Finnish literary translators' use of translation technology and tools: processes, profiles, and purposes

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Abstract

While Translation Studies has started investigating the potential of translation technology in literary translation, the research has largely focused on optimizing product quality and bypassed the experiences of literary translators. This study contributes to filling that gap by means of a survey (n=72) and interviews (n=7) among literary translators with Finnish as a working language. Combining quantitative and qualitative analysis, we investigate what tools are used by literary translators, at what stages of the translation process, and for what purposes, and what factors are linked to technology use. We identify three types of translation processes ("from scratch", "TM use", and "MT post-editing") with some individual and source-text-specific variation, and observe that translation technology use is more likely for translators who also use it for non-literary translation. The results also draw attention to literary translators' different processes and the variety of purposes for which the different tools are used. The results have implications for publishers' workflows, usability, and literary translators' agency and profession.

Keywords: literary translation, translation technology use, computer-assisted literary translation (CALT), translation memories, machine translation

1 Introduction

Literary translation has been characterized as "the last bastion of human translation" (Toral & Way 2014: 174), but the walls of the bastion may be crumbling. In March 2023, the Swedish publisher Lind & Co. announced that they were introducing machine translation (MT) and post-editing on a large scale, with 130 titles in production (Benaissa 2023). The announcement drew a largely negative response from The Swedish Writers' Union and its section for literary translators: while admitting that technology might help with a first draft, they emphasized the creativity of literary translation and were concerned about translators losing jobs to Artificial Intelligence (AI) (Swedish Broadcasting Company 2023).

In Translation Studies, a lot of the research on technology in literary translation has focused on the potential of MT and product quality (e.g., Hansen & Esperança-Rodier

2022; Toral & Way 2015; Toral & Way 2018; Voigt & Jurafsky 2012; see Ruffo 2022 for a summary). However, as publishers begin to introduce MT workflows, there is an urgent demand for research on literary translators' technology use, attitudes, and needs. The present article focuses on technology use, analyzing the following:

- How frequently literary translators use (translation) technology;
- What tools they use;
- What background factors are linked to technology use; and
- At what stages of the translation process, and for what purposes, they use the different tools.

For the purposes of our study, translation technology includes translation memories (TM), terminology tools, and MT.[1] Our data consist of a survey (n=72) and interviews (n=7) among literary translators with Finnish as a working language, and we combine statistical analysis with thematic, data-driven classifications of open-ended survey items and interview data.

In what follows, we first review previous research and introduce our data and methods (Sections 2 and 3, respectively). In Section 4, we report our results: how frequently different tools are used, which profiles and processes emerge vis-à-vis tool use, and examine in more detail some tools (e.g., MT) and some usage purposes (glossaries, collaborative translation). Section 5 includes the discussion and conclusions.

2 Previous research on literary translators' technology use

Some insights into literary translators' use of tools can be gleaned from process studies; we summarize two recent examples below and then report on three surveys of literary translators' technology use.

Process studies by Claudine Borg (2022) and Roy Youdale (Youdale & Rothwell 2022) illustrate the variety of literary translators' processes. The translator in Borg's study, Toni Aquilina, relied on a print copy of the source text and wrote his first draft by pencil; while revising the translation in a word processing environment, he also printed out versions and read them aloud (Borg 2022: 70–104). He also commented on the proofs in printed copies and by hand (ibid.: 117–121). In contrast, Youdale translated a collection of microfiction using TM software, although he exported the translation into word processing software for revision (Youdale & Rothwell 2022: 391). His experience was very positive: he appreciated being able to quickly find the passage he was working on, ensuring no sentences were overlooked, keeping track of his progress, and making concordance searches (ibid.: 384–388). What he found particularly useful was the feature that automatically saved versions of his translated segments, as it made his own thought

[1] While TM software is often referred to as *computer-assisted translation* (CAT), we prefer to use this more specific term, as CAT can also encompass terminology and MT tools. Similarly to Slessor (2020), Ruffo (2022), and Daems (2022), we distinguish between these three types of tools in order to discover whether the participants use or view them differently.

processes and translation decisions visible and allowed him to make "quite subtle changes to the translation during revision" (ibid.: 387).

In Stephen Slessor's 2020 survey of literary translators in Canada (n=49), virtually all the respondents (98%) used word processing software for literary translation (Slessor 2020: 244). Use of other general technology, such as electronic research resources (search engines, dictionaries, term banks), was also widespread. More specific tools, such as TM software, terminology tools, MT, concordancers, and voice recognition software were each used "often" or "occasionally" by 4 to 6 respondents (ibid.: 246). Specific uses for translation technology included maintaining formatting, creating back-up files or researching collocations, and identifying synonyms or verifying proper name spelling (ibid.: 246). Half of the respondents created terminology lists, but mainly using word processing files (74%), spreadsheets (26%), or paper (17%) rather than dedicated software (13%) (ibid.: 245).

In Paola Ruffo's 2022 survey (n=150), the largely European respondents listed the tools they use in literary translation. In contrast to Slessor's data, only 39% of the respondents reported using text processing software; other general technologies included online dictionaries (82%), Internet searches (38%), digital glossaries/term bases/thesaurus (11%), and task-/time management apps (10%) (Ruffo 2022: 28). As Ruffo (2022: 28) notes, the respondents were probably so accustomed to word processing and Internet searches that they did not think of mentioning them when asked about their technology use in an open question. As for translation technology, 25% of the respondents used CAT tools, but only 7% used MT, and 5% terminology management tools (ibid.: 29). Almost all of those respondents (39 out of 43) who used translation technology for literary translation also used it for non-literary translation (ibid.). The respondents' comments on the most appealing aspects of technology suggest that technology can be used to do research (e.g., searching the TM for previous solutions either to use them or avoid repetition), free up time for creative work by taking care of mechanical tasks, and reduce typing (voice recognition) (ibid.: 29–30).

Finally, in Joke Daems' 2022 survey of Dutch literary translators (n=153), virtually all respondents used general technology, such as word processing software (Microsoft Word alone was used by 96% of the respondents), or electronic dictionaries and search engines (99%) (Daems 2022: 53). In contrast, less than 10% used TM or terminology tools "often" or "always", and less than 5% used MT "often" or "always" (percentages estimated by the authors based on Figure 2.3 in Daems 2022: 51). The respondents' reasons for using translation technology included producing a draft translation, generating alternative suggestions, conducting concordance searches, seeing the source and target text together, improving quality, making sure that everything is translated, and even making the process more fun (Daems 2022: 53). In common with Ruffo's (2022) results, Daems' respondents were more likely to use translation technology if they also used it for non-literary translation; the difference was statistically significant ($p<.001$) (Daems 2022: 51). Technology use was also more likely among younger respondents ($p=.03$) and respondents who had training in translation technology ($p=.003$) (ibid.: 50).

Previous research thus indicates that western literary translators mainly use general technology and tools, with a smaller proportion at least sometimes relying on translation

technology. At the same time, the variety illustrated in the process studies suggests that further research into the use and purposes of tools is needed.

3 Data and method

In this section, we first present our survey and interview data (Sections 3.1 and 3.2, respectively), describing the data collection method and the participants' backgrounds. Then, in Section 3.3, we specify our analysis methods.

Both the survey and interviews were carried out in March/April 2023 following the Finnish ethical principles of non-medical research involving human participants (Finnish National Board on Research Integrity TENK 2019). Participation was voluntary and based on informed consent: the participants were informed about the purpose of the study and had time to consider whether they wanted to participate. We further explained that the survey and interviews were part of a larger project (Narrative Text, Translator and Machine, see Acknowledgements) and emphasized that we were interested in any views on translation technology. The data were processed in accordance with the GDPR regulations.

3.1 The survey

As Joke Daems' survey (2022) included definitions and examples of TMs, terminology management, and MT, we judged it well-suited for the purposes of our study. Having received the Dutch questionnaire from Daems, we translated it into English and Finnish using DeepL and checking the translations against the Dutch questionnaire, consulting Daems as necessary. Most of the items were retained as such; some were merged (e.g., separate items on how frequently the respondents used various tools were combined into a single matrix) so that we could solicit more specific comments on the purposes for which the respondents used the different tools. The draft questionnaire was reviewed by two literary translators on the project's advisory board and piloted by a third literary translator.

The final questionnaire included 53 items in Finnish on the respondents' backgrounds, their current technology use, and on the (potential) usefulness of TM, terminology management, and MT in literary translation. There were also open-ended items where the respondents could comment further on their tool use.

The questionnaire was distributed via social media (Facebook, Twitter) and the mailing lists of the Literary Translators' Section of the Finnish Association of Translators and Interpreters (SKTL), the Literary Translators' Branch of the Union of Journalists in Finland (KAOS), and the Finnish Literature Exchange (FILI). The first two organizations cater to literary translators translating into Finnish, the third for literary translators translating from Finnish. Two €50.00 bookstore vouchers were raffled among the respondents.

The survey was open March 7–19, 2023 and yielded a total of 75 responses, 72 of which were analyzable. As illustrated in Table 1, the distribution of those translating into

and from Finnish was fairly even, literary translation was a part-time or occasional activity for many respondents, and over half of the respondents (n=46) had 10+ years of experience in literary translation.

Table 1. Respondents' backgrounds

Working languages	**n**	**%**
Finnish as target language	38	53
Finnish as source language	30	42
Finnish as both source and target language	3	4
N/A	1	1
Total	72	100
Literary translation activities	**n**	**%**
Translates only or mainly literary texts	28	39
Translates both literary and other texts	23	32
Works in another field or is a student/retired but sometimes translates literary texts	21	29
Total	72	100
Experience in literary translation	**n**	**%**
0 to 4 years	12	16.7
5 to 9 years	14	19.4
10 to 14 years	9	12.5
15 to 19 years	12	16.7
20+ years	25	34.7
Total	72	100.0

We also asked the respondents about the genres they translated (they could select multiple options). As illustrated in Table 2, almost all respondents translated prose fiction for adults, and around half for children and/or young adults.

Table 2. Types of literary texts translated

Literary texts translated	**n**	**%**
Adult fiction	66	92
Children's literature	42	58
Young adult fiction	32	44
Poetry	21	29
Drama	11	15
Comics or graphic novels	5	7
Other	4	6

Some 70% of the respondents were women (n=52) and had completed a course or some training in literary translation (n=51). A third (n=26) reported having received some training in translation technology.

3.2 The interviews

In order to gain deeper insights into how literary translators use different tools during their translation process, we followed up the survey with interviews. The interviewees were recruited via the survey: respondents interested in participating in an interview could provide their contact information at the end of the questionnaire. We contacted the nine respondents who did so by email, sending them a separate information sheet about the interview, emphasizing that participation was voluntary and consent could be withdrawn at any stage.

Seven respondents were able to participate, and online interviews with them were conducted between April 5 and 17, 2023 on Microsoft Teams in Finnish. The interviews were semi-structured theme-based interviews, with three major themes: 1) the interviewee's background and the literary texts they translate; 2) the translation process and tools used, including (non-) helpful tools and functions; and 3) the translation technology's perceived usefulness and limitations. In most interviews, both researchers were present and took turns addressing the themes; two interviews were conducted by one researcher due to a scheduling overlap. The duration of the interviews varied from 41 minutes to 1 hour and 15 minutes, yielding a total of 6 hours and 15 minutes of data. Select background information about the interviewees is provided in Table 3.

Table 3: Interviewees' backgrounds

	Translation direction	**Translator training**	**Experience in literary translation**	**Experience in non-literary translation**
A	Into Finnish	Yes	0 to 5 years	Yes
B	Into Finnish	Yes	0 to 5 years	Yes
C	Into Finnish	No	15+ years	Limited
D	From Finnish	No	20+ years	Limited
E	Into Finnish	No	15+ years	Yes
F	From Finnish	No	0 to 5 years	Yes
G	Into Finnish	Yes	0 to 5 years	Limited

Five of the interviewees translated into Finnish, and two from Finnish. Three had studied translation (varying from a master's degree in non-literary translation to a minor in translation studies). Three had extensive experience in literary translation; four had started working as literary translators within five years. All had at least some experience in non-literary translation, although three currently translated mainly literary texts (for the sake of anonymity we will refrain from providing further details).

Microsoft Teams provided automated transcripts of the interviews, which were cleaned and reviewed by both a research assistant and the authors to produce verbatim transcripts for content analysis.

3.3 The analysis method

The analysis combines quantitative and qualitative approaches as follows:

Table 4. Research questions vis-à-vis analysis methods

Research question	**Data**	**Analysis method**
1) How frequently do literary translators use (translation) technology?	Survey	- Quantitative: frequencies
2) What tools do they use?	Survey	- Quantitative: frequencies - Qualitative: comments in open questions
3) What background factors are linked to technology use?	Survey, interviews	- Quantitative: statistical analysis
4) At what stages of the translation process and for what purposes do literary translators use different tools?	Survey, interviews	- Qualitative: thematic analysis of open-ended survey items and interview data

Questions 1 and 2 were approached via straightforward frequencies in closed items on how frequently the respondents use different tools and in open items listing tools used.

To answer question 3, we looked for statistical differences in technology use based on the following background variables:

- Gender;
- Age;
- Length of experience in literary translation;
- Educational background:
  - Translator training;
  - Training in translation technology;
  - Training in literary translation;
- Finnish as target vs source language; and
- Experience of using translation technology for non-literary translation.

As most of the variables were categorical, and as some cells in the contingency tables had the expected count of less than five, we relied on Fisher's exact test to determine whether the variables are independent of each other. This is an alternative to the more common chi square test in the case of very small sample sizes (Mellinger & Hanson 2017: 175–176). The calculations were performed on the IBM SPSS Statistics 27 software. The threshold for statistical significance was $p \leq .05$.

Finally, to answer question 4, we conducted a data-driven thematic analysis of open-ended survey items and interview data, investigating how the respondents/interviewees commented on their translation processes and the purposes of their technology use.

When quoting the survey or interview data, we refer to the survey respondents by number (e.g., "Respondent 52") and to the interviewees by letter (e.g., "Interviewee A"). All the quotations have been translated from Finnish into English by the authors.

4 Results

4.1 Overview

When asked how frequently they used different types of tools in literary translation, the survey respondents answered as shown in Table 5. We have highlighted the most frequent response regarding each tool.

Table 5: Survey respondents' use of tools in literary translation

	Never	**Sometimes**	**Often**	**Always**	**Total**
Pen and paper	21 (29.17%)	38 (52.78%)	9 (12.50%)	4 (5.56%)	72 (100.01%)
Word processing software (e.g., Word, GoogleDocs)	4 (6%)	0 (0%)	3 (4%)	65 (90%)	72 (100%)
Translation memory software (e.g., Trados Studio, Wordfast)	60 (83%)	2 (3%)	2 (3%)	8 (11%)	72 (100%)
Terminology management software (e.g., MultiTerm)	66 (92%)	2 (3%)	1 (1%)	3 (4%)	72 (100%)
Machine translation (e.g., GoogleTranslate, DeepL)	40 (55.6%)	23 (31.9%)	5 (6.9%)	4 (5.6%)	72 (100.0%)

The most frequent tool is clearly word processing software, which almost all report using "always". Over a half (n=38) use pen and paper at least sometimes, although almost a third (n=21) "never" use them. In contrast, those reporting that they use translation technologies "often" or "always" form a rather small group.

The TM programs listed in open-ended questions include Trados (n=6), Wordfast (n=2), MemoQ (n=1), and Phrase/Memsource (n=1). The MT tools include GoogleTranslate (n=11), DeepL (n=3), and other MT systems (n=3, one reference each). Only one terminology management program (MultiTerm) is identified. While modern terminology tools are typically integrated into TM software, this may also reflect the fact that the respondents do not routinely create glossaries for literary translation: 33 respondents report creating glossaries "sometimes" but only 16 "often" or "always". We return to glossaries in Section 4.3, where we also consider what other tools the respondents report using.

4.2 Profiles: Who uses translation technology?

Interestingly, most of the background variables do not produce statistically significant differences in the frequencies of using TM software, terminology tools, or MT. This is

the case with the direction of translation, gender, age, and experience in literary translation. The only statistically significant differences concern the use of translation technology for non-literary translation and educational background (training in translation technology and in literary translation). Those respondents using the various tools for non-literary translation at least "sometimes" are more likely to use those tools for literary translation as well: for TMs, the means are 1.40 vs 1.00 (p=.001), for terminology tools 1.36 vs 1.00 (p=.003), and for MT 1.80 vs 1.05 (p<.001). In contrast, the differences related to training only concern individual tools: the respondents with training in translation technology are more likely to use MT tools in literary translation (mean values 2.04 vs 1.62; p=.010), while those with training in literary translation are slightly *less* likely to use terminology tools (mean values 1.1 vs 1.27; p=.017).

The interviews shed more light on the technology use: out of the four interviewees who have experience in non-literary translation, three use translation technology for translating literature (interviewees A, B, and G). In contrast, Interviewee D, who mainly translates literature, mentions they are not familiar with the tools and that learning to use them would take too much effort. Similar findings were reported by Salmi (2021: 123), although her survey data date back to 2014: many literary translators reported that they did not use translation technology at all, whereas non-literary translators found it indispensable.

4.3 When and for what purposes is technology used?

This section first describes at which stages of the translation process literary translators use the different tools and then considers some tools (TM, MT, pen and paper) and purposes (glossaries, collaborative translation) in more detail.

4.3.1 Processes

We asked the interviewees to describe their working process and the tools they use from when they receive the source text (ST) until the translation is finished. Based on their descriptions, we distinguish three different approaches:

- *Translation from scratch*: the translator writes the translation in word processing with the ST open as a PDF file (3 interviewees);
- *TM use*: the translator makes the first draft(s) with TM software but exports the translation to a word processor for the final self-revision (3 interviewees);
- *MT post-editing*: the translator receives MT output to post-edit in TM software and finalizes the translation there (1 interviewee).

The interviewees with the *"from scratch" approach* (C, D, and E) usually read the whole source text as a PDF file before starting to translate. While translating, they have at least two windows open on their screen: the ST as a PDF file and a word processing file where they work on their translation (plus windows for dictionaries and research). Interviewee

C sometimes copies the ST from the PDF into the word processing software and translates "on top of it" to ensure nothing is overlooked. According to interviewees, using fewer tools makes it easier to focus on "the tone, that special nature of the book that is manifested in the language" (Interviewee D) and the larger whole: "I actually read a paragraph and translate paragraph by paragraph, not sentence by sentence" (Interviewee E).

The first version of the translation is typically followed by reading and self-revision in the word processing environment. The word processing format is also used when sending the translation to the publisher and processing the editor's comments. The proofs are received and processed as PDF files.

At the same time, the translator- and even text-specific processes could differ. Interviewee D recalls that some STs can require multiple rounds of reading to capture the tone, but with more straightforward STs, they occasionally only read part of the book before starting to translate. In a similar vein, Interviewee C observes that with some texts, "reading while translating" facilitates "progressing at the reader's pace so that when there's something new in the text, you can transfer your fresh reactions into the translation immediately, although that of course means there's quite a lot to revise".

The translators *using a TM* (Interviewees A, F, and G) usually first read the ST as a PDF and then import it into the TM, which requires file conversion and editing to remove superfluous formatting. They then work on the translation in the TM to a varying extent. Interviewee A first does a very rough translation in the TM and only starts confirming the segments on their second round, after which they export the translation into word processing for the final read-through. Interviewee F similarly produces a rough translation in the TM, sometimes by using MT, and edits it in the TM; however, they do most of their sentence revision and "moving things around" in the word processing environment, where they feel they can work more freely. Interviewee G makes some use of bilingual Word files for their interim versions and consulting an external reader, and lastly exports the translation into a monolingual Word file for the final read, where they pay specific attention to paragraphing. All three export the translation to word processing software at least for the final self-revision before sending the translation to the publisher. The editor's comments are received in a Word file and the proofs as a PDF.

The one interviewee (B) who *translates by MT post-editing* usually receives the ST and its MT in a TM environment, works on their translation there, and submits the translation to the publisher in the TM. Any comments are received within the system as well; proofs were not mentioned. Their method for keeping track of the translation as a whole is reading it in the TM preview window.

Interviewee B describes the process as "translating from two sources", where they have become aware of the typical errors in the MT output and learned to retain constant vigilance. In their view, while the MT repeats some irritating mistakes, the process is more efficient overall, and the rates of pay are decent. In their view, MT post-editing works for popular fiction but would not be suited to novels with an individual style or creative language.

4.3.2 Specific tools and purposes

The survey and interview comments on the purposes for *using TM* in literary translation largely reflect the typical benefits of TMs in non-literary translation. First, TM software ensures that no ST sentences or elements are overlooked and facilitates keeping track of one's progress (Respondent 22; Interviewees A and G). Interviewee A also finds some quality assurance features, such as checking numbers and punctuation, somewhat helpful.

Second, TMs, term management, and concordance searches highlight repeated elements and help to consider how to translate them. Common examples include ensuring the consistency of terminology, character names, and place names. In literary translation, this can be particularly useful in specific cases: in books and series with a lot of special-field terminology (n=10 respondents); in long series or series with several translators (n=3 respondents); and in books with elaborate world building, such as in science fiction and fantasy (n=2 respondents). Respondent 49 also mentions that the TM has drawn their attention to a recurring situation that they might have missed otherwise.

Finally, some functions of TM use appear specific to literary translation. Interviewee F points out that the concordance search could be used to not only locate repetitions but also see the text from a different perspective. Interviewee E, who does not use TMs for literary translation, observes that in literary translation, it can be desirable to not translate the same expression in the same way. As suggested by Ruffo's survey (2022, 30), TM could be helpful in consulting previous solutions to *avoid* repeating them.

Concerning *overall MT use* in the data, the participants mention two types of usage (apart from producing the first draft of the entire ST as described in the previous section). First, MT is described as helpful in understanding the ST (n=5). Examples include long and complex sentences (Respondent 59), checking the meaning of the original ST when translating from a pivot translation (Respondents 10 and 22), and short passages in languages unfamiliar to the translator; even if they can be retained as such, the translator still needs to understand their meaning (Respondent 64). One respondent mentions that there are no bilingual dictionaries in Finnish and the other working language, so they have to research unfamiliar expressions via a third language, typically English, and potentially rely on MT (Respondent 70). Secondly, MT can be used for translating individual passages to provide inspiration or a point of comparison (Respondents 3 and 22).

Pen and paper are mostly used for making notes (15 respondents) and in problem-solving (15 respondents). Respondents write notes to keep track of terms, names, and other expressions that need to be translated consistently – or of expressions to avoid. Some respondents also add notes in the ST or analyze its structure and/or character relations by hand. With regard to problem-solving, respondents write down questions or passages that require extra thinking, revision, or research, note down spontaneous solutions or ideas, or draft alternative solutions by hand, particularly for names, puns, poems, and rhymes.

There is some variation in the *creation of glossaries for literary translation*: while most questionnaire respondents report creating glossaries "sometimes" (n=33), quite a few (n=23) selected the option "never". As some respondents comment, there is not

necessarily any need for using terminology management for this purpose – or even for creating a glossary at all:

> The texts I've translated have been so straightforward that there's hardly been any need for glossaries. I've mainly used Word, or the like, to create simple lists of translation solutions that need to remain the same throughout the text (such as transliterated proper names or repeated words). (Respondent 22)

> In any case, you need to familiarize yourself with the subject a lot more thoroughly than on the level of any wordlists, so a list (for example, in a notepad) is only a memory aid at the very early stages, but it will of course soon become unnecessary; in the case of an entire book, you'll soon learn all the repeated terms by heart (and if you forget one for a moment, you can at least recall the passage where you previously needed it and it won't take that many seconds to locate it). (Respondent 43)

Out of the 49 respondents who create glossaries at least "sometimes", 44 provided further comments on the tools they use. Most mainly create glossaries in word processing files (n=18), spreadsheets (n=12), or on paper (n=12). Other tools include TM software (n=4), GoogleDrive (n=2), and note-taking software/app (n=2). Some (n=12) have shared their glossaries with other translators.

One potential purpose for technology use is collaborative translation. A third (n=26) of the respondents have *translated literature in collaboration*. However, they have mostly worked independently and exchanged word processing files by email (n=23) and/or used shared word processing documents, such as Google Docs (n=7). A similar pattern occurs in sharing glossaries: eight respondents have emailed glossaries to each other, and three have created a shared file for this purpose. Only one respondent has used TM software for collaborative translation, and one mentions that a shared TM file would be practical.

Advantages in using a shared word processing document include keeping track of the other translator's progress (n=2) and ensuring that the translators are always working on the same version (n=2). Conversely, while individual word processing files are regarded as easy to use (n=2), emailing them to the other translator slows down the process (n=1) and creates uncertainty about file versions (n=1) and the other translator's progress and translation solutions (n=1). Nevertheless, the specific tools can be a secondary matter as larger principles or major solutions must be determined jointly (n=2).

At the end of the questionnaire section dealing with the use of TM, MT, and glossaries, the respondents could provide open comments on *other tools and tool uses*. The tools mentioned here include read-aloud software/features (n=5), dictation (n=3), spreadsheets (n=5), Adobe Acrobat for PDF reading and conversion (n=1), and image processing software (n=1). The figure for Adobe is probably misleading: as we have seen above, six interviewees receive the ST, proofs, or both as a PDF file. Most respondents probably do use a PDF reader but simply do not regard it as a tool. The comments on read-aloud and dictation features suggest they are used for ergonomic reasons (to reduce the amount of typing), or simply out of curiosity. Spreadsheets are also used for keeping track of one's progress. Other individual uses include customized keyboard shortcuts and macros, again to reduce the amount of typing, and using DeepL Write to polish the target-text style.

5 Discussion, conclusions, and implications for further research

5.1 Discussion and conclusions

Our survey results indicate that most of the respondents translating literature from and/or into Finnish use word processing software, and a small number (n=12) at least sometimes use TM software. A closer look at the working processes through the interviews suggests three types of approaches: translating "from scratch" without any translation technology, translating with TM software, and post-editing MT output. Most of the TM users export the translation into word processing software for the final self-revision before sending it to the publisher.

By and large, our results are in line with previous surveys on literary translators' technology use (Slessor 2020, Ruffo 2022, Daems 2022). Word processing is confirmed as the most common environment for literary translation, coupled with other general technology, such as PDF software and research tools. Similarly to what Ruffo (2022) and Daems (2022) found, TM technology is mostly used for drafting and editing; the final versions are edited in word processing software, and the proofs commented on the PDF format. MT post-editing is not very common: MT is mainly used for translating individual passages for comprehension or for inspiration. As for glossaries, respondents report creating them, but without using terminology software.

As in Ruffo's (2022) and Daems' (2022) results, the few statistically significant differences in our data suggest that the use of translation technology is more likely among respondents who also use it for non-literary translation (TM, terminology, and MT tools), as well as among those with training in translation technology (MT only). Interestingly, the use of terminology tools is less likely for those with training in literary translation. At the same time, the interviewees' individual and text-specific translation processes vary. In particular, the source text genre may be linked to technology use: popular fiction may (perhaps partly erroneously) be considered more straightforward and formulaic, and therefore more suitable for TM or even MT post-editing. Genres such as crime fiction, fantasy, or science fiction may also include a lot of terminology and names for which terminology and TM tools are also considered useful (although Hansen et al. 2022 observe that, e.g., heroic fantasy otherwise poses several challenges for MT, such as stylistic variation, neologisms, and wordplay).

As for the limitations of this study, the number of respondents was not very high. The SKTL Literary Translators' Section and KAOS have ca. 500 members, and their income surveys usually draw around 80 responses; the FILI mailing list has ca. 500 recipients. The rather low number could partly be due to the fact that the use of translation technology in literary translating is a question that divides opinions, and translators with strong negative views might not have had the motivation to participate.

As surveys and interviews are based on self-reporting, they only capture the participants' conscious thoughts at the moment of data collection. They also highlight certain aspects and tools, and may overlook others. In addition, in both surveys and

interviews, the researchers act as co-constructors of the data: the survey and interview questions prompt the responses and interviews are by nature dialogic.

Despite these limitations, the survey results are similar to previous studies conducted in other western countries and can be considered indicative of current technology use among literary translators with Finnish as a working language.

5.2 Suggestions for future research

A central question raised by the results is to what extent translation technology is compatible with literary translation – both technologically and professionally.

Technologically, it seems that most publishers' workflows do not encourage translators to use translation technology: source texts are still delivered as PDF files that require conversion and editing, and the final editing and checking of the proofs involve word processing and PDF files, which means that updating the TM requires extra work. When developing technology for literary translation, involving publishers may therefore be crucial, too. Another technological aspect is related to usability: how easy is it to use the current translation technology software for literary translators, a lot of whom may not have any previous experience of translation technology? Several respondents also mention the high cost of CAT tools as a negative aspect of translation technology. While open-source programs are available, using them may require spending more time on learning the ropes and searching for technical support.

Professionally speaking, translation technology can have a major impact on literary translators' agency. One crucial question is who decides for what purposes translation technology is adopted in literary translation: to what extent will translators, both as a professional group and as individuals, have a say in how the practices and processes are developed? In the worst-case scenario, publishers introduce MT simply to cut costs and dictate the terms; in the best case, literary translators' needs are taken into account when developing the tools, translators and publishers reach an agreement on sustainable principles, and individual translators retain the option to choose whether and how to use the different tools.

Another major professional issue is how introducing technology affects literary translators' (self-)image (cf. Ruffo 2022). There are concerns about technology, particularly MT post-editing, making literary translators' work less creative or even replacing them. Such fears and uncertainties may feed divisions among literary translators, particularly if technology use begins to reinforce a distinction between "popular fiction" and "quality fiction". We therefore agree with Slessor (2020: 246) that workshops or forum discussions for openly sharing experiences about technology use would be a very welcome initiative. To facilitate fruitful discussions, further attention also needs to be paid to literary translators' perceptions of translation technology and its advantages and risks, which we hope to discuss in our future work.

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