

Introduction of Machine Translation into Audiovisual Translation Teaching

ABSTRACT

Subtitling has long been the primary type of audiovisual translation in Slovenia. A steady increase in the production of audiovisual content, including English-speaking movies and TV series, along with the development of machine translation, have seen a growing need and opportunity for subtitling globally. The Department of Translation Studies (University of Ljubljana) has offered courses in subtitling to MA students for over twenty years. In the course of this time, teaching methods have been adapted to embrace new technologies. Recently, students have shown interest in incorporating machine translation into the subtitling course. The paper presents an analysis of a subtitling assignment in which students were asked to post-edit DeepL's Slovene translation of English formatted movie subtitles. The post-edited subtitles were compared with the subtitles done by a group of students from scratch. The results show considerable differences in the students' multimodal awareness and the overall quality of the subtitles between the two groups.

Keywords: subtitling, AVT teaching, machine translation, post-editing, multimodal awareness

Uvajanje strojnega prevajanja v poučevanje podnaslovnega prevajanja

IZVLEČEK

Podnaslovno prevajanje je primarna zvrst avdiovizualnega prevajanja v Sloveniji. Zaradi razmaha ustvarjanja avdiovizualnih vsebin, ki vključujejo filme in nadaljevanke v angleščini, in razvoja strojnega prevajanja se po vsem svetu večajo potrebe in možnosti za podnaslovno prevajanje. Oddelek za prevajalstvo Univerze v Ljubljani že več kot dvajset let nudi študentom magistrskega študija seminarje iz podnaslavljanja. V tem času so metode poučevanja sledile novim tehnološkim možnostim. Študentje v zadnjih letih kažejo zanimanje za vključevanje strojnega prevajanja v seminar podnaslavljanja. Članek predstavlja analizo naloge iz podnaslavljanja, v kateri so študentje popravili in uredili slovenski prevod angleških filmskih podnapisov, ki ga je ustvaril prevajalnik DeepL. Tako urejene podnapise smo primerjali s podnapisi, ki jih je druga skupina študentov ustvarila v celoti. Izsledki kažejo precejšnje razlike v multimodalnem zavedanju in nasploh kakovosti podnapisov med študenti obeh skupin.

Ključne besede: podnaslavljanje, poučevanje avdiovizualnega prevajanja, strojno prevajanje, popraviljanje strojnih prevodov, multimodalno zavedanje

1 Introduction

New technologies have seen an increase in new audiovisual media services over the last twenty years. According to the Audiovisual Media Services Directive issued by the European Commission in 2010, audiovisual media services are defined as “mass media in their function to inform, entertain and educate the general public”, including related non-private commercial communication, while excluding subsidiary occurrences of audiovisual elements in advertising and gambling activities (European Commission 2010, 3). The Directive highlights the *educational* impact of the audiovisual media on their users. In fact, in the years prior to the adoption of the Directive, spanning the two EU enlargements in 2004 and 2007, the European Commission published several documents in which it stressed the importance of developing multilingualism via language learning methods.

In its 2008 Communication on Multilingualism, the European Commission conveyed its belief that “[t]he media, new technologies and human and automatic translation services can bring the increasing variety of languages and cultures in the EU closer to citizens and provide the means to cross language barriers” (European Commission 2008, 12), stressing that languages can be informally learned via the media. These services “can thus also be a great source of informal language learning through ‘edutainment’ and subtitled films” (European Commission 2008, 12). To promote this objective, the Commission has supported subtitling and invited the Member States to encourage it. Two years later, in 2010, the Commission launched a 12-month project in 33 European countries aimed at exploiting the true potential of subtitling to encourage language learning and strengthen foreign language competence. While the final report waters down the potential of subtitling in this context, it concludes that subtitling helps to “improve the mastery of foreign languages”, can “raise awareness and provide motivation for language learning” in pupils, students and immigrants, with multilingualism and higher education being as such indicative of a preference for subtitling over dubbing (Media Consulting Group 2011, 26). Despite the Commission’s call for linguistic diversity, the study showed the prevalence of North American film production and, consequently, the prevalence of English over other languages. The Commission recommended the use of subtitling as an educational tool in both the expected educational environments, i.e., (secondary) schools, (all) universities and language teaching organizations, as well as in actions by broadcasters. One of the Commission’s strategic recommendations was not only to *use* subtitles to support language teaching and learning, but also to encourage “students and pupils” to *create* subtitles (cf. Media Consulting Group 2011, 28). The underlying ease of this proposal is surprising since it takes a whole MA course to master the theoretical and practical rudiments of subtitling. Such a recommendation may lead to the reinforcement of the stereotype that subtitling does not require any special training while, paradoxically, viewers will, deservedly or not, violently criticize the quality of TV subtitles. Last but not least, the Commission recommended involvement of “media professionals to develop and/or make available quality European films in subtitled versions”, especially in languages of limited scope, as well as to encourage especially young adults in predominantly non-subtitling countries to watch subtitled programmes (Media Consulting Group 2011, 29). The Commission’s recognition of the educational scope of subtitled programmes has been seconded by the rise of new audiovisual media services.

In line with the recommendations above, the European Commission legally regulated the nature and provision of the services with the Audiovisual Media Services Directive in 2010. Directive 2010/13/EU stipulated the accessibility of audiovisual media services to ensure “freedom of information, diversity of opinion and medial pluralism” and that the provisions of programmes should also cover accompanying text-based content, “such as subtitling services and electronic programme guides” (European Commission 2010, 3). The Directive was amended in 2018 to include programmes and user-generated content shared via social media services (European Commission 2018, 69–70), summoning the EU Member States to make audiovisual content immediately accessible especially to persons with visual and hearing impairments, with subtitling being again listed as one of the features to this end.

The European Parliament adopted a report in early 2023 in which it urged the Member States to facilitate accessibility through dubbing, subtitling, audio description or other means in all languages, both official and regional and minority languages (Kammerevert 2023). The onset of neural machine translation and large language models did not go unnoticed, as the 2023 report brings up the “potential of using artificial intelligence” as the implementation tool and “calls on the Commission and the Member States to promote this in a strategic and targeted manner” (Kammerevert 2023, 13). More specifically, artificial intelligence (AI) should be used in the production and distribution of the AV content to promote freedom of expression, the exchange of information and “detect illegal content” (Kammerevert 2023, 29–30). In fact, the European institutions have been using AI to promote their video content, while the EU web portal Europeana has offered high-quality video clips on European heritage to both professionals and the general public to proofread their AI-generated subtitles and captions, notably through a resource developed by the 2021–2022 Europeana Subtitled project (Europeana, n.d.).

2 Audiovisual Machine Translation

While research on machine translation (MT) started in the USA in the 1950’s, it was only around the turn of the millennium, about ten years after a dramatic rise in academic research on audiovisual translation (AVT), that the technical, rather than semantic, aspects of subtitling drew the attention of MT researchers.¹ Although software developers would present their findings as successful and promising (see Popowich et al. (2000) for the English-Spanish language combination, Armstrong et al. (2006) between German and English), the training material was ill-suited to the context, and the project results regarding semantic accuracy were vague. Nevertheless, the US company Global Translation Inc. still provided live machine translation of audiovisual (AV) content in eight languages, although Díaz Cintas (2005, 20–21) noted the dubious quality of its product, suggesting that the introduction of the tool was an economically driven enterprise.

2.1 Statistical Machine Translation in Subtitling

Modern MT has made tremendous leaps in quality since the introduction of the first open-source statistical MT engines in the mid-2000’s, most notably the Google Translate service

¹ For a detailed survey of MT development of subtitling, see Bywood et al. 2017.

in 2006. The first batch of 30 languages supported by Google Translate was headed by English, which has also functioned as a relay language for most of the GT languages. Slovene was added in 2008, becoming one of the first 40 GT-supported languages. Koletnik Korošec (2011, 16–17) provides useful insight into the response of Slovene students of translation to GT-generated texts, and discusses the didactic potential of MT. Also supported by the findings in Koletnik Korošec (2011), the students were aware of MT's limitations at the time. Unless used in predictable textual environments, early GT-generated texts were derided as a source of comical linguistic transformations, occasionally making the service a *toy* rather than a *tool*. Simultaneously, research on subtitling using statistical MT was developed to incorporate increasing huge training corpora. Once again, the methodology was debateable, as (due to copyright protection) the materials would be collected from freely available subtitle files on the internet, as done by Tiedemann (2007). Sadly, the subtitles were mostly produced by amateur subtitlers with insufficient linguistic and subtitling competences.

Volk (2009) built a statistical MT system for subtitling from English between Swedish and Danish, and had automatically produced subtitles post-edited by professional translators, who showed different tolerances to the quality of the subtitles, and noted that quality varied across film genres. His findings showed that the system was able to achieve good results with a large high-quality parallel corpus, and even though the automatic translation quality was evaluated differently, the customer was convinced of the system's benefits and started to employ the system.

Volk and Harder (2007, [1]) saw the direct written representations of spoken discourse in subtitles as less than ideal, and highlighted the need for textual condensation in subtitling. In the beginning, subtitles were perceived as easily trainable material, since they were regarded as short, syntactically simple, repetitive textual units embedded in comfortably alignable timecodes. Working with corpora has shown that since subtitles feature a wide range of genres and elements of literary language (register, wordplay, poetry) and a variety of topics and styles, movie subtitling is closer to the translation of fiction, especially plays, rather than non-fiction.

The use of statistical MT was explored by the SUMAT (SUBtitling for MACHine Translation) project between 2011 and 2014. The aim of the EU project was to develop a commercial online post-edited subtitling service which would be used with AV programmes broadcast by public TV networks. The system developers pointed out that the expansion of the market was hindered by issues “such as cost, time and quality” (Petukhova et al. 2012, 21; Sepesy Mauček et al. 2012, 167), and aspired to higher productivity for lower economical remuneration. The project involved nine European languages, with translation between English and Dutch, French, German, Portuguese, Spanish, and Swedish, while the Serbian-Slovene pair was chosen as “a test-case of an under-resourced language pair” (Etchegoyhen et al. 2014, 46). The training corpora included aligned parallel subtitles, most of which were collected from the unprofessional OpenSubs website. Despite the good results on objective ratings and an average gain of almost 40% in productivity, the post-editing process was not evaluated positively by professional AV translators, whom the authors referred to as “a key aspect for any eventual adoption of machine translation technology in professional subtitling” (Etchegoyhen et al. 2014, 46).

Even though the service was aimed at professional subtitling, the authors would strive to further improve the quality of machine translation to reduce “the cognitive effort in post-editing machine translated text in the open subtitling domains” (Etchegoyhen et al. 2014, 46, 52).

Providing another view of the SUMAT project, Bywood, Georgakopoulou and Etchegoyhen (2017, 502–3) aim at a more energetic integration of the MT technology into the subtitling workflow. They see the need for the creation of a new profile – “subtitle post-editor” – with either the “existing subtitlers” being trained to meet the needs of post-editing, or training existing post-editors in subtitling skills (Georgakopoulou and Bywood, 2014, 28 in Bywood 2017, 502), “to seek out people whose skills and experience include high levels of attention to detail and possibly a tolerance for repetitive work and train them specifically in subtitle post-editing” and to make postgraduate AVT courses embrace the need for post-editing.² This alienating *corrective* rather than inspiring *creative* focus on translation opens a bleak future for the AVT profession.

2.2 Neural Machine Translation in Subtitling

The mid-2010’s marked a quantitative leap in machine translation. Artificial neural networks are now capable of predicting the likelihood of syntagmatic and paradigmatic structures in text production. The new approach has introduced new terminology which takes the mechanical imagery to *organic* images: machines have been increasingly thought of as forms of (artificial) *intelligence*, the notion of externally induced training has been replaced by deep *learning*, while service development has been rephrased as AI *evolution*. The human-like interface was further enhanced by the introduction of ChatGPT in late 2022, a generative pre-trained transformer, developed by OpenAI. ChatGPT makes use of deep learning architectures and large learning language models, and is often presented as a chatbox mimicking human conversation.

As of 2017 there have been two open-source neural machine translation services which have gained most popularity: Google Translate and DeepL. The latter is a Germany-based machine translation provider, which added support for a dozen more European languages in early 2021, when Slovene became one of its 26 languages. Despite the Department’s initial discouragement with regard to employing AI services in postgraduate translation classes, the students’ accidental copying of MT sources into their assignments revealed they were using and post-editing the MT texts as best as they could. The recent leap forward in neural machine translation coincided with the COVID-19 pandemic, which upset the regular educational patterns between early 2020 and mid-2021. Other than the deplorable lack of physical in-class experience, which is conducive to the process of human learning, the pandemic did not interfere with the very technical aspects of AVT teaching. Indeed, it may have been the greater reliance on digital technologies during the two years of studying from home that sparked a stronger interest in the use of MT among (technology-minded) students, especially the promising solutions from DeepL.

² See Mezeg (2023) for a discussion on the needs of developing post-editing skills in students of translation.

Indeed, DeepL has proven to be semantically more accurate than Google Translate, and recent developments in AI technologies have further improved the generation of automatic or real-time intralingual and interlingual subtitles (Poibeau 2023). The last few years have seen several new platforms that allow automatic (or manual) transcription and translation of video audio, such as Descript, Matesub, Rev, Sonix, Whisper. Online subtitle services claim they provide “professional” video editing software to modify the content and export files in industry standard formats. The services advertise almost a 100% accuracy, even though their platforms are integrated with Google Translate, which has proven inferior to DeepL. The option of (post-)editing by such platforms, however, does not differ greatly from that when using the free software application Subtitle Edit, aimed at subtitle creation according to user-defined time and space restrictions.

The quality of the original English subtitle files that (Slovene) professional AV translators are given as templates has been declining in recent years. The extreme lengths of lines containing the entire utterance, hardly manageable reading speeds, occasionally misheard words and awkward time spotting may indicate that such files have been automatically generated without observing any high-quality subtitling standards. Editing such files to meet the intended subtitling standards can be more time consuming than creating subtitles from the first step.

Digital translation resources used to be seen as tools in the hand of a translator, but now they appear to have been getting out of (their) hand. AI language models have been superseding manual translation, the quality scope however, has been limited to informative, repetitive, preferably (well)-written discourse for a limited number of language pairs. Poibeau (2022, 6018) reassesses machine translation in terms of human intelligence and shows that “human parity” and “super human performance” is possible for a limited number of languages, text types and “with very literal translations”.

Recent studies on automatic subtitling tools presented in the Findings of the IWSLT 2023 Evaluation Campaign show that “automatic solutions do not reach the level of quality that is necessary in subtitling”, and observe that it is TV series that pose greatest challenges for automatic subtitling (Agarwal 2023, 13–14, 15), although such challenges also apply to movies.

Research that shows awareness of professional subtitling standards thus reveals persistent deficiencies in MT systems, most notably in being unable to tackle the multimodal nature of AV texts. If anywhere, it is in high-quality subtitling that generative transformers may or will develop systems to achieve communicatively suitable and readable subtitles sensitive to the relation between speech, image and different levels of contextual meaning.

3 Methodology

Ljubljana MA students are invited to use Subtitle Edit (SE),³ a free and open-source subtitle editor developed by the Danish IT expert Nikolaj Olsson. The programme has a built-in machine translation option with Google Translate V1 API. In addition, Olsson has developed his own machine translation programme from Swedish to Danish, i.e., two languages that are

³ The subtitling software is available at <https://www.nikse.dk/subtitleedit>.

linguistically and culturally related. Even so, Olsson stresses the need for manual correction of the automatic translation. As the quality of Google Translate for translation between English and Slovene does not reach professional standards, the students of subtitling have not been encouraged to use the in-built feature.

During the academic year 2022/23, ten first-year MA students enrolled in my 60-hour seminar in AVT of movies and series and some assignments in other genres, i.e., animated films for children and documentaries. The group consisted of eight native Slovene speakers and two students who had lived outside Slovenia, both speakers of another Slavonic language. Except for the bilingual student with some video fan-subtitling experience, the students had no prior experience in subtitling. Students were first given some assignments through which they gradually built their AVT competence from the beginning.

One third into the seminar they were given a subtitling assignment based on a translation by DeepL Translator.⁴ The students were asked to post-edit a four-minute passage from the 2014 romantic comedy *And So It Goes* directed by the American director Rob Reiner, starring Michael Douglas and Diane Keaton. The film was critically panned for the clichéd script that did a disservice to the great performances by the leading actors, while careful commentators criticized the film's rating for foul and inappropriate language, sexuality and substance abuse.

Despite the poor reviews upon the movie's release, the dialogues provide worthwhile subtitling challenges. Prior to the MT home assignment, the students had been working on the film, which would help them to consider appropriate subtitling strategies for the genre of romantic comedy. They had become acquainted with the story's cultural background, the psychological profiles of the main characters, the interpersonal relations (professional and social relations between the characters spanning three generations), as well as situation-specific communication. The students had gathered some experience in observing textual segmentation and adaptation as well as acquired translation strategies that covered stylistic features of register, informal conversation, technical language, child's language, emotional language, idiomaticity, humour, sarcasm, cultural specificity (localization), political (in)correctness, mild profanity and song translation. While these technical, stylistic and pragmatic aspects of subtitling should be crucial to any language pair, Slovene AV translators also have to observe the complexity of Slovene morphology. They may need to express features that in English remain unmarked, such as grammatical indicators of gender, number, and formality. The relevant information may be found in the immediate context or visuals, or elsewhere in the movie.

The students were given English time-coded subtitles containing entire speeches, except for very few minor omissions and graphic texts. They were asked to form a maximum of two-line subtitles with one speaker per line and observe the (currently valid) national TV parameters of a maximum of 35 characters per line and 12 characters per second for two-second+ subtitles to allow for a comfortable reading speed of large numbers of viewers watching the PG-13 movie. They were asked to consider the subtitling strategies that they had been acquiring and improving in previous assignments and to deploy new strategies as necessary. The students were asked to run the text through DeepL Translator, post-edit the translation in accordance

⁴ The web-based translation service is available at <https://www.deepl.com/translator>.

with the instructions given above and comment on their experience. The results of the 2023 “MT group” (with subtitles provided by a maximum of ten students)⁵ were compared with the results of the 2021 “non-MT” group (with subtitles provided by a maximum of 15 students).⁶ The “non-MT” students had received the same instruction in AVT and were given the same assignment, with the four-minute passage split into two parts. The students of the “non-MT” group were asked to translate the passage on their own, i.e., without machine translation.

The four-minute passage from *And So It Goes* contains four scenes: (1) the “Paintball” scene, (2) the “Landlord” scene, (3) the “Compassion” scene, and (4) the “Real Estate” scene. Scene 1 features an emphatic young man’s words of consolation to a stray dog. The man’s (rhetorical) question is a cue that opens Scene 2, which pivots around the self-centred real estate agent and owner of the building, Oren Little. The hum of overlapping multiple speakers indulging in small talk becomes clearer as some tenants accuse Oren of rude and selfish behaviour. In Scene 3, Leah’s comment on Oren’s lack of compassion develops into an embittered widower’s slow-paced monologue. Following some phatic exchanges, Scene 4 features a verbal confrontation between three real estate agents, all eloquently defending their positions. Their factual data are laden with real estate jargon and flanked by cutting retorts that combine marked vocabulary and complex figures of speech.

4 Analysis

The analysis studies the differences in translation decision-making between the MT-group and the non-MT group for the grammatical (examples 1–7), lexical (example 8) and stylistic categories (examples 9–12) which show the students’ mental processing in relation to the multimodally derived meaning. As Figure 1 shows, the percentages for all the categories that suggest some affinity with DeepL’s translation strategies are mostly considerably higher with the MT-group students than those with the non-MT-group students.

For the sake of illustrative comparison, the analysis includes comments on automatic translations by two automatic subtitling tools, Sonix⁷ and Matesub,⁸ added during the time of writing the paper.

4.1 English Grammatical Polysemy

Based on or inspired by natural conversation, movie discourse, very much like drama, commonly takes the form of dialogue between the participants in the scene. As conversation generally turns on personal and interpersonal topics between the speakers, the discourse is marked by first-person and second-person references. The English pronominal system is syncretic and thus polysemic. Slovene, on the other hand, uses an extensive system of discrete grammatical

⁵ One student, a non-native speaker of Slovene, failed to submit some subtitles.

⁶ The assignment was then divided into two parts. The first non-MT group consisted of twelve students, the second non-MT group of five students, of whom one bilingual student failed to submit some subtitles.

⁷ Sonix’s home page advertises their tool as “the best automated transcription software in 2024” and “the world’s most advanced automated transcription, translation, and subtitling platform” (Sonix, n.d.). The platform is available at <https://sonix.ai>.

⁸ The web-based subtitling tool is available at <https://matesub.com>. See Karakanta et al. 2022 for user feedback by subtitlers on Matesub.

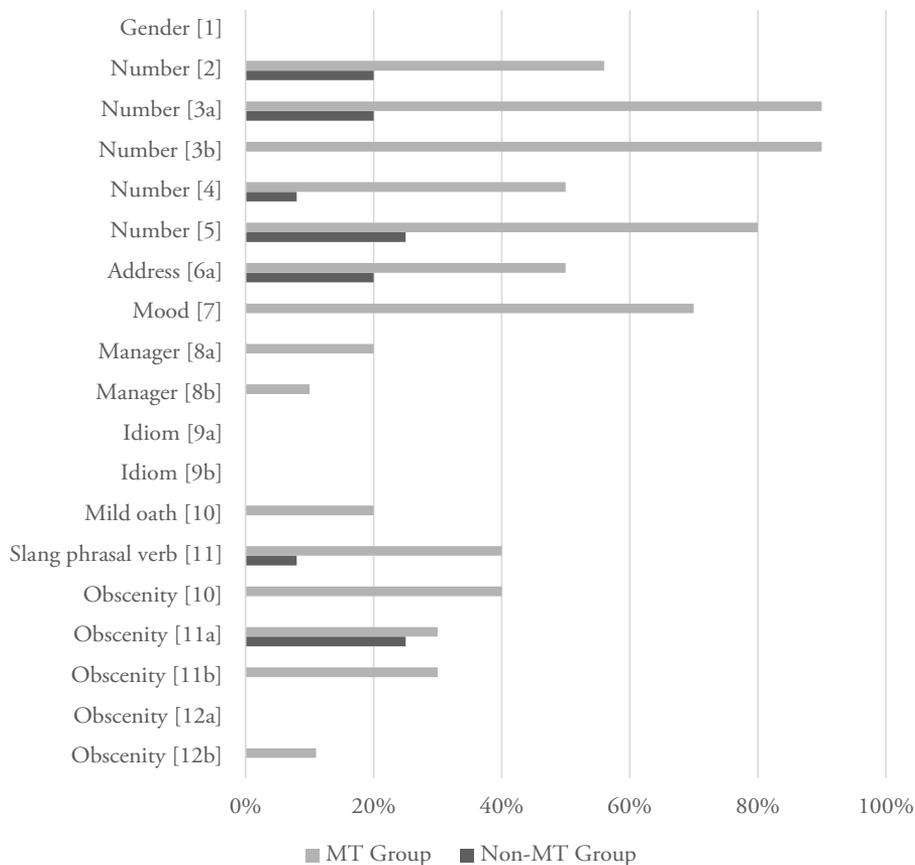


FIGURE 1. DeepL-like (mis)translation strategy: the ratios of DeepL-like translations for the numbered illustrative examples between the MT-group students and non-MT students.

morphemes, such as pronominal and verbal inflexions that indicate the grammatical person for their gender, number and level of formality, while the predicator is further marked for tense, aspect and mood. As the Slovene pronominal-verbal system tends to be monosemic, the translator’s interpretation relies on contextual linguistic and extra-linguistic indicators. Poibeau (2022, 6020) states that most current MT systems operate at the sentence level. This paper shows that DeepL Translator does indeed have difficulties interpreting the context beyond the sentence limit, even beyond the line limit, which results in wrong interpretations. Although pronominal anaphora is a prominent discursal feature in movie dialogues, interpretational problems with MT from English into Slovene may appear at the supra-sentence level in other types of discourse, see Mohar, Orthaber and Onič (2020, 134–35) for examples in the translation of poetic fiction by Google Translate and Translator.eu.

4.1.1 The Subject’s Gender

Pronominally, English reveals the Subject’s grammatical gender only with third-person references. Having informative finite verb inflections, Slovene omits the Subject pronouns in

unmarked communicative positions. The gender, however, is automatically revealed when the Subject is bound with predicative adjectival or participial grammatical features. Slovene past participles form periphrastic tenses, which, dependent on the narrative, are frequent in movies.

Whereas Poibeau (2022, 6020) finds that current MT systems choose one gender randomly, and are “thus often wrong”, this study shows that with non-third person singular references DeepL-generated translations, done via English, have shown a bias for the *masculine* grammatical gender.⁹ Although there are three female characters that present some speech in the subtitled passage there are only masculine Subject references outside the present-tense.

However, it may sound surprising that DeepL chose to translate some first-person sentences in the “Compassion” scene as if spoken by a female I-character. The MT translation may have been affected by the emotional content that is stereotypically attributed to women. The feminine gender was chosen even with two subsequent sentences in the same line. The Slovene translation of Oren Little’s little soliloquy is indicated by gender symbols following the English predicators:

- [1] (Oren Little):
My wife died of cancer!
For two years, I **bathed**¹⁰ (M) her, I **changed** (M) her.
I **cooked** (M) for her. I **fed** (F) her.
I even **prayed** (F) for her.
And I **cried** (F) all I’**m** ever **gonna cry** (F).
I **had** (F) compassion.

All the MT students that provided the subtitles for this scene post-edited the feminine participles or rephrased DeepL’s translations accordingly. Although this type of post-editing is not difficult, Slovene AV translators have to maintain a constant gender-oriented focus, while in non-automatic translation the attention can be delegated to other aspects of subtitling. Although automatic subtitling tools have been trained to account for the concept of Slovene grammatical gender, they may fail to maintain the focus beyond the sentence limit. It is interesting to observe that while Sonix’s automatic speech recognition discerns different speakers, the versions of Oren Little’s automatically translated monologue by both Sonix and Matesub reflect similar gender-specific emotional stereotypes as seen with DeepL. The gender-inflexion issue was not relevant to non-MT students, as there were sufficient multimodal sex/gender indicators that are easily spotted by human translators.

4.1.2 Grammatical Number

Grammatical number is a linguistic feature morphologically assigned to nouns, pronouns in both English and Slovene, as well as adjectives and participles in Slovene. While English

⁹ The masculine gender bias may not be limited to the grammatical case: Mohar et al. (2020, 134) observes the gender-related mistranslation in the Direct Object.

¹⁰ All the relevant features in the subtitles are highlighted by Orel Kos.

is marked for singular and plural numbers, Slovene is the only official language among the EU member states to distinguish the dual, a category marking two entities. As movie narratives often address pairs of characters performing joint actions, AV translators need to observe when an English plural will imply two entities. The interpretation may be indicated or supported through the immediate image and sound, or derived from other multimodal information elsewhere in the movie.

The subtitled passage contains three utterances with the pronoun *we* that neither DeepL, Sonix nor Matesub interpreted as containing the dual. The “Real Estate” scene contains an utterance expressed by Claire, an aging real estate agent siding with her retiring colleague Oren Little against her young grandson when the three of them meet in the office:

[2] (Grandma:)

We've been here since your grandfather started this business 44 years ago.

In the non-MT group only one (20%)¹¹ (i.e., bilingual) student out of five students used the plural in Slovene. In the DeepL group five (56%) out of nine students retained the MT plural reference and four adapted it to dual. The ratio of interpretations with the wrong number is considerably higher with the DeepL group.

Interpretation of the “intended” grammatical number is made difficult when there is a mere pronoun-predicator agreement against the visuals with several entities, which happens in the “Landlord” scene. The first *we* reference comes from an African-American man conversing with other neighbours:

[3a] (Tenant:)

You know if he parked over just a little bit, **we** wouldn't have to hunt for a space on the street.

At this stage in the scene, the number suggested by the pronoun *we* may be perceived as a collective plural or open to speculation. A minute later, a foregrounded dialogue between the man and Oren Little offers a clearer interpretation:

[3b] (Tenant:)

My wife is going to give birth soon. Yesterday, **we** had to park a block away because you refuse to move your car just a few feet.

The dual concept in the pronoun *we* is hinted at by the man's reference to his pregnant wife, while the rest of the neighbours sit listening in the background. None of the ten MT students post-edited the plural references in (a) or (b) to express the dual. As many as eight (80%) students retained DeepL's plural references. Two students partially adapted the grammatical number, and failed to interconnect the two subscenes (a) and (b), applying a plural (a) + dual (b) and a less expected dual (a) + plural (b) combination respectively. In contrast, ten out of

¹¹ The percentages are given for the number of the non-MT students that provide DeepL-like translations and the MT-students that retain DeepL's solutions.

twelve non-MT students applied dual to both utterances, while two non-MT students chose the partially contextualized switch from plural (a) to dual (b). No non-MT students rendered the English plural references as entirely plural in Slovene.

All students, the MT group included, had been instructed to check or pay attention to English plural references against the visuals and discourse or elsewhere in the movie. In an assignment preceding the MT task discussed in the paper, a scene with the visuals of some children included a similar plural/dual to dual combination of dialogues. The “MT” group students, who then translated from scratch, achieved more contextualized translations: five (50%) students out of ten fully recognized the dual references, while the “non-MT” group achieved even better results: eleven (78.5%) out fourteen students interpreted the English plural references as dual in Slovene.

4.1.3 Levels of Formality

Modern Slovene has three levels of address: formal address, informal address, and semi-formal address. The forms reflect vertical and/or horizontal relationships to a singular addressee. The formal v. informal opposition is the default system for both human dominance and distance. The grammatical features are marked pronominally and verbally. The formal address uses the second person plural and, where syntactically required, masculine, i.e., linguistically unmarked generic gender inflections. The semi-formal address is a combination of formal and informal grammatical features, it takes the second person plural finite forms and singular gender inflections for participles and adjectives. The semi-formal address regulates public and social distance, for example in customer services to imbue a formal conversation with some emotional proximity. It is used colloquially and is not normatively recognized. Unless presented as a character’s overt stylistic feature, this grammatical mixture is not tolerated in professional Slovene subtitles. Compliant with the genre and the character’s sociolinguistic profile, Slovene professional subtitles may use substandard vocabulary but no substandard grammatical features. Grammatically, all Slovene levels of address to singular referents are covered by the English pronoun *you*. The pronoun’s syncretic nature also accounts for Slovene dual and plural and their respective gender markers as well as non-Subject functions.

English has no grammatical markers for the formal-informal opposition. Attitudes of deference are readily expressed lexically and allow for greater swings or immediate transitions in familiarity. The speakers’ swings in emotional proximity can be reflected in subtitles of inexperienced or incautious AV translators into Slovene who will switch between formal and informal addresses to accommodate the implied decrease or increase in social distance.

AV dialogues teem with polysemic *you* references, including those implied by the Imperative mood. The Slovene AV translator derives their (own) optimal multimodal interpretation from the number of people involved, social situations and the characters’ personal traits. The assignment’s automatic translations show that multimodally blind MT tools (DeepL, Sonix, Matesub) heavily rely on the lexical information in the clause when to choose between the second person singular and the second person plural with (generic) masculine markers. Firstly, basic conversation and simple familiar exchanges with *you* references, e.g., *Are you OK? Hold up the towel!*, are assigned the second person singular, suggesting that utterances are

aimed at an individual person. The register sensitive DeepL appears to employ the strategy systematically, Sonix shows a low informal-to-formal threshold, while Matesub seems to follow a similar lexis-based strategy, but there are substantial fluctuations. Secondly, utterances with *you* references that contain substandard or vulgar vocabulary correlate with a discrete person and a lack of human distance. The three automatic tools used the informal second person singular in Slovene to render the utterances that contain substandard vocabulary: *Now what dumbass would shoot you with a paintball gun?*, *Something to think about next time you **get an itch to rat me out?***, *Don't be a smart-ass*. Thirdly, utterances with *you* references that contain professional terminology and vocabulary that hints at a non-informal conversation correlate with the Slovene second person plural, which may either be interpreted as the formal address or an actual plural reference. The three automatic tools used the second person plural to render in Slovene the utterances that contain some possibly business jargon: *Complain to the manager, I don't care if you **do own the building***, *How long have you **been in the business?***, *You'll **get five-eight, not a penny more***.

The three lexically-based strategies appear to have been systematically used by DeepL, producing the same translations in late 2022 and late 2023, when I had the text retranslated. DeepL would thus refrain from directing substandard vocabulary at several speakers or from using the formal address, while utterances with professional terminology are unlikely to be attributed to individuals with familiar interpersonal relationships.

The “Landlord” scene shows a conversation between Oren Little, a grumpy tenant who turns out to be the landlord, and a family man, who either speaks for himself or represents a cohort of dissatisfied tenants. Over a stretch of 40 seconds the following utterances by the landlord are directed at the family man:

[4] (Oren Little):

You called the manager **on me**. (Slovene: 2nd sg)¹²

[5] (Oren Little):

Something to think about next time **you get an itch to rat me out?** (Slovene: 2nd sg)

Nine out of twelve non-MT students used the second person plural with both utterances, interpreting the *you* references as either the formal address to refer to the family man or the second person plural to refer to the entire body of complaining tenants. Two non-MT students used a plural-to-singular switch and only one student (8%) used the informal singular address with both utterances suggesting that the old man is presented as a rude person. This personality trait can be supported by the man's use of vulgar language and general attitude towards the young tenants, who are indignant at his inconsiderate parking habits. As translated by DeepL, both utterances used second person singular references in Slovene. Disregarding the fact that the narrative is open to several interpretations, five (50%) out of ten MT students followed the informal singular pattern provided by DeepL, three MT students used a plural-to-singular switch, and two MT students chose the second person plural with

¹² The brackets contain Slovene forms as suggested by DeepL.

both utterances. While the optimal interpretation is open to discussion, the results show that the interpersonal relationships were presented in radically different ways by the two groups of students. The comparable translations by Sonix and Matesub show the plural-to-singular switch. The second person plural in the first utterance probably derives from its rather neutral lexical features in comparison with the informal ones in the second.

The “Real Estate” scene contains a mini dialogue between the grandmother and her grandson, both working in the family real estate business. Although in Slovene extended family relations the formal address is (still) observed by younger generations speaking to older generations, the opposite direction has never been the case. In DeepL’s Slovene translation the grandmother and her grandson maintain a distanced relationship:

[6]

[6a] (Grandma:)

– How long **have you been** in the business? (Slovene: 2nd pl)¹³

(Grandson:)

– Seven years, as **you** well **know**. (Slovene: 2nd pl)

(Grandson:)

– Every day is better than the last.

[6b] (Grandma:)

– **Don’t be** a smart-ass. (Slovene: 2nd sg)

The non-MT group consisted of five students to subtitle this scene. Four students interpreted the grandmother’s statements informally, while one (bilingual) student (20%) used the DeepL-like switch from formal to informal register. Five MT students (including the bilingual and the non-native speaker) (50%) out of ten students chose the informal address. Three students took up DeepL’s formal-to-informal switch or may have forgotten to post-edit the MT formal interpretation in the first statement: a subtitle in the continuation shows that they were aware of the grandmother’s informal, patronizing attitude towards her grandson. Another two students disregarded the interpersonal relationship between the relatives and even hypercorrected DeepL’s interpretation to contain the formal address in all statements by the grandmother to her grandson.

The “Real Estate” scene results suggest that DeepL’s translation may diminish the AV translator’s attention to contextual meaning or multimodal awareness. A comparison of the results for both scenes shows that it was the same five students who disregarded the context in the “Real Estate” scene that would also follow DeepL’s terms of address in the “Landlord” scene and elsewhere in the assignment. This suggests the students’ general tendency to rely on DeepL’s automatic grammaticalization of the interpersonal relationships.

Even though the translation was barely coherent in places, Matesub’s automatic translation observed the same strategy as DeepL, while Sonix, having a low informal-to-formal threshold, used the formal address with all three relevant utterances.

¹³ The brackets contain Slovene forms as suggested by DeepL.

4.2 Lexis and Style

MT systems have shown a tendency towards direct translation. Dependent on contextual interpretation, there are very few fully matching AV translation units between English and Slovene. This study shows that students using DeepL may be lulled into disregarding both lexico-grammatical and macrocontextual acceptability. This is indicated by their insufficient post-editing. The lexico-grammatical acceptability of the MT translations is lower than with the non-MT students, even though both groups had been receiving the same assignments and comparable teaching instructions. The differences may be generational – also in the sense that each new generation of students is more inclined to rely on MT. The following example will show the two groups' different degrees of tolerance to certain lexico-grammatical features.

At the beginning of the “Compassion” scene, after a heated conversation between the landlord and his tenants is over, Leah, a widowed tenant who has kept quiet so far, rebukes the self-centred landlord:

[7] (Leah:)

You need to have a little compassion. Okay?

DeepL translated the utterance literally: *Morate imeti malo sočutja. Dobro?* Both groups had been previously shown that instructions and commands containing English modal verbs such as *need to* may be paraphrased as Slovene imperative sentences to achieve a wording that is shorter and feels pragmatically more natural. Five out of six non-MT students used the imperative in their translations, while one student used a pragmatically smoother modal structure: *lahko bi imel malo sočutja*. (Literally backtranslated to English: *You could have a little compassion*.) In the MT-group, seven (70%) out of ten students retained DeepL's translation with the modal verb *morati* (English “must, have to, need to”), two students used the milder modal structure *lahko bi*, whereas only one student used an imperative sentence. In addition to this lexico-grammatical feature, the original utterance contains the weak lexical collocation *have compassion*, which does have a formal equivalent in Slovene but will feel stylistically and pragmatically more adequate if paraphrased. Three out of six non-MT students rephrased the English collocation. The noun *compassion* was replaced by the semantically corresponding Slovene predicative adjective, i.e., *biti (vsaj) malo sočuten* or the English delexical verb *have* was replaced by the semantically stronger verb *pokazati* (English “show”). A paraphrase with the predicative adjective was used by only one out ten MT students.

Further, the assignment shows MT problems with lexical polysemy. Humans examine multiple readings by analysing several threads of multimodal clues, which have so far been inaccessible to MT generators. The problem of resolving a polysemic lexeme will be illustrated by the term *manager*. When the word *manager* takes the full lexicographic form, MT can recognize it as a technical term. In movie conversation, technical terms may occur sporadically and will appear in their short forms to indicate shared knowledge among the speakers, for example “building manager” (Slovene “upravnik stavbe”) becomes *manager* (Slovene “upravnik”) “the listing price” (Slovene “oglaševana cena”) is reduced to *the listing* (Slovene “cenitev, cena”). The reference to “*the manager*” had been used twice in the previous assignment so the students should have been familiar with the exact meaning of the term and the person's gender, i.e.,

“(female) building manager”. DeepL’s translation of the three occurrences in the “Landlord” scene provided two translations: [8a] *vodja* (English literal backtranslation: “leader”), which is used for both the masculine and feminine genders, and the masculine noun [8b] *menedžer*. All twelve non-MT students remembered the previous assignment and chose the appropriate short feminine form *upravnica* or its variant *upraviteljica*. Even though the MT-group had received the same explanation in their previous assignment, only three out of ten students used the appropriately gendered term *upravnica*. One used the masculine form and replaced the feminine pronoun in one of the following subtitles by the masculine to adapt the executive function to the traditional social role. Another student chose the masculine form *menedžer* with all the references in the scene, but missed that the feminine pronoun referred back to the masculine *menedžer*. One student interpreted the term as *lastnica* (English “(female) owner”), two students (20%) used DeepL’s first suggestion *vodja*, while two students failed to see that the three nouns and one pronoun had the same referent: one student combined two masculine and two feminine references, while the second student used the term *uprava* (English “management”) with one of Oren’s two identical instructions: *Complain to the manager*.

The example shows a huge discrepancy between the two groups. The non-MT group considered both their previous translation experience and the immediate context, including the gender clue in the following subtitle that ascertained the information that had been shared with them during the previous assignment. Probably relying on DeepL’s ready-made translation, most students in the MT-group paid little attention not only to the context – which spanned a mere 45 seconds – but also to their previous translation experience.

4.2.1 Stylistic Markedness

Automatic translation has been evolving translation strategies to the extent that rather than presenting a mere word-for-word translation, it may produce an incorrect or hallucinatory translation. In terms of human subtitling, this abortive translation strategy compares to Gottlieb’s (1992, 166) AVT notion of *resignation*, which results in “differing expression, distorted content” and is used with so-called “untranslatable” items.¹⁴

The “Real Estate” scene contains the English idiom *get the gall (to do something)* and its variation (*not*) *have gall* in two subtitles:

[9]

[9a] (Grandma:)

So, where do you **get the gall** to second-guess the listing of an Oren Little?

[9b] (Grandson:)

I **don’t have gall**, Grandma. I have comps.

The idiom expresses negative evaluation of the addressee’s insolent behaviour (Smith 2023).

¹⁴ Compared to 2022, Google Translate has barely improved its *resignation*-like translation of idiomatic and stylistically marked expressions (see Simič 2022 for a list of some (informal) Slovene figurative phrases compiled by Lothar Orel and their hallucinatory English translations by Google Translate in June 2022). DeepL shows more sensitivity to figurative language, while ChatGPT 3.5 has been returning impressive results for the examples found on Orel’s list.

DeepL recognized the institutionalized figurative expression in the first subtitle. Its translation was semantically correct, yet non-idiomatic: *Od kod vam toliko drznosti, da* (English functional backtranslation: “where do you get the audacity to”). The variant *not have gall* in the second subtitle was translated literally: *Nimam žolča, babica*. The Slovene suggests either the grandson’s medical condition of having “no bile” or a quaint sounding metaphorical phrase indication that the speaker “has no indignation”. The Sonix automatic translation rendered both idioms correctly, but non-idiomatically. Matesub transcribed the first “gall” as “goal” and translated it accordingly, whereas the second idiom was rendered with the Slovene idiom *imeti jajca*, which corresponds to the English idiom *have the balls*. The idiom features the opposite polarity, praising the doer’s courage. This idiom was used by one of the MT students, while another student expressed the idea of the doer’s “courage” non-idiomatically. As the two subtitles express a highly informatively relevant and stylistically rich message within seven seconds, one of the MT students reduced the idiom to the (rhetorical) question “why”. The rest of the students, MT and non-MT, provided Slovene non-idiomatic verbs and phrases to express the idea of audacity. While the idiom *have (the) gall* is used to criticize the doer’s action, the idiom (*not*) *have (the) balls* showcases the courage needed to perform a risky action. It is worth noting that the crudeness of the abusive idiom debases the old lady, who, however, rarely keeps quiet.

4.2.2 Profanity

Offensive and taboo language has been used in movies and TV series to underscore characters’ real-life spontaneity, their emotional responses, personality traits or social background. The greater tolerance for (or perhaps insensitivity to) the use of vulgar language in film discourse over the last few decades has seen increased academic research on related translational and sociolinguistic aspects, such as categorization, translation strategies, medium restrictions and censorship (for example Mattsson 2006, Díaz Cintas and Remael 2007, Trupej 2015, Díaz-Pérez 2020).

The four-minute passage contains several examples of mild to strong expressions of offensive language. Seeing a boy changing his wet bathing suit in the “Landlord” scene, Oren Little cries out:

[10] (Oren Little:)

Oh **for Pete’s sake**, will you cover your dick? I’m trying to eat a sandwich.

Oren uses the euphemistic oath *for Pete’s sake* in the movie three times, suggesting that this old-fashioned expletive is his standard emotional response. The students’ previous assignment contained a scene in which Oren yells out the phrase for the first time. The functions of expletives and some subtitling strategies had been discussed in the seminar, while neither the non-MT nor MT groups had been given a comprehensive presentation of the topic in the lecture format by that point.

Sonix and Matesub are not sensitive to vulgar language and struggled with the speech recognition of the mild expletive, both heard it as “I’ll repeat six”. DeepL rendered the phrase adequately as a rather old-fashioned and mild blasphemous oath *za božjo voljo* (English:

“for the will of God”). Oren uses the explicative frequently enough to regard the phrase an interesting stylistic feature. Still, it is deemed less important than the proposition if the temporal or spatial constraints do not allow for more information. Four out of the twelve non-MT students and two out of the ten MT students omitted the phrase. Eight non-MT and six MT students used short mild oaths in Slovene, while two MT-students (20%), who had shown an affinity with the DeepL translation elsewhere in the assignment, retained DeepL’s translation. None of the non-MT students came up with DeepL’s marked rendering, which is probably little known among the younger generation.

As shown earlier by the *you* references, DeepL appears to derive a grammatical interpretation from the lexis in the immediate context. On the other hand, DeepL’s translation in the assignment indicates that it may find it difficult to provide a stylistically adequate translation for these very lexical items. For example, the American English slang phrasal verb in Oren’s remark:

[11] (Oren Little:)

Something to think about next time you get an itch **to rat me out**.

was rendered with the stylistically neutral and semantically less appropriate verb *izdati* (English: “betray”), also observed in the Sonix in Matesub automatic translations. The verb “betray” was used by only one (8%) out of twelve non-MT students, while four (40%) out of ten MT students retained DeepL’s translation. One MT student omitted the verb altogether, whereas the rest of the MT group, five students, and six non-MT students chose the verb (*za*)*tožiti* (English: “tell on”). It was only the non-MT students, five out of twelve, who thought of the stylistically equivalent slang Slovene verb (*za*)*špecati*. This suggests that machine translation both imposes its translation on the AV student and restricts their quest for a more suitable/creative translation.

DeepL’s seemingly fumbling ways with the taboo word *dick* will be further manifested as a conspicuous intrusion into the student’s decision-making process. The reference in Oren’s utterance [10] *will you cover your dick?* received in DeepL’s Slovene translation the medical equivalent *penis*, whereas in the next set of subtitles DeepL applied new strategies:

[11]

[11a] (Oren Little:)

So I got a **dick** in my face, right? Somehow I’m to blame?

(Sl: *kurac*, En: “dick/cock”)

(Young child:)

He said “**dick**”.

(Sl: ”*kurac*”, En: “dick/cock”)

[11b] (Boy:)

Sorry about my **dick**.

(Sl/En: *penis*)

At first sight, DeepL appears to be torn between the medical and vulgar descriptions. On a closer reading, a logic emerges from the contextual lexis. The predicates *cover one's dick* and *be sorry about one's dick* suggest prudent, self-effacing behaviour, hence the *penis* in translation, while *get a dick in one's face* and the quotation marks correlate with a brazen attitude expressed by the bad word. Sonix's translations were partly influenced by audio mistakes, and backtranslated into English the phrases read: *recover your penis*, *I have a penis in the face*, *he's a jerk*, *I'm sorry about my dick/cock*. Matesub demonstrates no tolerance for vulgar expressions and transfers all the references onomastically, as Dick.

In the four utterances in [10] and [11], three out of twelve non-MT students used the most offensive Slovene expression for the male organ *kurac/kurec*, one student chose the offensive expression *klinec*, which neither reads nor functions well in the utterances, while eight out of twelve students chose the multi-purpose word *tič*, which occupies a central position along the axis of stylistically marked expressions denoting the male organ in Slovene. In the four utterances in [10] and [11], it was only four out of ten MT students who used the word *tič*, three students used the medical term *penis*, two students used the most offensive *kurac*. Not paying due attention to the intertextual relations or relying on DeepL's translation, one student first [10] used *penis*, and the most offensive expressive with the next three utterances [11]. Although no students' renderings correspond entirely to DeepL's translations, the percentages of DeepL-like equivalents are 60% for the MT-group to 25% for the non-MT group.

As the next example shows, DeepL analyses lexical clues for slang and euphemistic words alike. In the "Real Estate" scene, the grandmother and Oren Little, having had 44 years of experience in the business, belittle Ted's professional work ethic by reducing him to a baby. While the three are talking shop, Claire delivers the following spiteful remark about her grandson:

[12]

[12a] (Grandma:)

When he was a baby, he used to play with his **willy** like it was a rambunctious puppy.

(Backtr. from Slovene: "When he was an infant/baby, he used to play with his **watchman** like it was a rambunctious puppy.")

[12b] (Oren Little:)

And if he can help me, I'll play with his **willy**.

(Backtr. from Slovene: "And if he can help me, I'll play with his **dick/cock**.")

It is the immediate lexical context that DeepL searches in order to find a clue regarding the polysemic word *willy*, which in this context is used as a (chiefly British) euphemism for "penis". The Slovene translation for the second reference in *play with (one's)* may result from a higher frequency of written data for the Slovene bad word in combination with the verb phrase "igrati se s (svojim)". The Slovene *čuvaj* (English "watchman") for *willy* appears to be a product of an AI hallucination, bringing together perhaps "a rambunctious puppy", "willy wagtail" and "watchdog". For Sonix and Matesub the two utterances are even harder nuts to

crack. Matesub again prefers male names and translates the phrases as *play with his Willy* and *play with this. Woody* [sic]. Sonix uses a male name in Oren's remark *play with this Willy*, while the grandmother's punchline, bizarre as her utterance is even without this translation, becomes *play with his clit* (Slovene *ščegetavček*).

In [12a], all the non-MT students and six out of nine MT students used a child's word for "willy" (Slovene: *lulček, lulek*, English "peeny"). Two MT students used the word *penis*, while one student used the most offensive term. No student left DeepL's semantic mistranslation unedited.

Oren's comment in [12b] takes a mere three seconds, so two out of the four non-MT students and five out of the nine MT students resorted to omission and condensation of the phrase *with his willy*, losing the appropriate reference. The textually reduced translations suggested that Oren was either going to play or that he was going to play with (his own) willy or that he would play with "him/it", while the "him/it" reference is not clear enough to make an impression on the Slovene viewer. Two non-MT students and three MT-students used the child's word, while one MT student retained DeepL's offensive term.

5 Feedback Analysis

I collected the MT students' feedback in a nonstructured analysis supported by the following guidelines: the students were asked to comment on the time spent on the assignment, the positive and negative points of using DeepL and to provide their general view of MT in subtitling. Nine students provided some feedback. Compared to the time spent on previous assignments, the majority found the MT assignment more time-consuming. Four students spent between three and four hours working on what ultimately resulted in 51 to 57 subtitles. Two students suggested that the assignment took "more time than usual". One student indicated that the task was performed "faster", and produced 52 subtitles, while one student spent two hours for 57 subtitles and another a mere 40 minutes for 64 subtitles. These last two students also appreciated that the overall translation was obtained faster. On the plus side, three students found the automatically generated translation a useful starting point they could work with. Two students thought that "some segments" were well translated. There were, however, more negative responses, and as many as seven out of nine students observed that they had to correct the many MT-generated mistakes. Six students pointed out that substantial textual reduction had to be done. Four students noticed the tool's inability to cope with context-bound translation, and that "humans" are needed to resolve the issues of gender, formality, even terminology. Three students commented on the tool's reliance on the word-for-word translation strategy, and the related uselessness with culture-specific items and idiomatic expressions. Three students also thought that the automatic translation and bad translations made their subtitling more difficult. One student appreciated the timecodes that needed "only some adjustment", and yet this same student was among three to criticize the inaccuracies in the time stamps. With regard to the usefulness of MT, three students appreciated the very tool and found it useful for the translation of difficult to understand phrases, while three students would prefer to produce their own translations. Two students, one from the former and one from the latter group of three, found the experiment an

interesting experience. With regard to subtitling, two students might use MT as a source of inspiration and another two students said it might be suitable for slow-paced movies or movies with “easier content”.

The comparison between the feedback and analysis shows that the students who worked faster using DeepL’s translation and original formatting retained more of DeepL’s mistakes or introduced their own, since they did not pay enough attention to the multimodal structure of meaning.

Even though digital translation tools are meant to speed up the process of translation and to provide accurately communicated messages, this was not the case in my teaching of AV translation. The time and intellectual concentration devoted to post-editing appears to be counter-productive, while the lack of significant post-editing results in poor quality AV translation.

6 Conclusion

The analysis of the subtitles done by the non-MT and MT groups shows considerable differences in the multimodal awareness, which is the basis of any adequate AV content interpretation. The non-MT group students were better at applying multimodal translation skills acquired by that point. The subtitles of the MT group show that the students tended to lose focus on the progressing relation between the text and the wider context, including the image. The MT-students’ lack of this integrative activity is indicative of machine translation logic. Poibeau notes that human translators understand the text by establishing intratextual cohesion and “discourse external coherence”, i.e., correspondences between textual elements and the extralinguistic reality: “While the machine can reasonably be expected to handle issues of text cohesion at some point, discursive coherence is out of its reach, since it requires knowledge of the world” (Poibeau 2022, 6020).

As DeepL is not a specific AVT system, the paper studies the categories that to the greatest extent possible lie outside the scope of textual adaptation, which is required to achieve readable subtitles. All the categories presented in the paper were more adequately solved by the non-MT group. The subtitles by the MT group show that most interpretational deficiencies emerge from DeepL-generated translations. DeepL fails to consider the context which lies beyond the sentence level and, as the analysis shows, beyond the line break. Further, the analysis suggests that DeepL (and to different extents both Sonix and Matesub) rely on intrasentential lexis-based algorithms that may prefer certain grammatical features in a polysemic language like Slovene. While DeepL appears to have an overall tendency to opt for the masculine (first-person) Subject, certain propositions are stereotypically or sentimentally associated with the feminine grammatical gender. Furthermore, intrasentential lexis governs the level of formality and the grammatical number of the Slovene finite verb phrase, i.e., substandard vocabulary tends to be associated with informal singular verb features, whereas technical jargon will be accompanied by the formal address. Moreover, lexis in the immediate context may influence paradigmatic stylistic choices, which may lead to either over- or under-estimation of profanity.

While there may have been an overall gap in the subtitling competence between the 2021 non-MT group and the 2022 MT-group, it is important to note that DeepL's automated translation was not successful in bridging any discrepancies between the generations. In this context, questions are raised about the ease of certain EU crowdsourcing initiatives which appeal to the general public to either produce subtitles or proofread their automatically generated subtitles.

As the feedback shows, most students realized that post-editing the subtitles did not take any less time than doing all the work themselves would have. On the other hand, spending any less time on post-editing would mean poorer quality subtitles. The students thus welcomed the possibility of access to MT tools, but were aware of the pitfalls and the time-consuming post-editing process. The study shows that for didactic reasons it is counter-productive to introduce MT at the early stages of teaching AV translation. Just as subtitling skills need to be acquired, post-editing, if required, should be regarded as a skill that can and should be developed. At the very least, students need to learn post-editing as a separate skill to be able to critically assess the quality of an automatically translated text.

MT – or more specifically, automatic subtitling – can only be a safe tool in the hands of professional AV translators who are capable of producing high-quality translations by themselves, while MT software would help them materialize the text at a faster pace. To help achieve this goal, Audiovisual Translators Europe (AVTE) published the Machine Translation Manifesto, in which they advocate for the concept of the “augmented translator”, which places an active human translator at the centre (rather than the end) of text production while using AI-tools “to augment their skills” (Deryagin, Pošta, and Landes 2021, 4).

Post-editing machine-translated texts requires a high level of concentration, as some machine-translated texts may appear to be formally impeccable and readable, while concealing semantic blunders. There is also the danger of impoverishing the store of language by reinforcing repetitive linguistic patterns that may sound acceptable or have been uncritically incorporated. As this study shows, MT can be misleading, post-editing can be time-consuming, and the result can be less remarkable and less rewarding than creative (audiovisual) translation.

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