true computer aids to human translators. Translation Memory is simply the building of a translation database for a given document or groups of documents. TM software (not to be confused with MT software!) "records" what the translator is translating, linking what are generically referred to as "syntactic units" of the source language with corresponding ones in the target language. These syntactic units are typically sentences or clauses. When the translator encounters a syntactic unit that has been translated previously, the software immediately displays the existing translation. The translator then has the option of reusing the previous translation.

Once a sizeable Translation Memory has been developed, then CAT software can be used as MT software. By using a function known as "pre-translation" (common in most CAT software), the translator first lets the computer find all text that has been previously translated, automatically translating potentially large portions of a manuscript. Then all the translator needs to do is translate those portions that have not yet been translated. In the process the TM is expanded and the next round of translation on a new document will require even less new translation.

The primary benefit to computer-aided translation is that it is still human translation. The quality of the resulting first draft is much closer to publishable quality than anything that can be generated by MT software. In addition, translators utilizing CAT software are vastly more productive and their work has greater consistency than translators not using this technology.

Currently, there are efforts underway in the language industry to find productive ways to merge the two technologies. This "mediated approach" to the MT vs. HT debate will yield the best results in the long run. However, translation will always be a human process, since it is human communication that we are mediating.
References


5. Ibid


Author Information

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