

Machine Translation: 50 Shades of Grey

By Charlotte Brasler and Jost Zetzsche



Charlotte Brasler



Jost Zetzsche

It took us a long time, but translators have finally largely accepted that technology plays an important role in our professional lives. Most of us use advanced translation technology such as translation environment tools (TEs) that include terminology management, automated quality assurance, and translation memory. And those who do not have typically made informed decisions on why they do not.

When it comes to machine translation (MT), however, the situation is very different. It is probably fair to say that most of us wish we had never been forced to have an opinion on this subject, but forced we are. No matter whom we talk to in the general public about translation, MT inevitably comes up. Answering with platitudes or scornful dismissal does not help anyone. Instead, we have to know and understand what we are talking about.

In addition to the important issue of how we represent MT to the outside world, though, there is another more

Machine translation is so much more than large online statistical engines like Google, and the argument for and against it is infinitely more complex and interesting.

fundamental question we need to address: What role could or should MT play in our professional lives? This is the slippery and many-hued topic that translators Charlotte Brasler and Jost Zetzsche try to tackle in this conversation.

Charlotte: Attending the Association for Machine Translation in the Americas (AMTA) conference last October in San Diego was a real eye opener for me. I came away with so much to think about regarding the future of being a translator/post-editor and about the challenges our industry faces. I also came away with an

instant, very humbling experience of how little I knew about MT, and I would venture to say that many translators out there are no different from me. There is an acute need for translators to educate themselves much more thoroughly about what MT is all about and where and how it can be applied.

Jost: I agree, most translators do not know much about MT (aside from the same-old-same-old jokes about the silly mistakes). By the same token, many within the MT community do not know much about translators either. That is why I thought it was great that both ATA's Annual ➤

Conference and AMTA's conference were co-located in San Diego last year.

So, what kind of things do you think translators need to learn about MT?

Charlotte: Translators need to have a basic knowledge of MT. For example, what distinguishes rule-based, statistical, and hybrid MT from each other? What is good MT and bad MT? For which languages and domains does MT work the best? Translators also need to understand buzzwords like BLEU score,¹ SAE J2450,² and Edit Distance.³ When translators can speak intelligently on these subjects, we can engage in a much more professional dialogue with “the other side,” the MT community. I was positively surprised to hear many AMTA attendees express their appreciation at seeing professional translators attending their conference, so if we reach out, I am certain we will receive a warm welcome. Now, what do you think is the greatest impediment to translator involvement in MT?

Jost: Your list sounds like a lot for translators to learn about MT! Honestly, I am not sure that every translator needs to know each of those details. I think it does not hurt to know that one kind of MT engine relies on data (statistical), one on rules (rule-based), and yet another on a mix of both (hybrid), and that every MT engine will produce different results. Most importantly, though, every professional translator needs to understand how MT relates to us and our profession. This is not only important for our own understanding and confidence, but also so that we can communicate it to the outside world—kind of along the lines of my “Talking Points” *GeekSpeak* column in the October 2012 issue of *The ATA Chronicle*.⁴

Once we have managed to form an

There is an acute need for translators to educate themselves much more thoroughly about what MT is all about and where and how it can be applied.

opinion about MT based on its actual merits and shortcomings, rather than on some pre-formed ideas—which are the greatest impediment to translator involvement right now—then we can determine whether becoming more involved in MT has any benefit to us individually. We might even want to take part in some higher level activities such as working for MT developers or engaging in strategic consulting with companies about its use.

Charlotte: In my opinion, the greatest impediment to translator involvement is a mixture of ignorance (“Machine translation is just Google Translate”) and fear (“The machine will eventually replace me, so I will stick my head in the sand now”). If we can change our attitude to “This is interesting, so how can I make this work for me?”—in short, embrace change—then we are in a much better mindset to take advantage of MT.

Jost: At this point, I suspect that many translators still see the question as “Can I make this work for me?” rather than “How can I make this work for me?”

Charlotte: Maybe, but I would like to see all types of translators get involved by educating themselves better about MT. Some translators may indeed look into MT and post-editing and say, “That’s not for me.” That is fine. At least they have made the effort of looking into the possibilities offered

by MT and can now speak from experience rather than hearsay. Others will look at MT and see it not only as an opportunity to take their interest in linguistics in a new direction, but also as an opportunity to generate more income without working harder or longer in a market that is continually being squeezed on price.

The important thing to remember is that we are such a diverse bunch. One end of the spectrum could be experienced translators who are able to charge “premium rates” from established direct clients. They may doubt the relevance and usefulness of MT if they already earn a comfortable living and the language combination in which they work is not suitable for MT. At the other end is the new graduate who may be contemplating a traditional freelance career versus a post-editor/MT consulting career. I think that the level of involvement will depend on who you are and where you want to go with your career in languages. Most of us probably fit somewhere in between. We work for agencies, we are feeling squeezed on price, and we will embrace technology to the extent that it makes us able to translate faster and better so we can maintain or improve our income without working more and more.

Jost: Yes, you are probably right. When I think of MT and the professional translation community, I can think of four levels of engagement:

first, development and consulting; second, fine-tuning and training customized MT programs for ourselves or our clients; third, as a post-editor of MT texts (typically these involve customized MT programs); and fourth, using MT as a translation aid alongside other aids such as translation memories.

Charlotte: Yes, those four levels of engagement could be seen as a pyramid representing the degree of translator involvement today. At the top, Level 1, is involvement on the developer side, working with MT development companies such as Systran, Google, and Microsoft, and working with translation buyers to help them find ways to integrate MT. The next level down, Level 2, is testing and fine-tuning MT engines based on the client's or your own data. This could be done for your own needs or in an in-house or consultant role. This level represents an area with real opportunity for translators who want to combine an interest in technology and linguistics. Level 3 involves working as a post-editor for agencies already using a customized MT engine and whose clients belong to Level 2. This is a fast growing area with an immediate and pressing need in many languages, and this will only rise.

The widest and lowest level, Level 4, which involves using MT as a translation aid to speed your translation work, is the level in our pyramid to which most translators belong. They use a TEnT with a connection to an online statistical engine like Google or Microsoft. They do not use a customized engine with their own translation memories. Since most translators belong to Level 4, their point of reference when asked about MT is naturally to think of Google Translate. The eye-opening experience for me

The greatest impediment to translator involvement in machine translation is a mixture of ignorance and fear.

recently was that MT is so much more than large online statistical engines like Google, and the argument for and against it is infinitely more complex and interesting.

Jost: So you are talking about the customization of MT engines for a specific purpose?

Charlotte: Yes, an MT engine can be something you train for whatever you need it to translate, such as your specific language combination and subject area. For example, if you are a freelancer and have a sufficient amount of data in your translation memories, you can train your own engine. This requires a certain amount of technical skill, but it is not rocket science. There are already several open-source MT engines online, and though they may not yet be "mature," they are out there and will only continue to evolve. Having your own engine with your own data also gets around the sticky issues of confidentiality, because you feed only your own closed system and do not send data into cyberspace. This issue of confidentiality is relevant both to freelancers entrusted with their clients' data and to big corporate clients. Training your own engine means that you are also in control of the data that serves as the engine's "diet." You can make sure it receives only quality data, which increases the quality of the output. I see MT as just an exten-

sion of today's TEnTs, in that they provide suggestions when the fuzzy match drops below 75%, similar to the sub-segment leveraging that virtually all TEnTs already provide. MT just makes that function much more powerful. And remember: the MT engine in a "closed," customized system is still pulling from data in translation memories that were created by a human in the first place.

Jost: Those are good points, but it is important to keep in mind that well-trained MT engines typically work well only for the very specific subject areas/clients for which they were trained by the translator. Any deviation from that messes with the accuracy. So this might work wonderfully for some translators with one or two really big clients, but others might find it hard to justify the effort of training an MT engine for each of the many clients and/or types of projects on which they work.

Charlotte: The translation industry is changing quickly, and no matter how fast and efficient we become with our TEnTs, we cannot stop the deluge of content that is being generated and the scarcity of translators to translate it all. The result is that many companies are looking into MT to save money and time and still get their material translated. Humans are slow and expensive but creative; machines are fast and cheap but stupid. In ➡

between stands the quality factor. That is where we as translators come in: we can affect this quality that the “stupid” machines cannot figure out themselves. If we can use the machines to help us increase our speed—which we are already doing with TEnTs—and post-edit the MT output to a human translation quality level, we will all reap the financial benefits. The clients will get their content translated faster and cheaper, and we will make more money by producing more high-quality words faster. That is a win-win situation.

Jost: I think we need to be careful about generalizing when saying that companies will increase their use of MT and have content that needs to be post-edited. There will doubtless be more and more companies going that route, but I would say it is safe to assume that for a number of years to come the amount of text that professional translators will have to deal with that needs to be “translated from scratch,” without having been translated by a machine first, will outweigh the stuff that needs to be post-edited.

You are right, though. There is already an unmet need for MT post-editors, and that need will continue to increase. This means a lot of good opportunities for some of us, but I also think that many of us will not encounter post-editing MT for a long time to come. Of course, this very much depends on variables such as language combination, area of specialization, target group, and the type of customer. Would you agree?

Charlotte: Yes, generic MT programs certainly have shortcomings when it comes to certain languages. While the Scandinavian languages (except Finnish) in combination with English are a sort of poster child for output

Once we have managed to form an opinion about MT based on its actual merits and shortcomings, rather than on some pre-formed ideas, we can then determine whether becoming more involved in MT has any benefit to us individually.

quality, other languages such as German, which is syntactically very different from English, are not yielding the kinds of quality MT output that make MT attractive to use. So it really depends a great deal on the language combination.

Aside from improving the productivity of translators, other usage scenarios of MT include raw MT or lightly post-edited MT that is considered sufficient by the users of the MT output—the readers of the translation. A case in point would be knowledge base articles for software, where a mediocre translation is still better than nothing, and many users actually answer “yes” when asked if the article solved their problems.⁵ Considering the short life span of a knowledge base article, MT offers a great solution that is “fast, cheap, and useful.” Again, all MT use cases are different, and it is hard, if not impossible, to generalize.

Regarding the quality produced by MT, I think it is important to ask the following: If MT can be honed to human quality level through customization of the engine and post-editing of the output, does it matter if a translation was done from scratch by a human, or by a trained machine and post-edited? The answer to this question would certainly depend on

the output’s “fitness for its purpose,” as mentioned above. In my mind, the answer is a resounding “NO.” If MT makes knowledge available to people who would otherwise not have access to this knowledge because it is locked in another language, it does not matter if the translation was produced by a trained machine.

Jost: Yes, MT can be used in very positive ways to open up content for language groups that do not have access to much content otherwise. Examples include Google’s and Microsoft’s release of Haitian Creole MT programs after the Haiti earthquake, or the recent release of Hmong and Mayan MT capabilities by Microsoft.

I think that it is really important, however, to understand that there is a fundamental difference between the work of post-editing MT translations and post-editing fuzzy matches, and often this is not represented fairly in the MT community. Provided that your translation memory is in good shape, editing a fuzzy match means altering an inherently correct segment (correct as a translation for the earlier source segment) to match your current source segment. Typically this involves changing a couple of terms, which can be done easily. This is not necessarily so with

MT, though, which is not inherently correct. It can be, but it does not have to be. If you work in my language combination (English>German), you will quickly find that more often than not there are fundamental changes you will need to make to bring the translation to the required quality level.

Charlotte: How widely do you think MT is being used by translators today? This would include desktop tools like Systran and PROMT, or Google Translate and other statistical engines available through application programming interfaces in many TEnTs today.

Just: Many people would like to know that number! I am as clueless as most, but I think it is safe to say that the number of professional translators who are using MT has risen in the past couple of years. I suspect that you would find large differences of usage among different language groups, type of projects, experience levels, and even in the way it is used. Significantly, MT seems to have transitioned into one of many productivity tools that are useful to some but not all, and I think the stigma it used to have among translators is gradually going away.

Charlotte: I would sure like to know that number as well. My gut feeling is

that few translators have used a customized engine, but many translators are currently experimenting with tools like Google Translate. My other feeling is that few translators have “come out of the closet” so to speak about using online MT. This could be due to the perceived stigma attached or to the confidentiality they are potentially breaking. However, I think that on both fronts we can expect to see exciting developments in the coming years as attitudes toward MT and confidentiality change.

Notes

1. BLEU (Bilingual Evaluation Understudy) is an algorithm for evaluating the quality of text which has been machine-translated from one natural language to another. The output from MT is considered to be of good quality if it closely matches a professional human translation.

Papineni, Papineni, Salim Roukos, Todd Ward, and Wei-Jing Zhu. “BLEU: A Method for Automatic Evaluation of Machine Translation.” In *Proceedings of the 40th Annual Meeting of the Association for Computational Linguistics* (July 2002), 311–318, <http://acl.ldc.upenn.edu/P/P02/P02-1040.pdf>.

2. SAE J2450 Translation Quality

Metric Task Force, Quality Metric for Language Translation of Service Information, www.sae.org/standardsdev/j2450p1.htm.

3. Edit Distance (also called translation error rate) is an algorithm for calculating the minimum number of edits that have to be made to a string (the MT output) to make it match another string (the reference translation). This was discussed in AMTA President Mike Dillinger’s tutorial on machine translation during the 2012 AMTA conference in San Diego.

4. See www.internationalwriters.com/toolkit/12_October_Talking.pdf.

5. Knowledge bases are data repositories that have been designed to enable people to retrieve and use the information they contain. They are commonly used to complement a help desk or for sharing information among employees within an organization. They might store troubleshooting information, articles, white papers, user manuals, or answers to frequently asked questions. Typically, a search engine is used to locate information in the system, or users may browse through a classification scheme.

Send a
Complimentary
Copy

If you enjoyed reading this issue of *The ATA Chronicle* and think a colleague or organization would enjoy it too, we’ll send a free copy.

Simply e-mail the recipient’s name and address to ATA Headquarters—ata@atanet.org—and we will send the magazine with a note indicating that the copy is being sent with your compliments. Help spread the word about ATA!

