

Why more Literary Translators should embrace Translation Technology

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Abstract

Machine translation (MT) quality has improved significantly with the advent of neural techniques. Some communications about these improvements have been the product of overeager marketing hype, but MT is playing a real role in the lives of many human translators today. MT has even started to be used in pilot studies for the translation of literature, with results that outperformed anticipated outcomes. Nonetheless, its use and uptake as well as the acknowledgement of its potential merit are meeting with a degree of resistance, especially among some more experienced literary translators. In other areas, translators have complained about tools being foisted upon them, and have sought consultation on the design of translation technology. There are examples where translator input into tool design has happened to good effect, but in literary translation per se, translators have been recorded as avoiding such conversations. In this article, we investigate why some literary translators behave differently to their peers in other fields of translation. Finally, we offer pointers as to how translation technology, MT in particular, could benefit literary translators who have an open mind concerning technology.

Keywords: literary translation, human translation, translation technology, machine translation.

Resumen

La calidad de la traducción automática (TA) ha mejorado notablemente con la llegada de las técnicas neuronales. Algunas comunicaciones sobre estas mejoras han sido producto de una exagerada propaganda de marketing, pero hoy en día la TA está desempeñando un papel real en la vida de muchos traductores humanos. Incluso se ha empezado a utilizar la TA en estudios piloto de traducción literaria, con resultados que han superado las expectativas. Sin embargo, su uso y adopción, así como el reconocimiento de sus posibles ventajas, están encontrando cierta resistencia, especialmente entre los traductores literarios más experimentados. En otros ámbitos, los traductores se han quejado de que se les impongan herramientas y han solicitado que se les consulte sobre el diseño de la tecnología de traducción. Hay ejemplos en los que la participación de los traductores en el diseño de las herramientas ha dado buenos resultados, pero en la traducción literaria per se,

los traductores han evitado este tipo de debates. En este artículo investigamos por qué algunos traductores literarios se comportan de forma distinta a sus colegas de otros campos de la traducción. Por último, ofrecemos pistas sobre cómo la tecnología de la traducción, y la TA en particular, podrían beneficiar a los traductores literarios con una mentalidad abierta con respecto a la tecnología.

Palabras clave: traducción literaria, traducción humana, tecnología de la traducción, traducción automática.

Resum

La qualitat de la traducció automàtica (TA) ha millorat notablement amb l'arribada de les tècniques neuronals. Algunes comunicacions sobre aquestes millores han estat producte d'una exagerada propaganda de màrqueting, però avui dia la TA està acomplint un paper real a la vida de molts traductors humans. Fins i tot s'ha començat a utilitzar la TA en estudis pilot de traducció literària, amb resultats que han superat les expectatives. Així i tot, l'ús i l'adopció d'aquest recurs, així com el reconeixement dels seus possibles avantatges, estan trobant una certa resistència, especialment entre els traductors literaris més experimentats. En altres àmbits, els traductors s'han queixat que se'ls imposin eines i han sol·licitat que se'ls consulti sobre el disseny de la tecnologia de traducció. Hi ha exemples en què la participació dels traductors en el disseny de les eines ha donat bons resultats, però en la traducció literària per se, els traductors han evitat aquest tipus de debats. En aquest article investiguem per què alguns traductors literaris es comporten de manera diferent als seus col·legues d'altres camps de la traducció. Per últim, oferim pistes sobre com la tecnologia de la traducció, i la TA en particular, podrien beneficiar els traductors literaris amb una mentalitat oberta respecte de la tecnologia.

Paraules clau: traducció literària, traducció humana, tecnologia de la traducció, traducció automàtica

1. Introduction

Translation Technology met with resistance when it was introduced to the translation profession in the 80s/90s, but is well established now, with most translation professionals using it effectively on a daily basis. García (2014) traces the expansion of Computer-Assisted Translation (CAT) tools – minimally comprising translation memory (TM) and terminology management components such as a termbase – from initially favouring enterprise users to becoming an invaluable aid to many freelance and in-house translators. Especially in commercial and institutional environments, the management of repetitions, reusable segments and terminology standardisation that CAT tools support have been shown to deliver significant improvements in turnaround time and consistency, though at the cost of downward pressure on remuneration rates.¹ Now machine translation (MT), especially in its recent neural incarnation (Bahdanau et al., 2014; Vaswani et al., 2017), has also become established as a key tool in the translation workflow. A study by Pielmeier and O'Mara (2020) of CSA Research² found that 88% of almost 7,000 translators surveyed routinely use TM in a CAT tool, 81% use terminology management,

¹ do Carmo (2020) notes that the average price of translation has not changed in the last 30 years, which for translators reflects a significant loss in earning power over that period.

² CSA Research (formerly Common Sense Advisory: <https://csa-research.com/>) is a well-respected language industry think-tank. Over a long period of time, its outputs have come to be seen as authoritative and the research underpinning its reports to be both substantial and representative.

and 55% use MT. Remarkably, the most recent European Language Industry Survey³ shows that exactly the same percentage (55%) “of academic respondents estimate that, by 2030 at the latest, machine translation will be used in most professional translation work” (p.37). Until recently, however, these technologies had made little or no inroads into the more specialised field of literary translation. Most literary translators assumed CAT would be inappropriate because literature typically does not produce repetitive or terminologically dense text, while MT output was judged too crude and wayward to be of service (Slessor, 2020; Youdale, 2020). In what follows, this article contends that the time has come to challenge these assumptions.

MT quality has improved significantly with the advent of neural techniques (see, among others, Bentivogli et al. (2016), and Castilho et al. (2018), for comparisons of neural and statistical MT. Some of this has been overhyped, especially by huge multinational corporations, who have suggested that neural MT (NMT) has “bridged the gap” between human and machine translation (Wu et al. 2016) or achieved “human parity” (Hassan et al., 2018). These assertions have been shown to be problematic, with Läubli et al. (2018) and Toral et al. (2018) both demonstrating flaws in the human parity claim, for instance. With insufficient justification, van der Meer (2021) invokes “the singularity” (Kurzweil, 2005) and claims that human translators are doomed as their jobs will be taken over completely by machines. Overhyping the capability of the technology does nobody any good. The claim that translation is a solved problem (e.g. by Goodfellow et al., 2016) undermines the good work that continues to be done by researchers, and unfairly raises the expectations of potential users, the vast majority of whom are likely to be human translators, either using MT for ideation purposes as another fuzzy match⁴ or post-editing⁵ its output. However MT is used in the translation pipeline, Way (2019: 236) observes that the human-expert-in-the-loop will, “always remain the most important link in the chain,” but claims like van der Meer’s unnecessarily inflame the situation.

In the past human translators have rightly bemoaned the fact that they have largely been uninvolved in the design of translation tools, which instead have been imposed upon them. Bota et al. (2013) give two examples where the introduction of such tools negatively impacted translators: (i) as English sentences are typically shorter than their German equivalents, translators may have preferred to combine two English sentences into one German string, but although they still offer the possibility to do so, translation

³ <https://elis-survey.org/wp-content/uploads/2023/03/ELIS-2023-report.pdf>. Note, however, that while the authors of the report think this to be “a reasonable prediction ... 17% [of respondents] still think that this will never happen.”

⁴ In TM systems, translators can set the “fuzzy match” level in order to define the threshold at which translation retrieval is to take place. For the particular input string under consideration, setting this percentage at a high level will in effect mean that few matches will be retrieved from the system’s memory, but those that are retrieved are likely to be highly relevant translations. Lowering the level will mean that more matches are retrieved, but their usefulness as translation candidates for the current input string is lower. More formally, string matching is computed via Levenshtein distance (Levenshtein, 1966).

⁵ ‘Post-editing’ is the process of refining a suggestion from an MT system into an acceptable translation by a human expert.

tools tend by default to condition translators to work with the segmentation patterns found in the source text; and (ii) the tendency in Western languages to use bold font to indicate emphasis was carried over to Chinese, Japanese, and Korean languages, despite the negative impact on readability that ensued. These sorts of restrictions cause translators to have to change the way they work, often with no concomitant benefits being apparent, and therefore feed an often undefined but present and increasing reluctance.

This situation of benign discontent hindering the uptake and appreciation of translation technologies is not pervasive and examples of good and better practice do exist. The description by Bota et al. (2013) of how their in-house tool was developed with translator involvement from the get-go is rare indeed; experienced translators with whom they had cultivated a long-standing relationship were encouraged to critically evaluate the tool being developed, which “creat[ed] a sense of stakeholdership from the very beginning [which] was critical in gaining user acceptance of the finished product” (p.313). While research does exist on the ergonomics of CAT tools as they affect translators in general (O'Brien et al., 2017), we have not found any further examples of literary translators being involved in translation tool design or modification. Indeed, it is precisely because such examples are so rare that there are several instances of translation scholars strongly arguing for the involvement of literary translators in the development of translation technology tools which will retain translator control and creativity whilst taking advantage of technological advances (Lommel 2018; Slessor 2019; Rudan et al. 2023). One might expect, therefore, that literary translators would appreciate researchers approaching them to comment on the requirements for literary translation tools; however, the opposite was found, with some literary translators not even deigning to discuss the issue (see Daems (2022) and Ruffo (2022), let alone provide input as to what the optimal toolkit might have to contain so as to enhance user experience.

In the remainder of this article, we investigate why an influential minority of expert literary translators refuse to engage, and whether this still makes sense, especially given that some of the early studies in using MT for literary translation (e.g. Toral and Way, 2018) appear to be promising. We also discuss the likelihood of such views persisting in light of the newer ‘tech-savvy’ generations of literary translators coming on stream (Daems, 2022).

2. What is literary translation, and what is it not?

Trivially, literary translation is a term often used to describe the translation of “literary” texts, but this begs the question of exactly what literature is, and where its boundaries lie. However, problems arise when attempts are made to distinguish literary texts – and by implication literary translation – from non-literary texts on the basis of a supposed unique quality or characteristic of the writing (Rothwell et al., 2023). These range from the idea that literature “comprises the world of the mind and the imagination; [non-literature] the world of reality, of facts and events” (Newmark, 2004: 5-6), to the

suggestion that “creative” texts (which include, but are not limited to, literary texts) are those where “the texts themselves pivot broadly on the human creativity employed in their production” (Hadley et al., 2022: 5-6). Both of these propositions are hard to defend, implying as they do that “the world of reality” is non-literary and that creativity can rarely be key to the production of a non-literary text.

Attempts have also been made to argue that literature can be identified by its use of “literary language”, often meaning the use of devices such as unusual vocabulary or sentence construction or an elevated register. Such claims are belied by examples of well-known writers such as Ernest Hemingway, whose style has often been described as using easy language and rather short sentences, and by the fundamental fact that authors draw on the same range of linguistic resources when creating both literary and non-literary texts.

There is, however, considerable support amongst translation scholars (Landers 2001; Newmark 2004; Boase-Beier 2010; Youdale 2020) for the idea, neatly encapsulated by the literary critic Terry Eagleton, that literary writing “is the kind of writing in which content is inseparable from the language in which it is represented. Language is constitutive of the reality of experience, rather than simply a vehicle for it” (2014: 3). In other words, how something is said is as important as what is said. To give a very simple example, “To be or not to be, that is the question” and “Is life worth living?” can clearly be argued to mean very much the same thing, but their styles and the associated reading experiences could hardly be more different. Since sensitivity to style and reading experience are aspects of a cultivated human response to certain linguistic artefacts, it is widely assumed that the “mechanical” procedures underlying computerised translation technologies must necessarily be incompatible with literary translation. For the purposes of this article, therefore, the term “literature” will be taken to refer to works for which such technologies are usually deemed a priori unsuitable. It is this artificial divide which we aim to break down in this article.

3. What are the concerns of literary translators regarding technology?

In relation to the concerns that literary translators have regarding technology, Ruffo (2022: 18) observes that, “the very nature of creative texts almost implies an inherent degree of resistance to automation.” Citing Sela-Sheffy (2008), Ruffo further notes that, “literary translators’ self-imaging strategies are rooted in the creation of idealised personae, which revolve around their most human qualities and further remove them from the wider discourse surrounding other branches of translation.” To be a literary translator is to take on the role of, “custodian of language, cultural ambassador and innovator, and artist”, and ultimately as, “gatekeepers of entire cultural and linguistic systems” (Ruffo 2022: 20). Ruffo goes on to say that, “the literary translation career path is often depicted as the result of a natural inclination, an almost inevitable occurrence, more than a professional choice,” i.e., it was almost as if it was pre-ordained that their respondents would become literary translators.

Earlier in this paper, it was stated that while MT was thought to be of limited use to literary translators, CAT tools were not deemed appropriate either for the task at hand. Ruffo (2022) notes that to “agents of artistic creation” (p.20), TM is, “a hindrance to human translation ... [being] in direct opposition to literary translation’s essence” (pp.30-1), although one of Daems’ participants stated that, “it would be useful to be able to look through a large database with previously made literary translations to find specific words in literary context” (Daems 2022: 58). To some, MT is simply incompatible with literary translation, “MT and TM are perceived as a hindrance to the translator, as well as causing disruption to the translation process” (p.31).

While the case for wholesale rejection of technology, in particular MT, appears to be difficult to make, some concerns expressed by literary translators seem much more reasonable, and indeed quite normal. For example, Daems (2022: 52) notes that another limitation of translation technology was, “the fact that the software cannot capture style or humour and cannot take context or cultural background into account, which were all seen as key elements of literary texts.” Farrell (2018) notes that the post-editing of MT output can lead to homogenisation and normalisation, which would be problematic for a creative text. Concerns from translators regarding losing their freedom of linguistic choice and being railroaded by the machine in directions they wouldn’t have chosen without it, are natural, and contain an element of truth. For example, there is evidence that concerns regarding the impoverishment of language are merited given the findings of Vanmassenhove et al. (2019), which showed a loss of lexical richness when NMT was used for English-to-French and -Spanish translation.

Another reason to question the utility of MT for literary translation is that despite the significant improvements in MT results brought about by NMT, the quality of raw MT output is still in most cases clearly inferior to human translation, so why bother with it? While a not wholly unreasonable question, this ignores the use of MT as a first-draft tool which can do a fair amount of the legwork of drafting a translation – for example of passages of short dialogue – which can then be post-edited. Encouragingly, this has been acknowledged by literary translators who have commented that MT output can prompt them to consider translation possibilities which they would otherwise not have thought of (Youdale, 2020: 17). Of course, human translation professionals can contemplate possibilities far beyond the capability of MT systems, too.

However, the use of MT in CAT tools – whereby pre-translated segments are automatically offered to the translator to accept, reject or edit – brings with it a range of concerns as well as potential benefits. First, very few literary translators use CAT tools at all (Rothwell and Youdale, 2022), so the post-edited MT option is limited to the rather clunky process that results from pasting in and editing the output of free and open access online applications such as Google Translate⁶ or DeepL.⁷ The reasons for this non-use of CAT tools include ignorance and prejudice, but those literary translators who

⁶ <https://translate.google.com>

⁷ <https://www.deepl.com/en/translator>

have tried working in a CAT editing environment have raised some concerns which at first glance seem justifiable. For instance, the user interface of a CAT tool typically visually aligns ST and TT at sentence level in a two-column table, which conceals the context of the paragraph, the page and the chapter, which can be off-putting and alien to some translators' workflows (Pym 2011). However, such objections can sometimes be overcome by acknowledging that (i) segments are presented by default in text sequence, so the running text on either side of the active segment can be read; and (ii) many tools (e.g. Déjà Vu,⁸ Phrase TMS⁹, or Trados Studio¹⁰) have a live preview which shows the developing translation in real-time. In practice, too, all major tools allow ST segments to be split and joined, so the claim that CAT users are forced to blindly follow decontextualised ST sentence patterns is not entirely accurate, although of course they may be influenced by such patterns more than if no CAT tool were being used.

But perhaps the most serious concern about MT and CAT tools in literary translation relates to how the MT element may come to be viewed by publishers, who are after all the gatekeepers of literature in translation. The rapid and very widespread adoption of CAT tools in the field of commercial and technical translation has led to a situation where translators are forced to use CAT tools and TMs, or miss out on a lot of business opportunities, and have become post-editors of translation memory proposals. This has had an impact not only on their perceptions of their own linguistic creativity, but also on levels of pay which have been depressed because translators often no longer translate from scratch. While this concern should be acknowledged, it depends to a large extent on the text type and degree of successful re-use of already translated content via the TM.¹¹ However, in literary translation especially, where in-domain datasets are in very short supply, there may be long tracts in a document where there is no TM proposal at all. Nonetheless, if translators are increasingly considered to be post-editors of MT, also by publishers of literary content, as MT becomes more and more a standard component of the literary translation workflow, there is no reason to suppose that the downward pressure on levels of pay, already low, will not be felt by future literary translators too. The advent of AI-generated translations, which can now result in seemingly fluent and natural-sounding output, is also a source of legitimate concern on the part of literary translators, especially when some commentators predict they will become replaced by machines.¹²

Finally, there are concerns about ethics and legality in relation to the ownership of literary translations. Traditionally, TMs have been seen as belonging to the translator, so if MT-assisted CAT tools are more widely adopted in literary translation, this will become an issue here too. While a proper discussion of this topic is beyond the scope of the

⁸ <https://atril.com/>

⁹ <https://phrase.com/products/phrase-tms/>

¹⁰ <https://www.trados.com/>

¹¹ Of course, if using CAT tools makes translators more productive, then lower rates of pay on a per-word basis ought to be counterbalanced by reduced time to complete jobs.

¹² See Way (2024) for arguments as to why this is unlikely to come about.

present article,¹³ a brief look at the issue will reveal the problem. Since 2007 it has been possible to buy, sell and license TMs as individual assets (Smith 2009), so the question arises as to who actually owns them. Many language service providers require the translator to sign away any rights to the TM, and some cloud translation platforms (e.g. Phrase TMS)¹⁴ allow the project manager to block the ability of the freelancer to download the TM. In this regard, Smith (2009: 5) notes that while translators – the people actually doing the work – may view the IP as belonging to them, the client who is paying for that work might see this quite differently, and instead require all assets accruing from the job to be transferred only to them, and not the translators involved.

Ownership of the translation is not the only ethical concern expressed by literary translators and their representative organisations. The Authors Guild of the USA has recommended to its members a model contract which includes the following clause relating to the use of translations to train AI programmes:¹⁵

“1. Grant of rights

d. No Generative AI Training Use.

For avoidance of doubt, Translator reserves the rights, and [Publisher/Platform] has no rights to, reproduce and/or otherwise use the Translation in any manner for purposes of training artificial intelligence technologies to generate text, including without limitation, technologies that are capable of generating works in the same style or genre as the work, unless [Publisher/Platform] obtains Translator’s specific and express permission to do so. Nor does [Publisher/Platform] have the right to sublicense others to reproduce and/or otherwise use the Translation in any manner for purposes of training artificial intelligence technologies to generate text without Translator’s specific and express permission.”

Earlier in 2023, the UK Society of Authors recommended a very similar clause to one of its Translation Association members in their contract negotiations with a publisher, and it is significant that the publisher refused to have it included on the grounds that it was too soon after the release of the technology to incorporate contract clauses about it.¹⁶

While some of their reservations are well founded, one wonders how well-informed literary translators are when they criticise the technology so vehemently. Daems (2022: 49) notes that, “only 6% of respondents with literary translation education indicated that translation technology was included in said education”, while Ruffo (2020: 33) notes that, “those who have received academic translation technology training also view technology more positively ... 70% of those with academic training believe the relationship between literary translation and technology to be a positive one.” Daems (2022: 60) notes that, “It is striking that lack of awareness of translation technology is still an issue more than fifteen years after it was established by Fulford and Granell-Zafra (2005) as one of the

¹³ See Moniz and Parra Escartín (2023) which addresses a number of concerns in this area.

¹⁴ <https://phrase.com/products/phrase-tms/>

¹⁵ https://go.authorsguild.org/translator_contract_sections/1

¹⁶ From a post dated 10th August 2023 on the Emerging Translators Network forum for literary translators: <https://emergingtranslatorsnetwork.wordpress.com/>

reasons for non-adoption of translation tools.” Accordingly, then, while literary translators *believe* that technology will not be helpful, this may not be backed up by the evidence, especially where some literary translators, “who feel that machine translation can never be useful argue that it would not save time”; the one thing pretty much *any* study of the incorporation of MT into the translation pipeline¹⁷ shows is that jobs are completed more quickly, as well as to the satisfaction of a range of clients (e.g. Plitt and Masselot, 2010; Guerberof, 2014; Moorkens et al., 2015; O’Brien et al., 2015). One of Daems’ participants suggests that, “increased speed is not necessarily desirable when it comes to literary translation” (Daems, 2022: 60), presumably on the assumption that speed is inversely related to quality, although, as the present article argues, this is by no means a given and depends on how the tools are used.

To try to look forward and accentuate the positive, it is with the convergence of NMT, CAT tools and post-editing that we see the most likely adoption of MT in literary translation, offering the already documented improvements in productivity while still allowing translators as expert decision-makers to retain their creative control over the translation process. Most CAT tools can now offer MT suggestions as standard, either in the form of complete pre-translated segments or as interactive suggestions put forward as-you-type, and unless stipulated by the client, translators are free to adopt, edit, or discard any suggestion that comes their way, whether from TM or MT.

4. How can translation technologies benefit literary translators?

In relation to the development of the ideal translation tool for literary translation, Daems (2020: 58) states that, “most respondents indicated that they had no idea or *they did not want to think about such a thing*” (our emphasis). Indeed, on the same topic Ruffo (2020: 33) notes that, “a few literary translators mentioned being unwilling to adopt translation technology regardless of its usefulness”; despite the undoubted utility of translation tools to translators of other genres.¹⁸

As an indicator of what can be done, Hadley et al. (2022) and Rothwell et al. (2023) contain examples where experiments in creative-text and literary translation using a range of technologies have been carried out, largely to good effect. The use of translation tools has not only led to practical gains (in terms of time saved, for instance), but has added value from a cognitive perspective, too. For example, Rothwell (2023) shows what can be done with tools available today in the retranslation of a classic French novel;

¹⁷ Albeit largely in non-literary scenarios, to date, although both Toral and Way (2018) and Moorkens et al. (2018) run post-editing experiments with professional translators in their work on literary MT.

¹⁸ This attitude seems rather ostrich-like, but it is worth noting that such comments came from literary translators in Israel and the Netherlands who probably felt they were upholding standards in a smaller language under pressure from a dominant one (we have also heard similar sentiments expressed by translators working into Irish and Welsh). Accordingly, for the respondents of Daems (2020) and Ruffo (2020), the purity of the minority language concerned may be their overriding consideration, which muddies the water a little.

Kolb and Miller (2022) examine the use of CAT tools for the translation of puns; Van de Cruys (2023) applies MT to the highly challenging case of poetry translation; Zajdel (2022) wonders whether Google Translate can convey metaphor; Kenny and Winters (2023) explore the extent to which the style of a highly experienced English-to-German literary translator changes when using MT; Oliver (2023) and Toral et al. (2023) continue investigations in using NMT to translate novels; and Rudan et al. (2023) look forward to a more tailored and sophisticated set of tools in the future.

To provide a degree of balance, a less-enthusiastic commentator on the utility of MT and CAT tools in literary translation might argue that the technological reality in Kolb and Miller is only prototypical; that Van de Cruys only focuses on specific aspects of poetry translations (rhyme, without qualitative evaluation of effectiveness); that Zajdel noted that while MT was able to process metaphorical expression and express them in other words, it could not do the same for idiomatic expressions, which were translated by MT in a word-for-word fashion, “leading to nonsensical, translations” (Zajdel, 2022:134); that Kenny and Winters observed that the retention of “less preferred” words (by the author) “serves as a reminder of the strong priming influence of the machine-translated text”; that the trained system of Oliver, “achieves much worse automatic evaluation scores” compared to freely available MT systems, while the translations obtained via the engines built by Toral et al. are less preferred to those of a freely available system for some of the novels studied; and that tools envisaged by Rudan et al. may not be available for widespread use for some time yet. While we agree that many issues are far from resolved, the rate at which all this work has been undertaken, and the generally positive indicators that have resulted despite the novelty of the work, point towards a number of immediate and/or forthcoming benefits for literary translators. At the very least, we contend that this body of very recent work demonstrates that both CAT tools and MT already have, and will continue to have, a lot to contribute in the areas of literary and creative translation and are certainly worth considering as additional tools in the armoury of a modern literary translator.

Given the stance taken in this paper, it is reassuring to note that we may be witnessing a sea change in the area of literary translation. Ruffo (2022: 33) observes that, “those aged between 18-25 have the most positive relationship with technology: 50% thought of technology as helpful for literary translation, while the rest described the relationship between the two as either necessary (25%) or harmonious (25%).” Of course, this generation is the first to have grown up with technology as a given in all walks of life, so it is unsurprising that they have more refreshingly positive views towards technology in their own profession, too. In a similar vein, Daems (2020: 60) notes that when technology was included in their education, translators were more likely to use it. Accordingly, helping translators become aware of the different types of technology as well as ensuring hands-on training during their education would appear to be important.

5. Concluding remarks, and a view on the future of literary translation

Most experienced literary translators do not use translation technologies at the moment, nor do some of them want to. Unlike their fellow translators in other fields, some even refuse to engage in hypothesising what the ideal translation tool might look like in their profession. Translation technologies are very much part of the armoury of many translators nowadays, and this viewpoint among literary translators may be coming to an end, with newcomers to the field enthusiastically embracing technology. Minimally, current CAT tools already offer ergonomic and workflow advantages which apply to literary no less than to commercial translators. For instance, since the source text is electronic, there is no need for the translator's attention to move constantly from page to screen and back, with the attendant risk of oversight and omission; TM, even when it does not provide many matches, can be searched for previous translation solutions; a termbase can be used to enhance consistency of standard text such as names of characters and places; and the CAT editing environment facilitates revision by always showing source and target segments in alignment. Integrating MT into the CAT editor, even without the degree of interactivity called for by Daems' respondent, offers an added source of translation ideas from which to select, as well as feeding the CAT tool's autosuggest facility. A future literary-optimised translation environment such as that envisaged by Rudan et al. (2023) might further enhance these resources with features including stylometric tools to allow deeper analysis of the source text and the ability to interrogate external corpora of relevant translations, whether of works by the same author, or ones from the same genre and/or period.

We have provided many use-cases where translation technologies have been used to good effect in literary and creative translation, albeit with some reservations, from CAT tools being used for the translation of puns as well as the translation of classic French novels, to MT being used for the translation of novels and poetry. All of this work is very recent, so is an indicator not only of the current benefits to be had from embracing such technologies, but also that their use is on the rise. It is clear to us that the notion of a computer-aided "augmented translator" (Lommel, 2018) is already a reality, potentially no less applicable today to literary than to commercial translators and is likely to become even more so in the near future.

Awareness of CAT tools and MT is being enhanced by their inclusion as essential material in translator training, and so the strong ties that young literary translators have to technology in general is also likely to lead to their embracing of technological tools in their profession. As NMT, CAT tools and post-editing converge more and more, we expect more literary translators to enjoy the benefits of better and better technology to help not only achieve improvements in productivity, but also as an essential aid in the ideation process itself, all the while maintaining control over their preferred translation workflow.

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