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# Lost (and Found) in Translation: a Look at the Impact of Google Translate and Other Translation Technologies

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Boone

*“Each language has its own take on the world. That's why a translation can never be absolutely exact, and therefore, when you enter another language and speak with its speakers, you become a slightly different person; you learn a different sort of world.”*

*-Kate Grenville*

### Lost (and Found) in Translation: a Look at the Impact of Google Translate and Other Translation Technologies

I took the sentence “I need to buy a present for my friend’s birthday” and ran it through Google Translate. From English to Yiddish to Arabic to German to Japanese to Hebrew to Korean, then back to English. One might think that the sentence would either be exactly the same, or at the very least, contain the same idea as the original. The sentence now reads “I have a gift, buy a girlfriend's birthday.” Why is this? Translation technology has become a ubiquitous feature of nearly every computing device, yet it does not always give accurate translations. The sentence I just wrote was fairly simple, yet the end result was a far cry from the original thought, so one can imagine what happens when slang, idioms, metaphors, and other complex literary devices are thrown into the mix, even when one is translating back and forth between just two languages. So why, then, are translative technologies so trusted and depended on for accurate information? Additionally, people are now coming to rely on these technologies in lieu of learning the language; when this happens, the culture connected to the original text or spoken word may be lost.

The first thing that must be done is to understand what translation technology is and how it works. According to the online edition of the Oxford Dictionary, translation is defined as “a

written or spoken rendering of the meaning of a word or text in another language” (Oxford). It is very important to look closely at this definition; not only are texts put into another language, their *meanings* also have to translate. For example, if one were to translate the phrase “my heart will go on” one must be sure they are translating something along the lines of steadfastness, and not “my cardiovascular muscle will continue.” Additionally, tone must be taken into account; one must be able to tell if the tone is sarcastic, for example. Not all languages have sarcasm (in languages like American Sign Language, if the body language and signs do not match, the “listener” will key in on the body language to determine meaning, rather than interpreting the disparity as sarcasm) so translators must take extra care to produce an accurate translation. If the translator is not careful about the meanings, emotion, and context of a text, translation then becomes more or less a game of russian roulette with a thesaurus.

In any language, in order to build a sentence, one needs to employ semiotics: the study of signs and their meanings. There are three things that make up semiotics: syntax, semantics, and pragmatics. Syntax is the structure of a sentence; how is it built? What goes where, and is order important? Semantics are the meanings of words and phrases; are there nuanced differences between synonyms? Do the denotations (the dictionary definitions) and the connotations (the feelings the word inspires) of a word or phrase differ? Finally, there is pragmatics, or the goal of the sentence; through the written or spoken word, are someone’s ideas clearly understood by their intended audience? All three components, wrapped up into semiotics, are essential for communication. With that being said, it only makes sense that semiotics must be utilized in translation and translation technologies in order to produce an effective and understandable material..

Translation technology -- specifically Machine Translation (MT), where the translation process is fully automated-- works by utilizing one of three main systems: Rule-based, Statistical, and Neural. With Rule-based Machine Translation (RbMT), the software is “built on algorithms that analyze the syntax of the source language and uses rules to transfer the meaning to the target language by building a sentence” (“Rule-based”). Essentially, what this means is that using a series of mathematical equations, the machine can look at the structure of a sentence in one language and use a matching structure in another language to rebuild the sentence fully translated. The drawback to this system is that idioms, slang, and other, more abstract aspects of language cannot usually be correctly translated.

Statistical Machine Translation (SMT), like RbMT, applies equations to get translations. However, the way SMT applies the math is slightly different. SMT will create several different possible “candidate translations, called hypotheses” and then statistically evaluate the correctness of each one until it can choose the one with the highest probability (Schmid). The advantage of Statistical Machine Translation is that it has a better chance of accuracy. However, SMT is harder to create a model for and may require extra data (Schmid).

Finally, there is Neural Machine Translation (NMT). NMT, much like its name suggests, is modeled after the human brain and it can, to some degree “learn” the languages it is translating. NMT “uses neural networks that consist of many nodes (conceptually modeled after the human brain), which relate to each other ... These nodes build relationships with each other based on bilingual texts with which you train the system” (Zetzsche). In other words, this system tries to model how the brain processes languages and once trained, can make connections and translations it was not specifically taught. NMT is very good with deciphering contexts and

choosing the appropriate translations based off of them. There are drawbacks to NMT, though, such as the fact that it has some issues with more complex sentences. The best results with machine translation are found when two or more of these systems are used together.

It is important to emphasize the difference between machine translation and computer-assisted translation (CAT). Much like it sounds, computer-assisted translation is human translation with the aid of a computerized translation software. A CAT tool, “resolv[es] the text into smaller, translatable segments. It organizes these ... [so that] the translator [can] translate the text effectively, and make the process of translation time-efficient” (Translations). Also, the translator is able to save the translations of frequently-occurring words or phrases so that they do not have to translate the same thing over and over. CAT software usually has a large dictionary so that the translator does not have to waste time looking up any unknown or forgotten words. While CAT is very helpful with things like legal documents, full of repetition and jargon, it faces a shortcoming when it comes to things like literature, where “the variation of meaning behind each word and sentence is significant” (Kendall). Translators have to know when to use CAT and when to translate unassisted; when concepts are the sole important thing to be grasped and when nuances and culture and emotion are all equally as important. But it is the large human element of computer-assisted translation that sets it apart from the fully automated process that is machine translation.

Historically, the idea of machine translation has been going on longer than one might think:

The idea of using machines to translate languages stretches back to the 1940s. At that time, IBM scientists began exploring the idea of using linguistic and statistical decoding methods to automate language translation. However, the computers of that era were not nearly powerful enough to accomplish the task. As a result, machine translation mostly languished until the 1980s. ... as more powerful processors and the Internet took

hold, the international research community began building the foundation for machine translation. (“Life”)

An idea nearly eighty years in the making, it is no wonder that translation technology has come as far as it has, with website pages able to be translated with a mere click of the mouse (additionally, the offer to translate the page usually automatically pops up with no prompting). The only thing holding scientists back in the past was the hindered processing power of the computers of their time. Technology has been increasing almost exponentially since then, and with it, so has translation technology. Looking back on the rapidity of advancements in such a short time, one can only wonder how the power and evolution of technology will affect machine translation ability in another eighty years.

Looking specifically at the Google Translate app, which utilizes SMT and NMT, one can see its usefulness. The app is advertised as such:

The [Google Translate] app allows users to type, write or speak a word or phrase and it will instantly translate it into their chosen language. Users can either speak and listen to spoken translations or choose the text-to-speech option. It will translate written text if photographed or handwritten on the screen. No internet connection is needed and users can save translations and access them from any device. (Daly)

Using the technology mentioned in the previous paragraph, Google Translate is able to take speech or text from over seventy languages and translate them into any of the other seventy-plus languages (Daly). Humans who speak more than one language can usually translate something into one or two other languages (rare people like Tim Donner who speaks twenty-three or more languages can obviously do this with more), but Google “will attempt a translation of text from any of [the seventy-plus] languages into any other, instantaneously, and at no cost to anyone with Web access ... it’s a safe bet that even the world’s most multilingual person can’t match this

breadth” (Brynjolfsson). The app can even translate text on images, one only needs to take a picture of a menu and suddenly one is able to order with relative ease. Through Google Translate, global communication seems very possible-- sharing relationships and ideas that language barriers may have otherwise hindered.

While the benefits are easy to imagine, one must also stop and consider the drawbacks to MT. One that immediately comes to mind is the impact of incorrect translations. For instance, in a mall in China, on a pillar next to an escalator, a sign reads “小心碰头,” which according to the ever-helpful and available Google Translate, means “watch your head.” However, under the Chinese characters, the mall supplied their own English translation, which reads: “BE CAREFUL, RUN INTO ME.” Clearly, something was lost in translation. The impact of this failed translation, apart from humor and confusion, could be dangerous should someone take it seriously. A second example, also taking place in China, is in a fried chicken shop. Below some images of a man perhaps enjoying eating chicken a bit too much, is the phrase “Freshly fried patience. Fresh chicken safe and secure.” While it maybe has fewer negative ramifications than the previous example, it clearly fails to convey the message it was supposed to and leaves the reader confused. Pictures are also texts that can be ‘translated,’ and a misprint can cause major confusion. For example: in a shop in Taipei, Taiwan, a button lay on a shelf with several others. On this button, under the not-so-well-translated words “wish you have a nice day,” is a picture of the lovable Pokémon, Pikachu... except Pikachu has the face of Spongebob Squarepants, which sends a deeply-disturbed shiver down one’s spine. This can be an example of mistranslation; those unfamiliar with either character, yet trying to create a knock-off of one of them, mistranslated the idea of the character, resulting in something made of nightmares. Failed

translations are an issue. Though it is unclear by what means the above examples were translated (though it is a near guarantee that it was not Google Translate, as Google is banned in China), that method is definitely not one that works.

A second issue with MT revolves around the cultural context of something to be translated. Words and phrases in a language have history and meaning not found in other languages. Idioms are a prime example; the phrase “riding shotgun” in English means to be in the passenger seat next to the driver. This is often the most desired seat in the vehicle, so people will often call out “I call shotgun!” as soon as the car is in sight in order to claim that seat. The term “riding shotgun” came about because people used to hire armed guards to sit next to them as they drove, in order to protect their belongings from bandits (Martin). Using Google Translate, I entered “I call shotgun” and translated it to Japanese. When I switched the inputs to put it back into English, the phrase became “I call it a shotgun.” Just to be sure, I tried with several other languages: French gave me “I call the shootout,” Chinese gave me “I called a shotgun,” and Tamil gave me “I call gunfire.” Professor Yves Gambier explains that this is because “[words] have connotations, can create associations of meaning...that machines cannot, or can but only in a very limited way” (“Re: Translation Technology.”). Gambier goes on to say that, as humans, “we can play with words (in the broad sense of “play”). We have both memory and visions. Machines can have a huge memory but are unable to anticipate” (“Re: Translation Technology.”). In other words, it is the human element of language that enables the use of things like idioms; humans are usually able to grasp when someone is using a figure of speech (at least in their own language), while machines are only as good as the data they are given, and will be



much more likely to mistranslate such things because they cannot understand that there is a layer of historical, cultural context over the words.

There is another consequence of the growth of machine translation technology, and that is its impact on the translation job market. With the rise of widespread and free programs and apps such as Google Translate, everyone and their mother can ‘translate’ a text from/into almost any language with a simple *copy, paste, enter*. When weighing ease and thrift against accuracy, sometimes the bottom line takes precedence and that is when translators find themselves out of a job. Even if still employed, the going rate from translation services has dropped significantly (Gambier). On the other hand, due to the rise of MT, a variety of new jobs have appeared, such as “localization, post-editing, project management, and quality assessment” (Doherty). While there still are actual translation jobs available for translators (one only needs to enter ‘translation jobs’ into the Google search bar to find hundreds of links regarding job postings), these jobs are usually highly competitive; not only is one competing between others in terms of how skilled they are in multiple languages, they are competing in terms of how well they can utilize tools like CAT. This puts certain people at a disadvantage. Matthew Hindman, in his article “The Internet and the ‘Democratization’ of Politics,” talks about a “digital divide.” This divide is between races, classes, and ages; certain people have more privileges that allow them more access to technology. Therefore, even if two people have the same proficiency in a second language, the one with more access to technology, with more experience with CAT translation tools, is much more likely to get the job; time is money, after all, and one will be able to do things faster and/or with less training.

Apart from these consequences, one must also look at MT in relation to the field of language learning. In his article “ Friend or foe? Google Translate in Language for Academic Purposes,” Michael Groves brings up a very important question: “why would a potential student go to the effort and expense of learning a foreign language if she is able to produce an acceptable L2 text from her own L1 writing, instantly and with no financial cost?” (Note that L1 is someone’s first language, while L2 is a secondary language). This is a huge problem, especially in places like America, where monolingualism is the norm (Forbes reports that only about twenty percent of Americans can speak a second language); if one becomes too reliant on MT for communication, how will one be able to adapt if suddenly the technology fails/breaks/is not present? Additionally, there have been copious amounts of studies done on the positive effects of multilingualism on the brain. Will those be lost as it no longer becomes important to learn a language? Already language programs are being cut out of education. For an example, when I was about to enter middle school, the school’s website advertised a myriad of languages courses a student could take: French, Spanish, German, Japanese, and Italian to name a few. When I got there, however, only Spanish and French remained (and most students in those courses reported that it was merely supervised online coursework rather than an actual, interactive class). Clearly, language learning and acquisition have taken a backseat to “more practical” education.

Obviously, things still need to be translated; one cannot be expected to learn every language in order to have access to needed or desired information. But if one is going to be living in a country where there is a different primary language, or if one is going to be surrounded by a culture that has a different language than one’s own, an effort should be made to learn that language, at least at a basic level. I assert this claim because apart from the issues that

come with relying solely on technology to be able to communicate, the culture of the other language is so often lost in translation. So even if one is able to effectively communicate with another group, there is still that missing element of cultural understanding when culture is embedded in the original language but cannot be directly translated into another language. An example of something without a clear, direct translation is the Japanese term “よろしくお願ひします” (yoroshiku onegaishimasu). The phrase is very Japanese in that it conveys humbleness and respect. It is something said at the end of a self-introduction when meeting someone for the first time, and something said as something is about to start, such as a meeting. Essentially, it says something along the lines of “I am in your care,” or “please treat me well.” Google Translate translates the phrase into “thank you,” but this is not a good approximation of meaning, and if someone were relying on MT, then they would likely be more than a little confused. “Thank you” does not convey the humbleness and respect that the original does.

Machine translation does not just produce these negative consequences, however. There are many things MT does extremely well. One of these things is providing a wider range of information. If one is looking for a source but can only find it in languages that are not one’s native tongue, machine translation can give a fast fix. In cases like these, accuracy is not as important so long as one gets the gist of the information and can use it to generate new thoughts or other points of view. Machine translation is fast, cost-effective, and relatively accurate, and therefore excels when used in informal settings as well as situations where one is simply gathering information.

There is little argument against the fact that today’s world is in a state of rapid globalization; businesses have offices on nearly every continent and travel and tourism are

booming. With globalization comes change as many different cultures are exposed to each other and begin to blend and exchange ideas and traditions. It can be likened to the early “great American melting pot,” except on a much larger scale. While few can deny that globalization is occurring, there are plenty of different opinions on its impact on society and culture. On one hand, “globalization is viewed as a force for good, facilitating greater connections between people and the development of a new global mindset” (Melluish). For this opinion, globalization broadens horizons, enabling the sharing of cultures between people from all over the world, and thinking in terms of the good of the world rather than the good of one particular group. On the other hand, however, there are people of the opinion that “[globalization] is synonymous with cultural disenfranchisement [and] exploitation” (Melluish). Those in this opinion fear that globalization erases culture rather than spreading it, where one dominant culture will overshadow the others instead of an equal sharing of ideas. No matter which opinion one has (or perhaps one has a different opinion altogether), globalization will continue to happen regardless. Since that is the case, one must keep in mind that:

This potential for greater humanity and awareness of others across the globe must, however, be considered critically so as to avoid any universalizing approach or any misguided imposition of westernized notions. Instead, what is needed is the development of more nuanced understandings of cultural differences and of indigenous psychologies. (Melluish)

This critical analyzation must additionally be applied to translation of any kind, but especially machine translation, as software developers must purposefully program this consideration into the machines.

Translation technology is neither inherently good nor bad, but it is, however, an inevitably ubiquitous tool as the world continues to reach ever further towards a globalized culture. That being the case, it is an important responsibility of those who design machine

translation technologies, those working with computer-assisted translation technologies, and even those who use things like Google Translate, to be aware of the culture and the semiotics of both the original and the translated text. While translation technology, with all its ups and downs, can be an extremely useful thing for business and travellers alike, nothing can quite compare to the skills and benefits of actually learning another language.

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