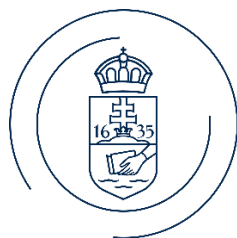


OTDK-dolgozat

2025

EÖTVÖS LORÁND TUDOMÁNYEGYETEM
BERZSENYI DÁNIEL PEDAGÓGUSKÉPZŐ KAR



ELTE
EÖTVÖS LORÁND
TUDOMÁNYEGYETEM

**A GÉPI MŰFORDÍTÁS ELEMZÉSE OSCAR WILDE *A BOLDOG*
*HERCEG C. MŰVÉN KERESZTÜL***

**AN ANALYSIS OF MACHINE TRANSLATION OF LITERATURE VIA
THE HAPPY PRINCE BY OSCAR WILDE**

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Kézirat lezárásának dátuma: 2025. 01. 07.

EREDETISÉGNYILATKOZAT

Alulírott

Solymos Eszter..... [a hallgató neve] az ELTE BDPK
anglisztika..... [a hallgató szakja] hallgatója

fegyelmi felelősségem tudatában nyilatkozom, és aláírással igazolom, hogy a(z)

An analysis of machine translation of literature via *The Happy Prince* by Oscar Wilde

.....

..... [a szakdolgozat/diplomamunka címe]

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- plágium esetén szakdolgozatom/diplomamunkám értékelés nélkül visszautasításra kerül,
- plágiumvétség esetén fegyelmi eljárás indítható.

Szombathely, 2025. 01. 07... ..



.....
a hallgató aláírása

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Abstract

Machine translation (MT) has played a significant role in translation studies for decades, including in the field of literary translation. In particular, the neural machine translation (NMT) methodology shows great potential in terms of translation quality and productivity. Hence, this technology is likely to be widely used in translating literature, despite the fundamental differences between MT and human translation. This paper examines the results of translating Oscar Wilde's 1888 short story 'The Happy Prince' from English to Hungarian using two different commercial NMT-based translation applications: Microsoft Translator and DeepL. A subjective human examination of the MT products, in comparison to Lengyel Balázs's Hungarian translation of the same short story, shows that the MT systems closely followed the structure of the source text and were able to apply grammatically necessary transformations, but produced more literal and informative text-like translations and made significant lexical, grammatical, and typographical errors. These results suggest that commercial NMT systems may be useful in the initial steps of translation, but they cannot create a fully acceptable translated text without post-editing.

1. Introduction

The emergence of machine translation (MT) is a major advancement in translation studies and could significantly influence the future of literary translation. For decades, MT was, in a sense, restricted to the translation of texts in informative genres (Reiss 124), as MT systems generally operate on an equivalence basis and are often trained specifically or primarily on informative texts. This is true for both of the recently prevalent machine translation paradigms: statistical machine translation (SMT), relying on word alignments, phrases or similar structures extracted from parallel corpora; and neural machine translation (NMT), incorporating layered artificial neural networks (i.e. computing units organised to emulate human neural networks) and local search algorithms (Tan et al. 5-7) (see also de Gibert et al. 2022; Poibeau 2022). Nonetheless, the introduction of the Transformer architecture (Vaswani et al. 2017) into MT paradigms, intended to improve the systems' performance on natural language processing (NLP)-related tasks, has raised the question of whether MT may also be applied to literary works.

Research on MT in literary translation began approximately in the 2010s, before the publication of the paper 'Attention is All You Need' (Vaswani et al. 2017). Several aspects were highlighted throughout studies and papers published in the 2010s, from the performance of MT in terms of time and efficiency, the use of MT with post-editing (MTPE), and comparisons of existing translation paradigms (including SMT and NMT) to the tailoring of SMT and NMT systems for literature (or a specific author) and the areas of literary translation where MT may be applied. Though neither SMT nor NMT systems were found to be inerrant, the results of studies on tailored systems suggested the potential of MT (or MTPE) to increase productivity in the literary translation market (Toral et al. 2-8).

Such an encroachment of the technology on the field seems particularly close as MT applications such as ChatGPT and DeepL become increasingly popular among laypeople. If tailored systems attain this degree success among literary translators in their countries of origin, they may even 'break into' the Hungarian translation market. As of the current year, no such system has apparently been widely released to the point where any literary translator, regardless of knowledge in information technology, may operate it. It is likely that literature-specific MT systems will remain a niche tool, given their relatively limited applicability in comparison to systems trained on 'general' corpora. This does not, however, preclude the possibility of translation professors/educators in Hungary acquiring and employing the technology, nor of their recommending it to students engaged in specialised courses. Thus, the new technology may spread throughout the Hungarian translation industry and become the norm.

Moreover, the remarks made above about workload and pay also apply to literary translators. Hence, it is possible for individual translators, particularly those new to the industry and suffering from a heavy workload, to be driven to apply one of the widely available SMT and NMT systems to their work. This may result in a lower-quality initial product, particularly if a dated SMT system (e.g. Google Translate, Microsoft Translator) is applied, but if the translator takes charge of the post-editing process, a product of at least passable quality may be created within a fraction of the time which would be normally taken in the translation process.

These concerns led the author to investigate the use of currently available software for translating literary works. The underlying assumption of this experiment was that a state-of-the-art MT system could produce a translated prose text that is both semantically and stylistically accurate to the source material. The goal was to create a translation that reads as well as a human-written text and is of sufficient quality to be published without extensive post-editing.

In this study, two proprietary MT systems which incorporated or were built on NMT – Microsoft Translator (‘Translator Text API’) and DeepL – were tested in the translation of Oscar Wilde’s significant short story/children’s tale ‘The Happy Prince’ – first published in 1888, reprinted many times, released into the public domain, and translated by several Hungarian translators – from English to Hungarian. A translated text was created by applying the MT model to a digital version of the Wilde source text; then, the translated text was compared to both the source text and a 1998 translation of the same source text by Lengyel Balázs.

2. Literature review

The currently existing body of literature on the application of MT strategies, particularly NMT systems, to literary works, though not quite small, is difficult to find. This is likely due to the fact that the prevalent machine translation methodologies or paradigms of the past two decades – statistical machine translation (SMT), which operates on a probabilistic basis (de Gibert et al. 3040-41), and neural machine translation, which builds on artificial neural networks, encoder-decoder mechanisms, and local search algorithms (Tan et al. 5-7) – are applied primarily to text types which are not primarily aesthetic (per Reiss’s typology), especially to informative texts (Poibeu 6020). Nonetheless, experimentation with each methodology has extended to the translation of literary (aesthetic) texts as well, and scholars have examined this potential activity from various aspects.

A relatively early study of literary MT is Toral and Way's 2014 paper 'Is machine translation ready for literature?', which presents a proposal of methodology for the evaluation of literary translation and translatability using the SMT paradigm. Following a pilot study on the English-to-French translation and post-editing of a short story (Besacier, qtd. in Toral and Way 175), the researchers propose two criteria for analysing the parallel corpus data: degree of translation freedom (the less literal the parallel translations are, the more problematic the SMT alignments will be) and narrowness of the domain (the narrower the corpus domain is, the better the translation results will be) (Toral and Way 175). In addition to these criteria for corpus studies, Toral and Way refine the concept of 'translatability' in literary works to two dimensions: the relatedness of the language pair and the literary genre. Based on these, the authors hypothesise that the less related the language pair is, the more complex and less literal the translation process will be, and that the preservation of form could more likely be prioritised in poetic translation than in prose translation (175-6). As an example, they present the results of a Spanish-to-Catalan translation of a novel – which yielded 66.2 BLEU (Papineni et al. 2002) points, a score considered sufficient for use in MT with human post-editing or in interactive MT – and conclude that the state-of-the-art systems may be useful for prose in related languages, if not poetry in unrelated ones (Toral and Way 175-6).

Paradigms changed, however, with the creation of the NMT paradigm, and in particular with Google's Transformer architecture. Transformer is based on a mechanism called self-attention, which 'relat[es] different positions of a single sequence in order to compute a representation of the sequence' and has been successfully applied in machine learning tasks such as reading comprehension and abstractive summarisation tasks (Vaswani et al. 2). The self-attention mechanism is multi-headed, meaning that multiple layers of attention run parallel with each other (Vaswani et al. 4). In addition to this increase in attention layers, this mechanism enables NMT systems to be trained more speedily than those based on previous state-of-the-art mechanisms (Vaswani et al. 10). Moreover, the first Transformer-based NMT models developed by Vaswani et al. outperformed their predecessors, based on the automatic BLEU scoring on output translated from English to German and from English to French (8).

With these results in mind, Toral et al. applied Transformer-based NMT to 12 English-language novels from the 20th and 21st centuries, along with a Sherlock Holmes short story by Sir Arthur Conan Doyle, in translation from English to Catalan. A domain-specific NMT model incorporating Transformer was trained on parallel as well as monolingual corpora (Toral et al. 8) and used on the source texts. The model's performance was compared against that of non-Transformer NMT models and of the SMT- and NMT-based Google Translate. In the

translation of the twelve novels, Transformer-based and fine-tuned NMT models outperform non-Transformer NMT models as well as Google Translate as measured in BLEU scores (Toral et al. 10). In addition, a limited post-editing experiment conducted on the Doyle short story, with the post-editing being performed by a native Catalan speaker with considerable knowledge of translation, showed that the number of major (e.g. syntactic, semantic) errors in the text significantly decreased when a Transformer-based model was used in the translation process (Toral et al. 15). The authors highlight the use of domain-specific translation technology as well (6; 9).

Apart from models specifically created for translation, general-purpose large language models (LLMs) such as ChatGPT and Bing Chat have also been evaluated in terms of their translation capabilities. A study of the translation of legal texts via LLMs from English to Arabic and vice versa, conducted by Moneus and Sahari, showed that the AI models were capable of consistent translation on par with human translators, but were notably outperformed by humans when non-literal/abstract terms and cross-cultural differences were concerned. This showed most notably in legal terminology: the models were challenged both in terms of abstract meaning (e.g. that of the English-language legal term *act of God*, referring to a natural disaster) and in terms of lexical source-target language differences (7-10). In addition, Moneus and Sahari report that in translation from Arabic to English, the models produced output in a plain English style rather than a legal English style (9). Likely factors in the reported results include structural differences between Arabic (a Semitic language) and English (a Germanic language); cultural differences between Arabic- and English-speaking ethnic groups, leading to distinct legal systems and terminologies; and the English-based probabilistic nature of the LLM (Dermawan; OECD; Knight; Bender et al.; Nicholas and Bhatia, qtd. in Aaronson 3). Since the LLMs are owned by Euro-American corporations and presumably trained primarily on English-language corpora, it can be assumed that they failed to recognise the Arabic legal style and consequently treated the texts as ‘general-purpose’ technical texts in the translation process. In other words, due to the interaction of linguistic and cultural factors with the LLM system, the translated texts fell short of human parity despite the models’ grammatical prowess.

The different experiments involving NMT expose the underlying *translatability* issues within each context along with the mechanisms of the systems. Firstly, the genetic relation factor is apparent. Toral et al. worked within the English-Catalan language pair, which consists of languages that belong to distinct but related language families (Germanic and Romance, respectively); in contrast, Moneus and Sahari focused on the English-Arabic language pair, consisting of languages in unrelated families (Germanic and Semitic, respectively). In the latter

case, the linguistic gap coincides with a cultural gap, leading to a more complicated translation process (which is also related to Toral and Way’s translation freedom criterion). Secondly, a difference within genres is apparent: Doyle’s *Sherlock Holmes* short stories are written in a prose form whose preservation may be considered less important than the preservation of the story content, whereas legal texts are bound by linguistic and stylistic conventions which are important to preserve for the text to be accepted as valid in a legal context. Finally, it can be assumed that the breadth of corpus data greatly affected the quality of translation in each study, as Moneus and Sahari worked with LLMs trained in a variety of textual genres and domains, whereas Toral et al. built a domain-specific NMT model for the purpose of the experiment. In brief, the four criteria proposed by Toral and Way in 2014 are essentially demonstrated in the two experiments of varying results.

Concerns similar to those that can be derived from Moneus and Sahari’s study were expressed in Poibeau’s 2022 paper ‘On “Human Parity” and “Super Human Performance” in Machine Translation Evaluation’. Poibeau criticises claims made at the time of the paper’s publication about MT models performing on par with human translators in several aspects. One of these is the evaluation process, which is not necessarily carried out by qualified translators or professionals. Another is the limitations of the MT models themselves, namely their literalism and limitation to such operative or informative texts as plain-text news reports (Poibeau 6019-20). However, the most salient idea in Poibeau’s paper is that it is problematic in itself to presume ‘human parity’ in the performance of MT systems, as the notion is not supported by either the manner in which MT models function, the potential role of human translators in an MT-dominated translation world or the translators’ attitude to such a role (6020-22).

3. The experiment

The experiment was intended to test the translatability of a pre-21st century English-language short story into Hungarian using conventional, widely accessible translation software. The source text used was Oscar Wilde’s 1888 short story/tale ‘The Happy Prince’; the tools used included Microsoft Translator (available via Microsoft Word) and DeepL (available on the Web at the domain [deepl.com](https://www.deepl.com), with some features restricted to users with an account), both of which are general-purpose translation programmes that employ the NMT methodology.

3.1. Methodology

Each translated text was generated based on Project Gutenberg’s public-domain copy of the work, downloaded from the website in HTML pure text format. The first MT text was generated

by putting the text of the short story in a Word document (a .docx file) and applying the ‘Translate document’ feature of the program (accessible by selecting Review > Language > Translate > Translate document). The second MT text was generated by submitting the text of the short story as a .docx file into DeepL’s ‘Translate files’ module, which was accessed via an account created specifically for this purpose.

Subsequently, each translation product was divided into individual sentences and paragraphs. The individual segments of the translation product were read one by one, and all translation errors, including mistranslations, syntactic errors, omissions, and untranslated source language segments, were promptly noted down. In addition, portions of the translated texts which were deemed by this author to sound ‘unnatural’ were marked and annotated with alternatives. An existing 1998 translation of the same short story by Lengyel Balázs, published by Magvető in the volume *A boldog herceg és más mesék*, was used as the human standard by which the translated texts’ quality was measured.

The source text was chosen based on its public-domain status (the work was written in 1888, and Wilde died in 1900), accessibility to the reader (the work was conceived as a children’s story), length (the story is 19 pages long in its Penguin edition, which means a substantial amount of text to translate, but a sufficiently small amount to be analysed within a relatively short time), and lexical and stylistic elements that may be challenging for MT models to translate. The lattermost criterion includes realia (e.g. *pinafore*), uncommon words (e.g. *curtsey*, *passion-flowers*), and wordplay based on the sound of words and phrases (e.g. *no Mystery as great as Misery*). In addition to these criteria, the familiarity of the source text to the author of this paper – namely, from a previous course on English literature – proved advantageous in the examination process.

The Microsoft Translator software was chosen for the process for three reasons. Firstly, it has recently been developed towards an NMT methodology (‘Machine Translation’); in other words, while the roots of this software may be dated, the architecture appears to have been updated to conform to newer standards. Secondly, the Word-based translation application operates without saving the translation product on the company’s servers (‘No Trace’); this avoids the potential issue of using an existing work to train an AI model without the author’s consent or any compensation to the author (Appel et al.). Thirdly, it is built into the Microsoft Word software distributed to students, among other groups, meaning that translation students have the opportunity to employ it as a time-saving strategy.

Besides the initially SMT-based Microsoft software, several NMT-based programmes were considered, including two widely used systems: ChatGPT and DeepL, a NMT application with

a similar user interface to that of Google Translate (text input with source and target language selection) and Word's translator (translation of full documents, generation of full translated documents). Ultimately, DeepL was chosen due to its greater ease of use (unlike ChatGPT, DeepL does not require carefully worded prompts) and its ability to process entire documents.

3.2. Limitations of the study

The author of this paper acknowledges the following limitations:

- The source text is relatively short and only represents a fraction of Wilde's bibliography.
- The number of software applications used is limited to Microsoft Translator and DeepL.
- The author is not an expert in neural networks.
- English-to-Hungarian translatability is lesser than in the commonly examined language pairs such as English-French. English is an Indo-European language, whereas Hungarian is a Uralic language. The grammatical structures of each language therefore differ significantly.

3.3. Results

Microsoft Translator produced a mostly direct and relatively accurate translation of the short story, though some errors occurred in vocabulary, syntax, punctuation, and style. The translation product is characterized by attempts to find the closest possible equivalents to individual terms in the source text, with or without following the English-language syntax of the source text units (phrases, sentences). The language form employed by the MT model is generally a contemporary (21st century) plain Hungarian style, though somewhat more archaic phrases appear sporadically. Translation strategies typical of the domesticating approach (Venuti 1986) of Hungarian literary translation (Klaudy 1999/2018) are not employed, leading to an arguably more foreignized, arguably less stylistically acceptable style.

Similar characteristics can be found in the DeepL translation product. Like the Microsoft Translator product, the DeepL product is characterised by the generally literal rendering of source-text sentences and terms. A significant number of vocabulary errors present in the Microsoft text are absent from the DeepL text, though some uncommon or archaic terms from the source text are inaccurately rendered in both texts. Syntactically, the DeepL text is largely sound, but several omissions of function words occur, not only as a result of conforming to target-language rules and conventions (e.g. the omission of pronouns), but also likely due to processing or text generation errors. In particular, the pronoun problem is sometimes compensated for by the insertion of epithets such as 'a lány', which are grammatically sound but do not necessarily suit the context, and sometimes evaded altogether. The punctuation of

the text is more or less consistent, but the punctuation of the dialogue is inconsistent with Hungarian literary standards as well as incorrect at times.

3.3.1. The translation strategy of the MT models

In general, the translation strategies applied by Microsoft Translator and DeepL tended towards the assembly of local (mostly word- or phrase-level) equivalents between the source-language (English) vocabulary provided by the input (the text of 'The Happy Prince') and the target-language (Hungarian) resources available to the translation model. This process led to 'literal' translation – i.e. close following of the phrase and sentence structure of the source text (along with the punctuation), along with the selection of the most common and 'direct' target-language equivalents of source-language terms with the same referents – throughout the translated texts. In the case of Microsoft Translator, certain terms with more abstract or (conceptually) metaphorical meanings (e.g. phrasal verbs) were also translated 'literally'. Transformation (i.e. translation without direct transfer of source-language structures and/or terms) was generally limited to that necessitated by grammatical differences between the source and target languages. In some cases, this strategy produced segments of translated text that accurately reflected the meaning of their source-text equivalents; in others, it created errant renditions of source-text segments. The stylistic effect of such a translation strategy varies as well: depending on the segment, it could lead to an accurate reflection of the source segment or to an excessively formal version thereof.

One example of 'literal' translation occurs in the Swallow's response to the Prince's first 'commission':

"I don't think I like boys," answered the Swallow. "Last summer, when I was staying on the river, there were two rude boys, the miller's sons, who were always throwing stones at me. They never hit me, of course; we swallows fly far too well for that, and besides, I come of a family famous for its agility; but still, it was a mark of disrespect." (Wilde 13-14)

- Nem hiszem, hogy szeretem a fiúkat - válaszolta a fecske. "Tavaly nyáron, amikor a folyón tartózkodtam, volt két goromba fiú, a molnár fiai, akik mindig kövekkel dobáltak. Természetesen soha nem ütöttek meg; mi, fecskék túl jól repülünk ehhez, és különben is, olyan családból származom, amely híres mozgékonyaságáról; De mégis a tiszteletlenség jele volt." (Microsoft Translator 4)

"Nem hiszem, hogy szeretem a fiúkat - válaszolta a Fecske. "Tavaly nyáron, amikor a folyónál laktam, volt ott két goromba fiú, a molnár fiai, akik folyton kövekkel dobáltak.

Persze soha nem ütöttek meg; mi, fecskék túl jól repülünk ahhoz, és különben is, én egy olyan családból származom, amelyik híres a fürgeségéről; de mégis, ez a tiszteletlenség jele volt.” (DeepL 3)

These MT-produced segments are quite a direct rendering of the Wilde segment, particularly in comparison to Lengyel’s rendition:

- *Ha meggondolom, én nem is szeretem a fiúkat* – felelte a fecske. – Múlt nyáron, amikor a folyó mellett *tanyáztam*, volt ott két *durva kölyök*, a molnár fiai, akik *unos-untalanul* *kővel hajigáltak*. Persze, *nem találtak el*, mi fecskék *sebesebben* repülünk *annál*, és *az én familiám különösen híres a gyorsaságáról, hanem azért ez tiszteletlenség volt*. (11, my emphasis)

While Lengyel’s translation alters certain phrases or clauses into conventional Hungarian phrases or forms (e.g. *unos-untalanul*, *kővel* in the singular rather than plural form, *hanem azért*), more specific terms (e.g. *sebesebben* as opposed to *jobban*), or a roughly equivalent phrase formulated in a way that avoids adding an additional relative clause (e.g. *az én familiám különösen híres a gyorsaságáról* – ‘my family is especially famous for its quickness’ – as opposed to *egy olyan családból származom, amelyik híres a fürgeségéről*), this cannot be seen in the MT counterparts. Consequently, the MT-produced segment may read as less idiomatic in comparison to a human translator’s work. Despite this, only two lexical errors can be said to have occurred: *ütöttek meg* as an equivalent of *hit* can be classified as a lexical error, as it is the verb *eltalál* that is used in the context of projectiles (including thrown stones) hitting a living target, and *jól* as an equivalent of *well*, as the Hungarian adverb might not have had the same connotation of flight speed in the target context as the English adverb had in the source context. The MT models, in brief, nearly succeeded in preserving the meaning of the entire paragraph, albeit in a possibly less idiomatic manner.

Besides the above example, several lines were generated in which the translation models did not apply additive or transformative translation strategies for apparent idiomatic or expressive effect, whereas Lengyel had done so. The words and phrases which were transformed (or not transformed) are italicised in the examples below.

“... They have eyes *like green beryls*, and their roar is louder than the roar of the cataract.” (Wilde 16)

- ... Szemük zöld, *mint a legzöldebb berill*, és ordításuk *túlharsogja a vízesés zuhogását*. (Lengyel 13-14, my emphasis)

(Human back-translation: ‘Their eyes are green *like the greenest beryl*, and their roar *booms louder than the torrent of the waterfall*.’)

“... Olyan szemük van, *mint a zöld berilleknek*, és ordításuk *hangosabb, mint a szürkehályog üvöltése*.” (Microsoft Translator 5)

(Human back-translation: ‘They have eyes like those of green beryls, and their roar is *louder than* the roar of the cataract.’)

“... Szemük olyan, *mint a zöld bogyó*, és üvöltésük *hangosabb, mint a kataraktus zúgása*.” (DeepL 4)

(Human back-translation: ‘Their eyes are *like green berries*, and their roar is *louder than* the rumble of the cataract.’)

"*I am beginning to be appreciated*," he cried; "this is from some great admirer. Now I can finish my play," and he *looked quite happy*. (Wilde 17)

- *Mégiscsak megbecsülnek* – kiáltott fel –, ezt valamelyik tisztelőm küldte! Most már befejezhetem a darabomat – és *sugárzott a boldogságtól*. (Lengyel 15)

(Human back-translation: “‘*They do appreciate me, after all*,’ he cried out, ‘this was sent by one of my admirers! Now I can finish my play,’ and he was *beaming with happiness*.’)

- *Kezdenek megbecsülni* - kiáltotta; "Ez valami nagy csodálótól származik. Most már befejezhetem a darabomat", és *nagyon boldognak tűnt*. (Microsoft Translator 6)

(Human back-translation: “‘*They are beginning to appreciate me*,’ he shouted; ‘this comes from some great admirer. Now I can finish my play,’ and he *looked very happy*.’)

“*Kezdenek megbecsülni* - kiáltott fel -, ez valami nagy csodálótól jött. Most már befejezhetem a darabomat” - és *nagyon boldognak tűnt*. (DeepL 4)

(Human back-translation: “‘*They are beginning to appreciate me*,’ he cried out, “this came from some great admirer. Now I can finish my play,” and he *looked very happy*.’)

He told him of the red ibises, who *stand* in long rows on the banks of the Nile, and catch gold-fish in their beaks; ... of the King of the Mountains of the Moon, who is as black as ebony, and *worships a large crystal* ... (Wilde 18-19)

Mesélt a piros íbiszekről, amelyek hosszú-hosszú sorokban *álldogálnak* a Nílus partján és *csőrükbe kapják* az aranyhalakat; ... mesélt a hold-hegyek királyáról, aki fekete, akár az ébenfa, és *egy nagy kristály az istene* ... (Lengyel 16)

(Human back-translation: ‘He told tales about the red ibises that *stand for a while* on the banks of the Nile in long, long lines and take the goldfish into their beaks; ... he told tales about the king of the moon-mountains, who is as black as ebony and *whose god is a large crystal* ...’)

Mesélt neki a vörös ibiszekről, akik hosszú sorokban *állnak* a Nílus partján, és csőrükben aranyhalat fognak; ... a Hold hegyeinek királyáról, aki olyan fekete, mint az ébenfa, és *egy nagy kristályt imád* ... (Microsoft Translator 7)

(Human back-translation: ‘He told [the Prince] stories about the red ibises who *stand* in long lines on the banks of the Nile, and catch goldfish in their beaks; ... about the King of the Moon’s mountains, who is as black as ebony and *worships a large crystal* ...’)

Mesélt neki a vörös ibiszekről, amelyek hosszú sorokban *állnak* a Nílus partján, és aranyhalat fognak a csőrükkel; ... a Hold hegyeinek királyáról, aki fekete, mint az ébenfa, és *egy nagy kristályt imád* ... (DeepL 5)

(Human back-translation: ‘He told [the Prince] stories about the red ibises, which stand in long lines on the banks of the Nile, and catch goldfish in their beaks; ... the King of the Moon’s Mountains, who is black like ebony and *worships a large crystal*...’)

In the above examples, the meaning of the lines is (almost) the same in each translation, but Lengyel’s translation employs, respectively:

- the modification of the adjective form (base to superlative),
- the transformation of a verb with a *to*-infinitive (*am beginning to be appreciated*) into a verb with a conjunction/adverb (*mégiscsak megbecsülnek*),
- the transformation of a verb with a subject complement (*looked very happy*) into a verb modified by an adverb (*sugárzott a boldogságtól*),
- the narrowing of a verb meaning (*stand* into *álldogál*, denoting standing for a long time),
- and the transformation of a verb with an object (*worships a large crystal*) into two noun phrases that function as a predication in itself and as a clause within the sentence (*egy nagy kristály az istene*).

Each of these strategies can be said to slightly modify the semantic content of the given terms or phrases between the source and target texts (e.g. the prominence of attributes). However, they appear to be focused on form and intended to highlight aesthetic impressions (e.g. colour and scenery) and emotional states (e.g. joy) suggested by the text and/or to leave the impression of ‘natural’ Hungarian literary form. The MT models did not apply the above strategies in the translation of the same lines; instead, they approximated the meaning of source-text terms and the structure of source-text sentences as closely as possible. Transformations were only performed if Hungarian grammar did not allow for a certain structure to be transferred directly, e.g. in the case of the passive clause and the *be* structure in Wilde p. 17. This suggests that

transformation strategies are built into the MT models, but they are typically applied to obey general rules of target-language usage rather than to enhance aesthetic value or ‘naturalness’. Certain literally translated segments correspond (almost) exactly to Lengyel’s rendition:

- Ki vagy te?
- Én vagyok a boldog herceg.
- Miért sírsz akkor? – kérdezte a fecske. (Lengyel 10)
- "Ki vagy te?" – kérdezte.
- "Én vagyok a boldog herceg."
- "Miért sírsz akkor?" - kérdezte a fecske; ... (Microsoft Translator 3)
- “Ki vagy te?” - kérdezte.
- “Én vagyok a Boldog Herceg.”
- “Akkor miért sírsz?” - kérdezte a Fecske; ... (DeepL 2)

Az udvaroncaim boldog hercegnek neveztek, és csakugyan boldog voltam, ha az öröm boldogság. Így éltem és így haltam meg. (Lengyel 10)

Udvaroncaim Boldog Hercegnek neveztek, és valóban boldog voltam, ha az öröm boldogság. Így éltem, és így haltam meg. (Microsoft Translator 3)

Udvaroncaim Boldog Hercegnek neveztek, és valóban boldog voltam, ha az öröm a boldogság. Így éltem és így haltam meg. (DeepL 2)

These examples tend to occur in sentences or phrases where unambiguous ‘direct’ equivalents for each term can be found. With terms such as phrasal verbs, which may have several meanings and therefore target-language equivalents depending on the context, the MT model may struggle:

- "I will put up there," he cried; "it is a fine position, with plenty of fresh air." (Wilde 11)
- *Odateszem* - kiáltotta; "Ez egy remek pozíció, rengeteg friss levegővel." (Microsoft Translator 2)

Apart from the punctuation error (the lack of an exclamation mark in a context where it would be unacceptable in Hungarian), this is a clear mistranslation of the equivalent sentence in the source text. In this context, *put up* refers to staying at some form of shelter for the night, which was the initial purpose of the Swallow’s settling at the Prince’s feet; clearly, it is not intended to refer to raising or fixing another object. A human reader or translator may be able to discern the exact sense of the phrasal verb from the context, but this appears not to have been the case for the MT model or its mapping process. Where the Hungarian term *itt szálllok meg*, or more archaically (but also aptly for the context of a swallow’s behaviour), *ide szálllok* (which may

literally translate to ‘I will fly here’) would otherwise have been used, the MT model used a different, contextually inappropriate equivalent of *put up*: *odatesz*. (This error is absent from the DeepL product, wherein *put up* is rendered as *megszállni* and *felszállni*.)

Nonetheless, neither ‘Happy Prince’ translation can be said to be completely ‘literal’, as some segments of each text appear to be translated using transformation strategies accommodating conventions of linguistic expression in the Hungarian language. A few examples of such transformations (apart from those shown above) include:

... the Reed *made him a low bow*. (Wilde 10)

... a nádas *mélyen meghajolt előtte*. (DeepL 1)

The climate in the north of Europe is really dreadful. (Wilde 11)

Észak-Európa éghajlata valóban rettenetes. (Microsoft Translator 2)

Round the garden ran a very lofty wall, but *I never cared to ask* what lay beyond it, everything about me was so beautiful. (Wilde 12)

A kert körül egy nagyon magas fal futott, de *soha nem érdekelt*, mi van mögötte, minden olyan szép volt körülöttem. (DeepL 2)

... of the Sphinx, who is *as old as the world itself* ... (Wilde 18-19)

... a Szfinxé, aki *egyidős magával a világgal* ... (Microsoft Translator 7)

"How shabby, *indeed*!" cried the Town Councillors ... (Wilde 21)

"Milyen rongyos!" - kiáltották a városi tanácsosok ... (DeepL 6)

These examples show that the translation models may transform an English-language phrase into its structurally different but semantically similar Hungarian counterpart: namely, a verb with an indirect and direct object into a verb with adverbs of manner and place, a determiner phrase with multiple prepositional phrases attached into a possessive qualifier phrase with a compound noun as the qualifier, and an *as ... as* complement into a *névszói állítmány* with an attached adverbial phrase. Moreover, the translation model may omit words from the target-language rendering of a phrase if their ‘direct’ equivalents are not involved in the conventional target-language equivalent phrase, as seen in the *indeed* example. Both Microsoft Translator and DeepL, therefore, demonstrate the tendency of translators to use conventional target-language phrasing where it is possible and may be deemed ‘more natural’, though their approach appears not to be as additive as that of certain human translators.

3.3.2. *The style and aesthetics of the MT texts*

As neither Microsoft Translator nor DeepL was developed (primarily) for the translation of literary texts, the style of their output tends towards a style associated with 21st century informative or operative texts (e.g. news reports and instructional Web articles). Hence, both translation models are liable to apply vocabulary associated with such texts, even if the source text is primarily aesthetic or originates from a past century. Although the sentence structures and vocabulary of the ‘Happy Prince’ translations tended to follow that of the source text (except if a necessary transformation strategy was applied or a translation error occurred), current informative or operative text-like vocabulary was occasionally used within the late Victorian literary context, and formal vocabulary was used in an informal context or vice versa. In the following examples, the words or phrases which particularly clash with the rest of the excerpt are emphasised:

"Elismerem, hogy ő *háztartásbeli*," folytatta, "de én szeretek utazni, következésképpen a feleségemnek is szeretnie kellene utazni." (Microsoft Translator 2)

"*Maga szórakozott velem*" - kiáltotta. "Elmegyek a piramisokhoz. *Viszlát!*" - és elrepült. (DeepL 1)

"Tavaly nyáron, amikor a folyón *tartózkodtam*, volt két goromba fiú, a molnár fiai, akik *mindig kövekkel dobáltak*. ... " (Microsoft Translator 4)

Megpróbál befejezni egy darabot a színházigazgató számára ... (Microsoft Translator 5)
... a kereskedőkről, akik lassan járnak tevéik mellett, és borostyángyöngyöket hordanak a kezükben; ... (DeepL 5)

[cf. ... mesélt a kalmárokról ... (Lengyel 16)]

Besides these stylistic clashes, the informative or ‘word-for-word’ translation strategy may also fail to render certain literary techniques or aesthetic elements from the source text, such as rhythm, rhyme, and alliteration. The phrase ‘Swallow, Swallow, little Swallow’ from the Prince’s recurring plea, for instance, is rendered as ‘Fecske, fecske, *kis* fecske’ by both translation models. Unlike Lengyel, who rendered the phrase as ‘Fecském, fecském, *kicsi* fecském’, the MT models did not opt for an equivalent of the word *little* that matched it in syllable count. Therefore, the rhythm of the source-language sentence is lost. Another example of an MT model’s missing an aesthetic element is the rendition of the aphorism ‘There is no greater Mystery than Misery’ (Wilde 19) – evidently distinguished by a rhyme as well as an alliteration – by Microsoft Translator. The MT model translated this aphorism as ‘Nincs olyan nagy Misztérium, mint a Nyomorúság’, without preserving either the rhyme or the alliteration. By contrast, Lengyel’s rendition sacrifices the alliteration but preserves the rhyme using the

derivational suffix *-ság*: ‘Nincs nagyobb titokzatosság, mint a nyomorúság’ (17). In each of these cases, the machine-translated target-language sentence or phrase loses a stylistic element marking it as significant and compelling, whereas the human translator has evidently made an effort to replicate said element or approximate it if the limitations of the target language prevented him from doing so. The vocabulary of the target-text sentences, in other words, was chosen based on whether its denotations matched that of the source-text vocabulary items, rather than whether it contributed to an aesthetic element.

Regarding aesthetic text translation, it is worth considering the aforementioned examples of additive and transformative strategies (or the absence thereof). Such transformations are a problematic issue in literary translation. It can be argued that they are a violation of the author’s rights and intentions (Kádár, personal interview), or that excessive efforts to ‘improve’ the text lead to a lack of humility and willingness to understand the source text on the translator’s part (Mesterházi 533). For instance, the ‘enhancement’ of *looked very happy* and *like green beryls* in the translation to *sugárzott a boldogságtól* and *mint a legzöldebb berill* may be seen as such violations of the boundary between the translator role and the author role, as they rely on additions to the translated text for aesthetic appeal despite the author’s original manner of expression. MT models are not inclined to perform such ‘enhancements’ thanks to their ‘literal’ strategy of translation, so they arguably avoid the mistake of straying too far from the author’s expressive intentions or drawing excessive attention to themselves.

On the other hand, certain schools of translation, such as the Klaudy school, encourage transformations if the different languages conceptualise reality differently, if pragmatic differences between the two languages warrant a transformation (this is known as pragmatic adaptation), or if the translator is compensating the lack of idiomatic target-language forms at certain parts of the translated text with more idiomatic forms in others [‘Jelentések szűkítése (differenciálás és konkretizálás)’; ‘Teljes átalakítás’; ‘Kompenzálás’]. In Lengyel’s translation, examples of each transformation strategy can be found, respectively, in *álldogálnak* and *túlharsog*; in *mégiscsak megbecsülnek* and *egy nagy kristály az istene*; and in *mint a legzöldebb berill*. The absence of such adaptation or transformation strategies in the machine-translated lines is noticeable, and a text in which they are not performed may even come across as rigidly formal or lacking in flavour in comparison to the more liberal or transformative human-made translation.

In summary, the ‘direct’ translation strategy and the primarily informative-and-operative tailoring of the MT models appears to have resulted in the application of stylistically inappropriate and inconsistently formal vocabulary in some segments of the translated texts.

Transformation strategies, especially additive ones, were apparently not used for aesthetic purposes.

3.3.3. *Recurring errors in the MT product*

Besides the general tendencies summarised above, several types of errors were identified. Some of the more striking ones include:

Typographical errors. The most common of these errors was the widespread stylistically unacceptable and/or inconsistent use of the different Hungarian quotation marks. According to the Hungarian Academy of Sciences' (MTA) rule book dialogue in literary works is punctuated with a dash, known as a *gondolatjel* in Hungarian, at the beginning and end of the dialogue line separating it from the quoting sentence (AkH. 259) (though in publicly available digitalised books, hyphens are often used). Quotation marks are also permitted by this code, but they are generally reserved for quotations within a non-fictional work (AkH. 257-58). If such quotation marks do occur, they appear either in quotations within dialogue lines:

- A Moviszterné hallgasson. Az csak sopánkodni tud. "Jaj, de sajnállak, édesem, hogy mindig ilyen lányokkal vesződöl, várj, majd én küldök neked egyet." Két éve hiteget így. Annak csak a színházakon jár az esze. A főpróbákon. Meg az Ady-matinékon. (Kosztolányi)

or in the quotation of character thoughts:

A bírák egymásra néztek mosolyogva: "Milyen naiv, milyen együgyű lány!" (Mikszáth)
In Lengyel's translation, the punctuation of dialogue lines using dashes is prevalent. It is used in Lengyel's translation for lines of dialogue which are delineated from the rest of the text by paragraph breaks in the Wilde source text, as is the case in this section:

– Olyan, mint egy angyal – mondták az árva gyerekek, amikor kiléptek a székesegyházból, ragyogó skarlátvörös kabátban és tiszta fehér kötényben.

– Honnan tudjátok? – kérdezte a számtantanár. – Sose láttatok angyalt. (Lengyel 8)

"He looks just like an angel," said the Charity Children as they came out of the cathedral in their bright scarlet cloaks and their clean white pinafores.

"How do you know?" said the Mathematical Master, "you have never seen one." (Wilde 10)

However, Lengyel's translation also modifies the structure of paragraphs with lines of dialogue embedded in them by separating the dialogue into its own paragraph, allowing for the smoother use of dashes in dialogue. An example of this follows:

So the Swallow flew over the great city, and saw the rich making merry in their beautiful houses, while the beggars were sitting at the gates. ... Under the archway of a bridge two little boys were lying in one another's arms to try and keep themselves warm. "How hungry we are!" they said. "You must not lie here!" shouted the Watch-man, and they wandered out into the rain. (Wilde 19)

Így a fecske végigrepült a város felett, és látta, hogy a gazdagok szép házaikban boldogan vigadoztak, míg a koldosok ott üldögélnek a kapuk előtt. ... Egy híd boltíve alatt két kisfiú feküdt, szorosan egymás karjában, hogy meg ne dermessze őket a hideg.

– Jaj, de éhesek vagyunk! – mondták.

– Itt nem alhattok! – kiáltott rájuk az őr, s a két kisfiú nekivágott az esőnek. (Lengyel 17)

Hungarian spelling conventions, as per by the MTA's rulebook, do not allow for the use of the use of quotation marks in literary dialogue. Nonetheless, they occur in the Microsoft translation, both in dialogue delineated by paragraph breaks and in dialogue embedded in a larger paragraph:

"Úgy néz ki, mint egy angyal" – mondták a jótékonysági gyermekek, amikor kijöttek a székesegyházból ragyogó skarlátvörös köpenyükben és tiszta, fehér pinaforjukban.

"Honnan tudod?" – kérdezte a Matematikai Mester – "még soha nem láttál ilyet." (1)

Így a fecske átrepült a nagy város felett, és látta, hogy a gazdagok vidámkodnak gyönyörű házaikban, míg a koldusok a kapuknál ülnek. Berepült a sötét sávokba, és látta az éhező gyerekek fehér arcát, akik kedvetlenül néztek ki a fekete utcákra. Egy híd boltíve alatt két kisfiú feküdt egymás karjaiban, hogy megpróbálják melegen tartani magukat. "Milyen éhesek vagyunk!" – mondták. - Nem szabad itt feküdnöd - kiáltotta az Őr, és kísértáltak az esőbe. (7)

In addition, in the last paragraph quoted above, the Microsoft system employed two different forms of quotation in the same context – quotation using dashes/hyphens alone and quotation using quotation marks – which is not accepted in Hungarian literary norms.

Such style of quotation is also apparent in the DeepL text, wherein all dialogue is punctuated using quotation marks and hyphens – as in the following examples:

"Nagyon hideg van itt" - mondta - "de egy éjszakára veled maradok, és a hírnökőd leszek."

"Furcsa - jegyezte meg -, de most már egészen melegem van, pedig olyan hideg van."

The usage of these punctuation marks is consistent in that it does not switch between the quotation mark-hyphen style (as in Hungarian journalism) and the dash style (as in Hungarian

literary prose). However, it is inconsistent in whether a quotation mark is applied around the quoting verbs (e.g. *mondta, jegyezte meg*) or not. Moreover, errors may be observed in the completion of quotation marks:

“Kedves herceg - mondta a Fecske -, ezt nem tehetem meg, és sírni kezdett.

“Milyen csodálatosak a csillagok” - mondta neki - "és milyen csodálatos a szerelem ereje!”.

The most egregious of these errors, as can be seen above, are the failure to close the quotation mark (in the first sentence), the usage of quotation marks at the end/beginning of the sentence fragments around the interposed phrase *mondta neki*, and the application of a full stop outside of the quotation mark (in the second sentence). These suggest that either the Hungarian training corpora of the NMT model are limited to texts with few quotations, or that the model has not (yet) mastered the application of Hungarian styles of quotation.

Overall, the use of particular quotation marks seems to reveal the breadth of the models’ training corpora and the intended application of the individual translation models. The Microsoft Translation application is capable of applying both the journalistic and the literary style of quotation, suggesting a broad Hungarian-language training corpus – despite the primarily literal, possibly businesslike style it uses. In contrast, the DeepL application only uses the journalistic style of quotation, suggesting that it was primarily trained on and/or intended to translate informative and operative texts – an implication which is backed up by the DeepL company’s press releases focusing on the translation software’s entrepreneurial and business applications (‘DeepL Press Information’).

Inconsistent capitalisation of character epithets. Each significant character in Wilde’s story is known by an epithet or a title (e.g. the Swallow, the Happy Prince, the student/young man). Since Wilde emphasised symbolism in his works (Pinyerd), the epithets of characters who are symbolically significant as a result of their role or personality (e.g. the Swallow, arguably representing the author in a similar manner as the Nightingale of ‘The Nightingale and the Rose’ – see Pinyerd; the Prince, representing benevolence; the Mayor and the Town Councillors, representing corruption; the Charity Children, representing innocence) are capitalised. Lengyel’s translation consistently renders these epithets in uncapitalised spelling (e.g. *a boldog herceg, a fecske, a polgármester*), apparently prioritising idiomatic literary form above faithfulness to the source text. In contrast, the MT products show both the capitalised (more source text-faithful) and uncapitalised (deviating) forms at seemingly random intervals.

One obvious example occurs in an early paragraph of the Microsoft Translator text:

"Miért nem lehetsz olyan, mint a *Boldog Herceg*?" – kérdezte egy értelmes kisfiú anyukája, aki a holdért sírt. "A *boldog herceg* soha nem álmodik arról, hogy bármiért sírjon." (1)

Within two lines of dialogue by the same character, the title *Happy Prince* is rendered as *Boldog Herceg* in one line and as *boldog herceg* in the next. The rest of the text alternates between the capitalised and uncapitalised versions.

This error also occurred in the DeepL text:

De a *Boldog Herceg* olyan szomorúnak tűnt, hogy a kis *Fecske* megsajnálta.

...

Így a *fecske* kiszedte a *herceg* kardjából a nagy rubint, és csőrében elrepült vele a város teteje fölé. (3)

Mistranslations of content words. Certain words in the source text were translated into target-language terms carrying a different meaning from that implied by the source text. This resulted in several lines of text implying not only a different scenario to that described in the ST, but also an unintentionally odd one.

One striking example of a mistranslation from the Microsoft Translator text was that of the verb *twitter* in the line “‘It is a ridiculous attachment,’ twittered the other Swallows ...’ (Wilde 10) into ‘... *twitterezte* a többi fecskét ...’ (2). According to Merriam-Webster, the verb *twitter* in its intransitive sense can mean, among others, ‘to utter successive chirping noises’, ‘to talk in a chattering fashion’, or ‘GIGGLE, TITTER’; all of these senses apply at once to the speech act of the birds in the story (‘Twitter’). Lengyel renders this verb as *csivitel*, in the phrase ‘... *csivitelték* a többi fecskék ...’ (8); this word is applied in a similar way to both birds (including swallows and martins, both covered by the noun *fecske*) and people, according to *A magyar nyelv értelmező szótára* (‘Csivitel’). The term employed by the MT, *twitterezik*, is a relatively recent invention owing to the likewise recent creation of the Internet platform Twitter (now known as X) in 2006 (‘Twitter turns six’). The word translates to ‘to use Twitter’ or ‘to send a post on Twitter’. Hence, the MT product falsely implies that the songbirds were using a social media platform that had not been invented in Wilde’s lifetime.

Another noticeable mistranslation from the Microsoft text was that of the word *garret*, referring to the student’s room:

‘... I see a young man in a *garret*.’ (Wilde 16)

‘So the Swallow plucked out the Prince’s eye, and flew away to the student’s *garret*.’ (Wilde 17)

‘...látok egy fiatalembert egy *garnitúrában*.’ (‘...I see a young man in a *set of furniture*.’)
(Microsoft Translator 5)

‘A Fecske tehát kitepte a herceg szemét, és elrepült a diák *ruhájába*.’ (‘So the Swallow plucked out the prince’s eye, and flew away into the student’s *clothing*.’) (Microsoft Translator 6)

As seen above, not only was the term translated into terms whose meanings are only tangentially related to the implied meaning of the SL term, but it was also translated inconsistently. Lengyel offers a translation more consistent both with the ST and itself:

...látok egy fiatalembert egy *padlásszobában*.

...

A fecske hát kivájta a herceg fél szemét, és repült a diákhoz a *padlásszobába*. (14)

Fortunately, the DeepL text avoided the above mistranslations, translating *twittered* and *garret* as *csiripelte* and *padlásszoba* or *padlás* respectively. However, even this model made a few errors, at least in the translation of words spelled differently from 21st-century conventions:

She is embroidering *passion-flowers* on a satin gown for the loveliest of the Queen's maids-of-honour to wear at the next Court-ball. (Wilde 13, my emphasis)

Szenvedélyvirágokat hímez egy szaténruhára, amelyet a királynő legszebb udvarhölgye visel majd a következő udvari bálon. (DeepL 2, my emphasis)

They have eyes like green *beryls*, and their roar is louder than the roar of the cataract. (Wilde 16)

Szemük olyan, mint a zöld *bogyó*, és üvöltésük hangosabb, mint a kataraktus zúgása. (DeepL 4, my emphasis)

The first error is the same literal interpretation of the term *passion-flowers* that occurs in the Microsoft text, whereas the second is the apparent misinterpretation of *beryls* as *berries*.

Contextually inaccurate or inappropriate vocabulary. Certain content words in the source text were rendered ‘literally’ according to their denotative meaning, even if a less ‘literal’ equivalent with more suitable connotations existed. This was particularly apparent in the translation of qualifiers in adjective form:

Her face is thin and *worn* [fatigued] ... (Wilde 13)

Az arca vékony és *kopott* [deteriorated by use, as of an object] ... (Microsoft Translator 3)

Az arca sovány és *kopott* [deteriorated by use, as of an object] ... (DeepL 2)

His hair is brown and *crisp* [curly or wavy] ... (Wilde 16)

A haja barna és *ropogós* [crunchy] ... (Microsoft Translator 5)

Haja barna és ropogós [crunchy] ... (DeepL 4)

These translated qualifiers count as mistranslations even if their sense is equivalent to that of the source-language qualifier, as the source-language adjectives have multiple senses and are not used in the sense rendered in the target-language texts.

Mistranslations of prepositional phrases headed by of. These errors occurred if the prepositional phrase referred to a character being asked a question or to the subject of a story or work of art, and more often in the Microsoft translation than in the DeepL translation.

For instance, the phrase *asked a sensible mother of her little boy* (Wilde 9) was translated by the Microsoft model as *kérdezte egy értelmes kisfiú anyukája*, literally meaning ‘asked the mum of a sensible little boy’. The qualifier *sensible* is misplaced from the mother (as in the source text) to the little boy, likely due to the interpretation of the preposition purely within the phrase *mother of her little boy* rather than as linked to the verb *asked*. The DeepL model avoided this by translating the phrase as *kérdezte egy értelmes anyuka a kisfiától*.

Another noticeable error within the Microsoft text was the inconsistent rendering of the preposition *of* within the long complex sentence enumerating sights seen by the Swallow in foreign lands (Wilde 18-19). Although the phrases *of the red ibises*, *of the King of the Mountains of the Moon*, and *of the great green snake* were rendered accurately with the *-ról/-ről* suffix (normally denoting the subject of a conversation, a discussion, a story, a work of art etc.), the phrases *of the Sphinx*, *of the merchants*, and *of the pygmies* were inaccurately rendered with the *-é* suffix (denoting possession):

Mesélt neki *a vörös ibiszekről* ... ; *a Szfinxé* ... ; *a kereskedőké*... ; *a Hold hegyeinek királyáról* ...; *a nagy zöld kígyóról* ...; és *a pigmeusoké* ... (7)

In other words, the suffix denoting possession was used in combination with those denoting a conversation topic to render the relation expressed by *of*, despite the fact that the same relation was expressed in every item of the list. It is likely that the model interpreted some individual items of the list independently of their context, due to the complexity of the sentence itself. This error did not occur in the DeepL translation, in which the *-ról/-ről* suffix was used consistently. While DeepL was able to avoid the above errors, it was not able to avoid errors in translating the final scene involving the Mayor and the Town Councillors, all of whom ultimately demand a statue depicting themselves in the place of the smelted Happy Prince (Wilde 21). The phrase *it shall be a statue of myself* (Wilde 21), rendered by Microsoft Translator as *az az én szobra lesz* (9), was rendered by DeepL as *az az én lesz* (6), which may be attributed more to an error in generating the translated text file than a failure to recognise prepositional phrase structures.

This cannot be said, however, of the Councillors' exclamation *Of myself* by itself, which was translated by both models as *Magamtól* (Microsoft Translator 9; DeepL 6).

Singular-plural pronoun confusion. One point of both texts – namely, the scene in which the Mathematical Master addresses the Charity Children (Wilde 10) – showed confusion between singular and plural pronouns:

"How do you know?" said the Mathematical Master, "*you* have never seen one." (Wilde 10)

"*Honnan tudod?*" – kérdezte a Matematikai Mester – "*még soha nem láttál* ilyet." (Microsoft Translator 1)

"*Honnan tudod?*" - kérdezte a matematikus mester - "*Te még soha nem láttál* ilyet." (DeepL 1)

In each case, the English plural pronoun *you* was interpreted as the singular pronoun *you*, resulting in the Mathematical Master's line being addressed to one child in the translation as opposed to all of the children.

Pronoun omissions leading to ambiguity. These errors can be inferred to result from the application of typical Hungarian syntax/declension to a translation process that closely follows the word order, if not necessarily the structure, of the English source text input. The rule which is applied appears to be 'omit pronoun if the subject of the sentence can be inferred from context'. This seems a logical rule in theory, but in practice, if applied in a mechanical manner, it may produce syntactically ambiguous sentences.

Hungarian tends to express such syntactic content as the grammatical person and number (singular or plural) of subjects in verb suffixes known as *ragok*. In addition, possession is often indicated by the *-a/-e* or *-ja/-je* suffix known as the *birtokos személyjel*. As a result, pronouns (in particular, third-person pronouns) do not occur in Hungarian utterances in most contexts where English pronouns would occur. Hungarian literary translators reckon with this difference either by using affixes that indicate the person and number of the subject, by omitting the pronoun (if the sentence is transformed enough to eliminate the linguistic expression of the pronoun's content, but the character's presence can be inferred from context), or by using determiner/noun phrases which refer to the same character as the pronouns do (if two different characters are involved in an action). An example of all of these solutions at once can be found in Lengyel's translation of a paragraph early in the story:

"Shall I love you?" said the Swallow, who liked to come to the point at once, and the Reed made *him* a low bow. So *he* flew round and round *her*, touching the water with *his*

wings, and making silver ripples. This was *his courtship*, and it lasted all through the summer. (Wilde 10)

– Szeresselek? – kérdezte a fecske, mert kedvelte az egyenes beszédet, mire a nádszál mélyen meghajolt. Így aztán *a fecske* újra meg újra körülrepülte *a nádszálat*, a *szárnya* meg-megérintette és ezüstösen fodrozta a vizet. Ez volt *a vallomása*, és így udvarolt egész nyáron át. (Lengyel 8)

In his translation, Lengyel first transforms the phrase made him a low bow into the more idiomatic phrase *mélyen meghajolt*, omitting the pronoun *he*; then, he replaces the pronouns *he* and *her* with *a fecske* and *a nádszálat*, as omitting the pronouns would have resulted in an ambiguous subject for the verb *körülrepülte* along with unusual syntax; and finally, he transforms the pronoun *his* into the general third-person possessive suffix, since the wings and the display of love can both be attributed to the Swallow. The result is a Hungarian-language paragraph in which the agent and patient of each action described is clearly defined.

In contrast, the Microsoft Translator model attempted to translate the same paragraph as literally as possible while conforming to Hungarian use (or lack thereof) of pronouns, resulting in the following:

"Szeresselek?" - kérdezte a Fecske, aki szeretett azonnal a lényegre térni, és a Nád alacsony meghajlást hajtott végre *neki*. Így körbe-körbe *repült*, *szárnyaival* megérintette a vizet, és ezüst hullámokat keltett. Ez volt az *udvarlása*, és egész nyáron át tartott. (1)

The omission of the pronouns *he* and *her* from the second sentence results in an ambiguous subject. Based on the narrow context, it can be inferred to be the Swallow; however, based on the wording alone, the subject might as well be the Reed. In such cases, it is preferred to concretise the referent of the source-text pronoun ('Tudatos konkretizálás'). Thus, this paragraph can be said to be errant.

A more unambiguously errant example occurs in a later scene:

A beautiful girl came out on the balcony with her lover. "How wonderful the stars are," he said to her, "and how wonderful is the power of love!"

"I hope my dress will be ready in time for the State-ball," she answered; "I have ordered passion-flowers to be embroidered on it; but the seamstresses are so lazy." (Wilde 14)

Egy gyönyörű lány jött ki az erkélyen a szeretőjével. "Milyen csodálatosak a csillagok - mondta neki -, és milyen csodálatos a szeretet ereje!"

- Remélem, ruhám időben elkészül az állambálra - válaszolta; "Elrendeltem, hogy hímezzenek rá passióvirágokat; De a varrónők olyan lusták." (Microsoft Translator 4)

In this case, the pronouns *he*, *her*, and *she* are omitted along with their content. Consequently, the speaker of each dialogue line becomes ambiguous in terms of syntax; in other words, it can only be inferred from the context whether it is the girl or the (male) lover who initiates the dialogue. To avoid this ambiguity, human translators concretise the referents, as in Lengyel's rendition:

Egy szép fiatal lány éppen akkor lépett ki az erkélyre szerelmesével.

- Milyen csodálatosak a csillagok – mondta *a férfi* –, és milyen csodálatos a szerelem hatalma!

- Remélem, hogy idejében elkészül a ruhám az udvari bála – felelte *a lány* – golgotavirág-hímzést rendeltem rá; de a varrónők olyan lusták. (Lengyel 12)

The pronoun *he* is rendered as *a férfi* ('the man'), while the pronoun *she* is rendered as *a lány* ('the girl'), thus unambiguously distinguishing the speaker of each line.

DeepL, at least in a few initial lines, attempted to compensate for the loss of pronouns with epithets (coincidentally matching those employed by Lengyel in the above examples):

He had met her early in the spring as he was flying down the river after a big yellow moth, and had been so attracted by *her* slender waist that he had stopped to talk to her. (Wilde 10, my emphasis)

Kora tavasszal találkozott vele, amikor egy nagy sárga lepke után repült a folyón, és annyira vonzotta *a lány* karcsú dereka, hogy megállt beszélgetni. (Deepl 1, my emphasis)

"Will you come away with me?" *he* said finally to *her*; but the Reed shook her head, she was so attached to her home. (Wilde 11, my emphasis)

"Eljössz velem?" - mondta végül *a férfi a lánynak*, de a nádas megrázta a fejét, annyira ragaszkodott az otthonához. (Deepl 1, my emphasis)

However, given the context, the choice of epithets used to replace the pronouns in these examples is quite jarring. While the use of the semantically gendered terms *lány* and *férfi* may be consistent with the anthropomorphic characterisation of each figure, the terms themselves nonetheless suggest human characters and clash with their referents' being referred to as animals and plants in the rest of the text (most notably in the case of the Reed in this very paragraph).

In addition, even DeepL completely omits pronouns along with their referents at some points:

... but the Reed shook her head, she was so attached to her home.

"You have been trifling with me," he cried. (Wilde 11)

... de a nádas megrázta a fejét, annyira ragaszkodott az otthonához.

“Maga szórakozott velem” - kiáltotta. (DeepL 1)

"How wonderful the stars are," he said to her, "and how wonderful is the power of love!"
(Wilde 14)

“Milyen csodálatosak a csillagok” - mondta neki - "és milyen csodálatos a szerelem ereje!“. (DeepL 3)

These examples occur in contexts where it may be important to specify who is speaking – in these cases, to distinguish the Swallow from the Reed, or the lovers from one another. Furthermore, they seem to demonstrate that the model’s translation process operates on a sentence level, and/or tends towards more conventional compensations for the ‘pronoun problem’.

Omissions of entire words/phrases from the translated text. This type of error occurred quite often in the DeepL text, where the elided words were rendered as an extra space in the text where the word would otherwise be. Words affected by this phenomenon include both function and content words:

“... ; az élők mindig azt hiszik, az arany boldoggá teheti őket.” (5) (omission of *hogy*)

Társaim fészket építenek a Baalbec templomában, a rózsaszín és fehér galambok figyelik őket, és kukorékolnak egymásnak. (4) (omission of *and/és*)

“Kedves kis fecske - mondta a herceg -, csodálatos dolgokról mesélsz nekem, de mindennél csodálatosabb a férfiak és a szenvedése. ...” (5) (omission of *women/nők*)

“Természetesen kell egy másik szobor” - mondta - "és az az én lesz". (6) (omission of *statue/szobor*)

Even phrases were elided in a few cases:

Meglátogatta az összes köztéri emlékművet, és ült a templomtorony tetején. (3)
(omission of *a long time/hosszu ideig*)

Elsuhant a gyufalány mellett, és a csúsztotta az ékszer. (5) (omission of *the palm of her hand/tenyerébe*)

Untranslated vocabulary. This type of error appeared in the Microsoft Translator text, restricted to the terms *curtsey* and *heave a-hoy*:

És bizonyára, valahányszor fújt a szél, a nád *a legkecsesebb curtsey-ket készítette*. (2)

Egy nagy hajó árbocán ült, és figyelte, ahogy a matrózok kötelekkel nagy ládákat húznak ki a raktérből. "*Heave a-hoy!*" - kiáltották, amikor minden láda feljött. (6)

cf. And certainly, whenever the wind blew, the Reed made the most graceful curtseys.
(Wilde 10)

He sat on the mast of a large vessel and watched the sailors hauling big chests out of the hold with ropes. "Heave a-hoy!" they shouted as each chest came up. (Wilde 17)

In the Lengyel translation, the phrases highlighted in the MT product are translated as ‘a lehető legkecsesebben *hajladozott*’ (literally ‘kept bowing in the most elegant way possible’) (9) and ‘*Húzd meg!*’ (literally ‘Pull it!’) (15), respectively. The DeepL text does not contain these errors; *made the most graceful curtseys* and ‘*Heave a-hoy!*’ are translated as *a legkecsesebb pukedliket csinálta* (‘made the most graceful curtsies’) and ‘*Húzzátok fel!*’ (‘Pull it up!’), respectively. The errors may be attributed to the Microsoft system’s lack of recognition of a more obsolete spelling of *curtsy* (‘Curtsy’) and of the interjection *a-hoy*.

A special case is the *Palace of Sans-Souci* (Wilde 12), the home of the Prince before his death, whose name contains a French phrase that translates to ‘without worry’ and was left untranslated in the MT product, as *Sans-Souci palotája* (Microsoft Translator 3) or *Sans-Souci palota* (DeepL 2). This can be explained by the MT systems translating equivalents between the source and target language only (in this case, English and Hungarian) while leaving text in third languages (in this case, French) intact. In contrast, the full name was translated by Lengyel as *a Gondtalanság Palotája* (10), back-translatable as ‘the Palace of No Worries’, which may be explained by the interpretation of *Sans-Souci* in the context of the tale purely as a fictional place with a foreign name. This interpretation, however, removes the reference to the real-world palace Sanssouci at Potsdam, known for its large, artistically decorated buildings and its parks (‘Sanssouci’), and can be said to reduce it to mere metaphor. Hence, the translation preferred by the MT systems is not so much errant as foreignizing and more faithful to the source text.

Formal-informal address errors. The Hungarian language, unlike modern English, distinguishes between formal and informal forms of address. In grammatical terms, the formal form is marked by the usage of third-person declension in linguistic environments where second-person declension would be used otherwise, e.g. in imperatives (a common one being *Foglaljon helyet!* - as opposed to *Foglalj helyet!*), along with forms of the pronouns *Ön* or *maga* (hence the Hungarian terms *önözés* and *magázódás*). In social terms, it is applied if there is a significant difference in power (e.g. military rank, employer-employee relations) and/or significant social distance between the interlocutors, in contrast with the informal, which is applied in more equal, more intimate, and less official situations, and at times, towards an interlocutor in a subordinate social position. The formal third-person address form as it is known today developed throughout the 17th and 18th centuries, from polite *te* forms which were used with third-person verbs, e.g. *te kegyelmed tudja*, and phrases such as *maga kegyelmed*. Prior to this, the aforementioned polite *te* forms were used alongside a general *te* form (Pusztai).

It is in a general, context-independent manner that the now informal address form is used in Lengyel's rendition of the story, even in conversations between the Swallow and the Prince, who can be said to be in an unequal position due to the latter's royal status, as in the example below:

- Itt maradok még egy éjszakára – mondta a fecske –, de nem vájhatom ki a *szemedet*, mert akkor *megvakulsz*.

- Fecském, fecském, kicsi fecském – mondta a herceg –, tedd, ahogy parancsoltam.
(Lengyel 16, my emphasis)

The Microsoft text, for the most part, used this exact pattern of address forms between the two characters. At some parts of the translated text, however, the formal declension of verbs in addresses was used, as in this example:

"Sajnos! Most nincs rubinom - mondta a herceg; "A szemem minden, ami megmaradt. Ritka zafírból készülnek, amelyeket ezer évvel ezelőtt hoztak ki Indiából. *Húzza ki* az egyiket, és *vigye el* neki. ... " (Microsoft Translator 5)

cf. – Sajnos, nincs több rubintom – mondta a herceg –, nincs egyebem már, csak a két szemem. Ritka zafírból valók, ezer évvel ezelőtt hozták őket Indiából. *Vájd ki* az egyiket s *vidd el* neki. (Lengyel 14)

The DeepL translation shows a similar error:

“Maga szórakozott velem” - kiáltotta. (1)

In comparison to a previous line spoken by the Swallow – ‘*Szerethetlek-e?*’ – this line employs the formal form of address.

The errors displayed above demonstrate that the English-Hungarian language pair proved challenging for the MT models. While both models were able to apply transformation strategies, they apparently did not apply them consistently. Moreover, they appeared to struggle to accurately render uncommon, obsolete, unconventionally spelt, polysemous content words, and homonyms into the target language; the same can be said to be true of certain conventional phrases. The rendering of literary style and formal-informal registers was found to be inconsistent as well due to major source-target language differences.

4. Comments

The comparative study of the ‘Happy Prince’ translations revealed several notable aspects of translating literary prose in the English-Hungarian language pair. Apart from the translatability of short stories from a Germanic to a Finno-Ugric language, both the strengths and the weaknesses of MT models became apparent; in other words, both their ability to ‘translate like a human’ and their limitations in doing so.

For one, the model’s ‘direct’ *modus operandi* may lead to coherent, source text-consistent, or even aesthetically acceptable output at a given segment. Whether this occurs or not appears to depend on the commonness of the source language vocabulary or phrasing, the narrowness of equivalent pools for each word, and/or whether the terms or phrases are conventional in both the source and the target language. If polysemous terms, homonyms, obsolete terms or unconventionally spelt terms are to be translated, the model may give a false equivalent. However, the translations of simple sentences and of currently common, conventionally spelt, or non-polysemous terms tend to be quite accurate to the source text.

If errors primarily occur on a stylistic level, the literalism of the MT model can lead to a rendering of the source text content akin to an initial version of a human translator’s rendition. This stems from the MT model’s passable, if not entirely solid grasp on certain areas of Hungarian grammar (e.g. syntax). Some sentences in the product, despite their possibly less idiomatic style (see the rendition of Wilde 13-14), are (near-)identical in literal meaning to their source-text equivalents. In the post-editing process, such sentences may be revised for better flow and stylistic accuracy, and even lexical errors may be remedied with a proper understanding of the source text and a quick glance at a dictionary if needed. Thus, the automatic generation of a ‘raw’ text saves the time and labour of writing the ‘raw’ text, if not the time and labour of revision. In a sense, the MT model can be seen as quickly and simply performing the first step of the translation process for the human translator.

However, the MT models need human intervention to produce a fully acceptable translation, for several reasons. For instance, the model may be liable to produce mistranslations. This is particularly apparent in the case of Microsoft Translator, which produced several blatant word-level errors. Such errors may become less frequent with the fine-tuning of the MT model and the incorporation of new architectures like Transformer, as shown by Toral et al. (10), or even with a functional beam search algorithm (Tan et al. 7). Indeed, the incorporation of NMT into Microsoft’s model may have contributed to the accurately translated sentences in the above examples, and the NMT-based DeepL showed some noticeable improvements in translation over Microsoft Translator. Nonetheless, as explained above, certain terms may be translated

inappropriately for the context – or, in the case of Microsoft Translator, substituted for an unrelated term with a completely different meaning. Although word-level errors may seem small at first glance, they can change the meaning of a sentence or even a paragraph to the point where it strays significantly from the source text or even becomes nearly incomprehensible. Human translators must therefore oversee the translation process to discern the appropriate terms for each context and edit the target text where it is necessary.

Moreover, as MT models treat language purely as a system of units forming sequences and texts purely as sequences of units, it struggles with aspects of language or text that depend on speakers and the conventions which they create and accept. Hence, it faces challenges in rendering style and aesthetics, as these depend on cultural conventions related to specific domains, including literature. Since literature is by nature a cultural and aesthetic domain, efforts to translate works in this domain using a non-sentient, non-sapient machine conduit will inevitably run into difficulties.

Perhaps most importantly, the MT model's nature means that its creativity is constrained by its own system. Human linguistic creativity is not based on algorithms; it is based on conscious, often novel choices in combining meaningful units into utterances and texts. Conscious creative choice is part and parcel of translating literature, as the translator must strive not only to transmit word, sentence, or text meanings, but also to provide readers with a reading experience that is (nearly) equivalent to that of reading the source text. To achieve the latter, translators tend to resort to transformations beyond what differing grammars necessitate, often even altering entire words or phrases if it results in a 'more idiomatic' translation. Doing so requires creativity on the translator's part, the kind of which the MT models' algorithms may not be inclined to apply. In brief, the commercial MT models' ability to generate a more-or-less coherent 'raw' text can be invaluable to literary translators by virtue of saving time. However, such models are limited, to some extent, in handling style and applying creative transformation strategies.

5. Conclusions

The SMT- and NMT-based architecture of Microsoft Translator has been shown to be dubiously efficient in the translation of Wilde's short story/children's tale from English to Hungarian. Errors tended to occur on a lexical, grammatical and stylistic level, stemmed from the limitations of the MT model as well as the structural differences between the source and target language, and typically occurred when the source text employed ambiguous, archaic or obscure vocabulary, or when the grammatical differences between the source and target language were most apparent. The general impression of the text was that of a highly formal, mechanical

construction, which was deemed unacceptable for the translation of a literary work. However, less ambiguously phrased segments and more common, unambiguous words were translated accurately as a result of the MT model's literalistic *modus operandi*. The author of this paper concludes that machine translation software may be used to save time and labour for human translators in the popular literature market or in the creation of bilingual editions wherein the target-language version is intended as an aid to language learning rather than as an aesthetic experience *per se*. However, the author of this paper maintains that the MT software is too limited to produce an acceptable translation on its own and notes the warranted scepticism of literary translators towards the apparent automatization of the translation process.

Acknowledgements

I am deeply indebted to my supervisor Judit Mária Kádár for her invaluable feedback and patience. My sincere thanks also go to the committee of the ELTE BDPK TDK, to my professor Mária Balaskó, and to my instructor Eszter Balogh. Also, this project would not have been possible without the financial support of the Eötvös Loránd University.

I am also grateful to my fellow students and my family, whose support has been invaluable.

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