Merging Art and Algorithms
Navigating Workflows in Literary Machine Translation

language and translation technology team

Lieve Macken

TQ2026, January 30th 2026

GHENT UNIVERSITY

Slator 07/11/2024

AI Translation • By Seyma Albarino On 7 Nov 2024

Largest Book Publisher in the Netherlands Experiments with AI for English Translation

The Netherlands' largest book publisher, Veen Bosch & Keuning, has confirmed it plans to use AI to translate some of its books into English.

The decision was preceded by a series of international acquisitions. Private equity firm KKR bought Simon & Schuster in October 2023, at which time KKR said it planned to support Simon & Schuster's growth into international markets. In May 2024, Simon & Schuster completed its first acquisition of a non-English-language publisher by buying VBK.

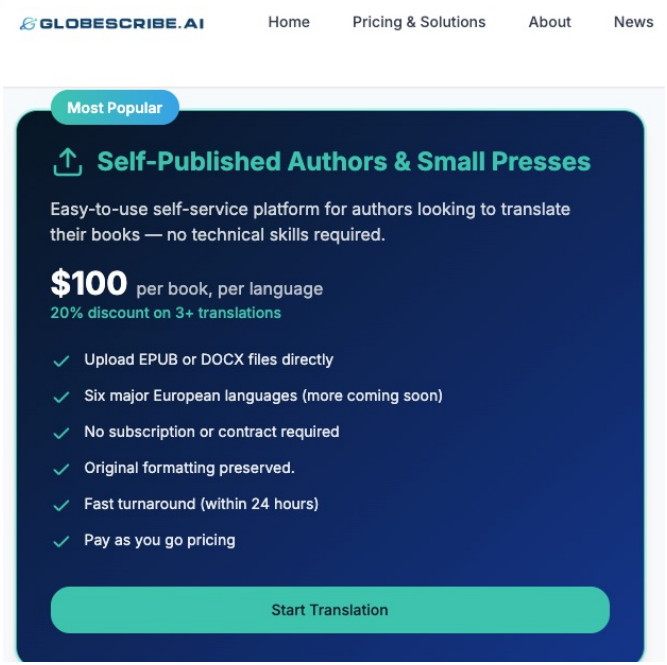
A VBK spokesperson told The Bookseller, a specialist news source for the publishing industry, that the AI translation was part of a limited experiment with a few Dutch authors, who were asked to opt in.

Fewer than 10 titles will be translated, The Guardian reported, all commercial fiction - as opposed to literary titles - and only books whose English rights have not been sold.

The Guardian 13/08/2025

AI translation service launched for fiction writers and publishers prompts dismay among translators

UK-based GlobeScribe is charging $100 per book, per language for use of its services, but translators say that nuanced work can only be produced by humans



"But GlobeScribe.ai opens the door to new opportunities, making translation a viable option for a much broader range of fiction."

CEATL
European Council of Literary Translators' Associations

OPEN LETTER TO VEEN BOSCH & KEUNING IN REGARDS TO THE USAGE OF AI TO TRANSLATE BOOKS INTO ENGLISH LANGUAGE

November 6, 2024

We are horrified to read in The Bookseller about Veen Bosch & Keuning's "limited experiment with some Dutch authors, for their books to be translated into English language using AI". Veen Bosch & Keuning claim that they are "not creating books with AI, it all starts and ends with human action" – yet this is patently not the case.

As CEATL points out in its Statement on Artificial Intelligence, "AI usage standardises translations, impoverishing written cultures and languages in general through, among other things, priming bias and self-pollution." Studies have demonstrated that post-editing a literary text generated by AI takes much longer.

Furthemore, literary translators are already struggling to make a living with their work, a work that requires a great deal of knowledge, creativity and many different skills. The publishing sector cannot do without well trained literary translators; to pretend otherwise would mean impoverishing the cultural landscape as a whole.

We strongly believe that it is very much in interest of every stakeholder in the book chain – translators, authors, publishers and especially readers – to keep literary translation human. Machines do not translate, they merely generate textual material; books are written by human authors and should be translated by human translators. Imagination, understanding and creativity are intrinsically human and should not be left out of any literary text.

Outline

1. Does AI actually 'standardise' and impoverish our language?

2. Is post-editing literary texts truly a 'time-sink' rather than a 'time-saver'?

3. Is the distinction between 'commercial' and 'literary' fiction a real linguistic boundary, or just a convenient excuse?

Does AI actually 'standardise' and impoverish our language?

What does standardization mean?

"The inherent nature of data-driven MT systems to generalise over the training data has a quantitatively distinguishable negative impact on the word choice, expressed by favouring more frequent words and disregarding less frequent ones."

"The most visible effect of such bias is to be found in the word frequencies and the disappearance (or 'non-appearance') of scarce words."

Vanmassenhove, Shterionov, and Way. 2019. Lost in Translation: Loss and Decay of Linguistic Richness in Machine Translation. In Proceedings of Machine Translation Summit XVII

GHENT UNIVERSITY

Linguistic features

Tezcan, Daems & Macken (2019). When a ‘sport’ is a person and other issues for NMT of novels. In Proceedings of the Qualities of Literary Machine Translation (pp. 40–49). Dublin, Ireland

Webster at al. (2020). Gutenberg goes Neural. Comparing features of Dutch human translations with raw neural machine translation output in a corpus of English literary classics. Informatics, 7(3)

Kong & Macken (2025) Can Peter Pan Survive MT? A Stylometric Study of LLMs, NMTs, and HTs in Children’s Literature Translation. In Proceedings of the 2nd Workshop on Creative-text text Translation and Technology, Geneva, Switzerland

Linguistic features

- Lexical richness
  - Monolingual
  - Bilingual level

- [Syntactic (dis)similarity]

Lexical richness

- Type-token ratio → Number of unique words / total number of words

- Mean Segmental TTR → Average TTR on subsets of 100 words
- Average Moving TTR

Lexical richness (monolingual)

A Christmas Carol	ST	HT	GNMT	DeepL
TTR	0.119	**0.150**	0.140	0.134
MSTTR	0.648	**0.682**	0.663	0.648
Sense and Sensibility	ST	HT	GNMT	DeepL
TTR	0.040	**0.073**	0.056	0.057
MSTTR	0.680	**0.703**	0.695	0.683
The Memoirs of SH	ST	HT	GNMT	DeepL
TTR	0.068	**0.095**	0.088	0.085
MSTTR	0.664	**0.689**	0.681	0.672
The Sign Of The Four	ST	HT	GNMT	DeepL
TTR	0.103	**0.129**	0.125	0.122
MSTTR	0.670	**0.700**	0.686	0.676

Lexical richness decreases from HT to MT

Webster at al. (2020). Gutenberg goes Neural. Comparing features of Dutch human translations with raw neural machine translation output in a corpus of English literary classics. Informatics, 7(3)

Lexical richness (bilingual)

- Measure lexical richness in translation context?
- Word Translation Entropy (WTE): **the degree of uncertainty** to choose a correct translation from a set of target words
  - Automatic word alignment (GIZA++)
  - Number of translation options & translation probabilities

Lexical richness (bilingual)

Probabilities are distributed equally over a large number of items → high entropy
→ High degree of uncertainty

Probability distribution falls onto a few items → low entropy
→ Low degree of uncertainty

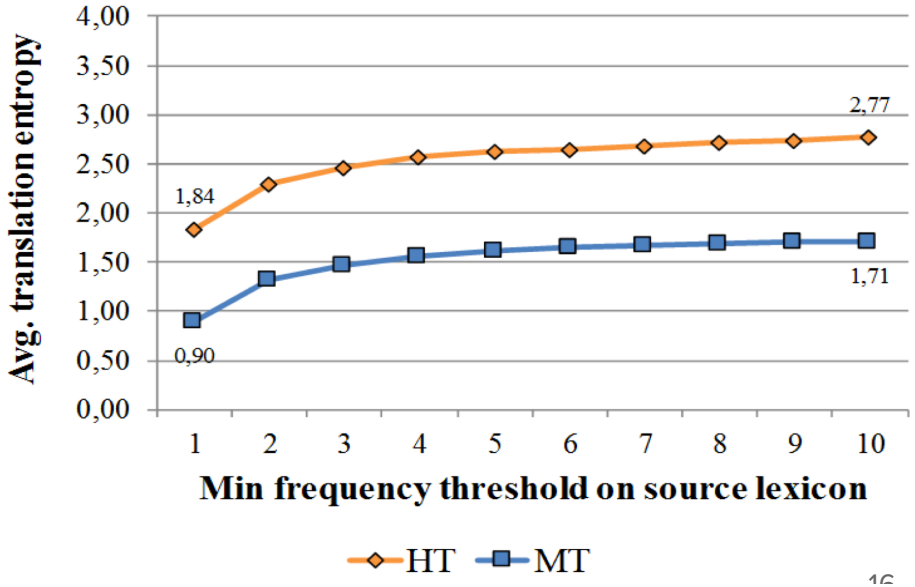
Source	MT (prob.)	HT (prob.)
funny	grappige (0,57)	grappig (0,22)
	grappig (0,29)	grapjas (0,22)
	grappigs (0,14)	leuk (0,22)
		gekke (0,22)
		wel (0,11)
WTE	= 1,37	= 2,27

Lexical richness (bilingual)

Word Translation Entropy

Source	MT (prob.)	HT (prob.)
funny	grappige (0,57)	grappig (0,22)
	grappig (0,29)	grapjas (0,22)
	grappigs (0,14)	leuk (0,22)
		gekke (0,22)
		wel (0,11)
WTE	= 1,37	= 2,27

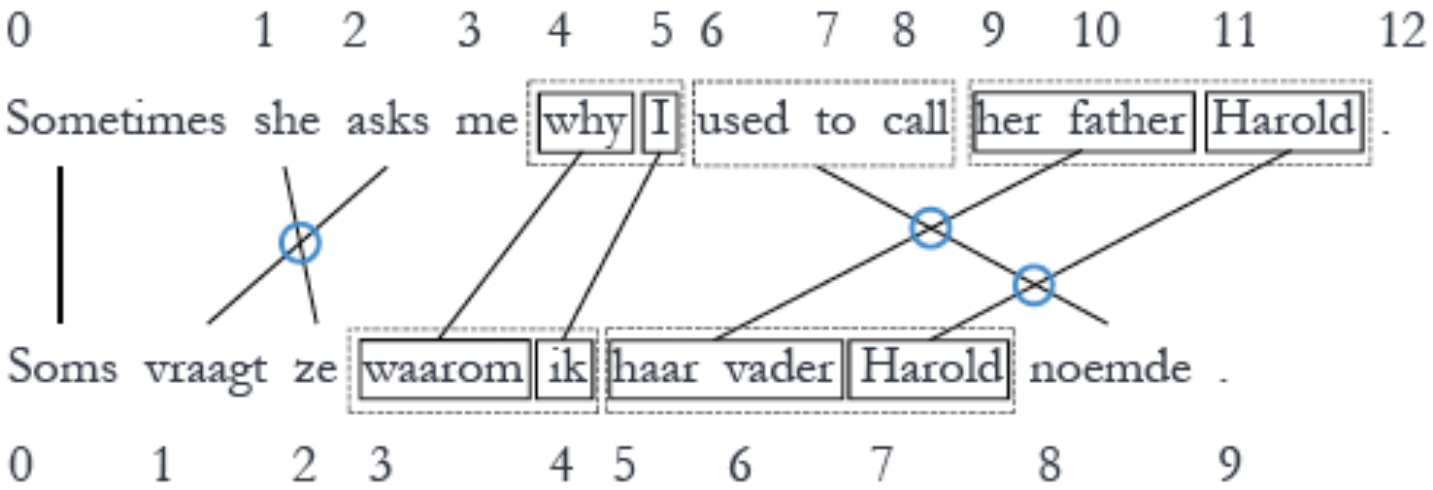
More lexical variety
in HT than MT



Tezcan, Daems, & Macken (2019). When a 'sport' is a person and other issues for NMT of novels

Syntactic (dis)similarity

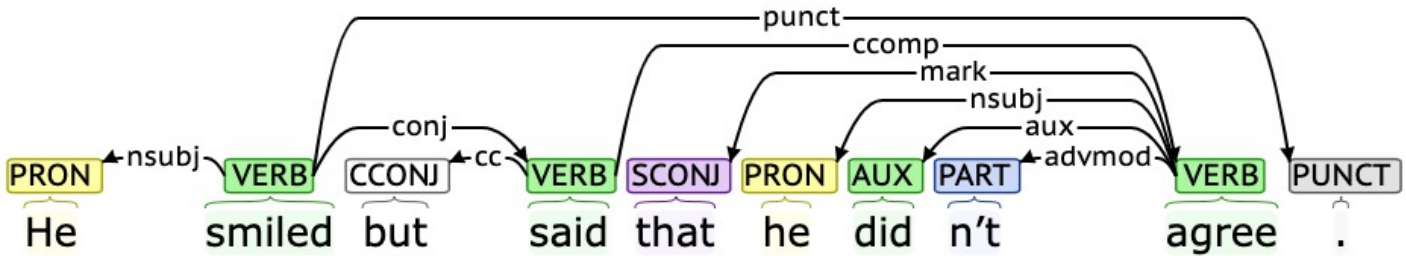
Differences in word order



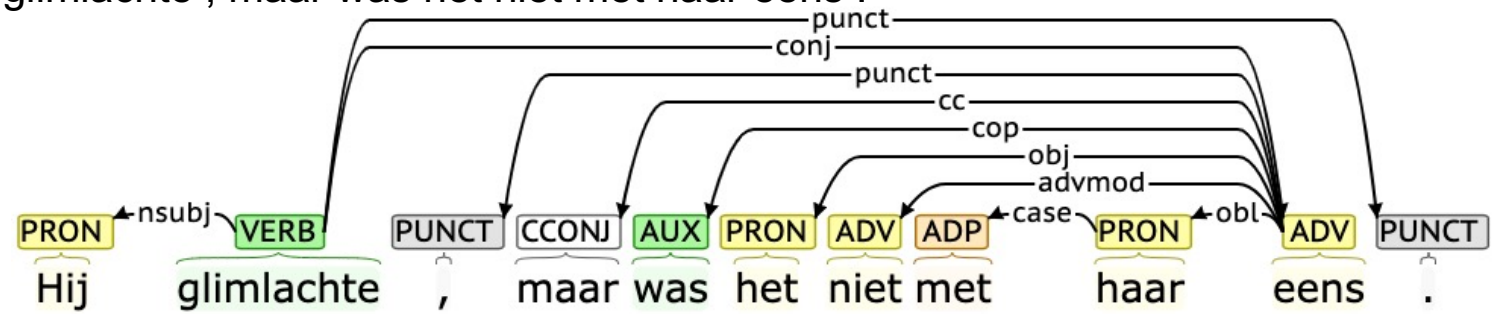
Vanroy, et al. (2021). Metrics of syntactic equivalence to assess translation difficulty. Explorations in empirical translation process research, 259-294.

Syntactic (dis)similarity

AsTReD



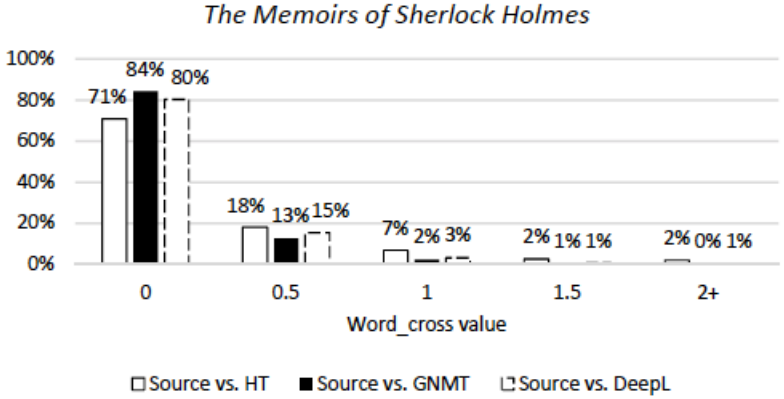
Hij glimlachte , maar was het niet met haar eens .

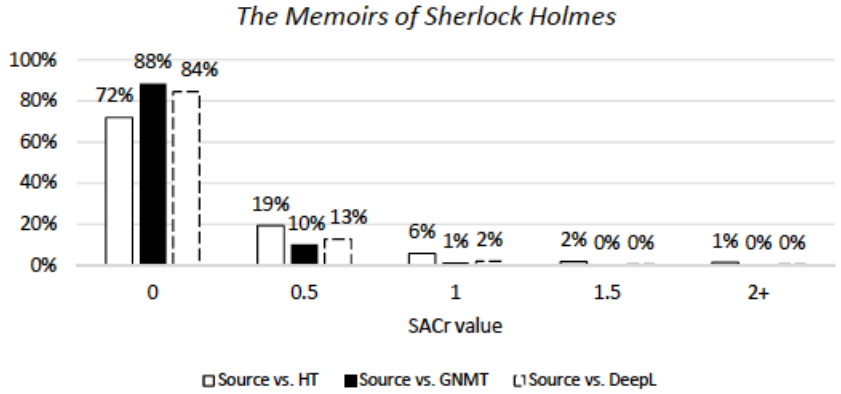


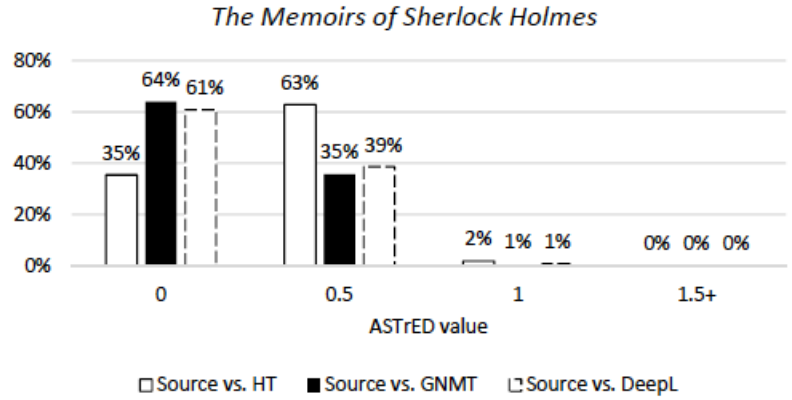
GHENT UNIVERSITY

Syntactic (dis)similarity

NMT tend to follow the structures of the source more closely than HT







Webster at al. (2020). Gutenberg goes Neural. Comparing features of Dutch human translations with raw neural machine translation output in a corpus of English literary classics. Informatics, 7(3)

Machine learning approaches

Can you distinguish HT, NMT and LLM translations automatically?

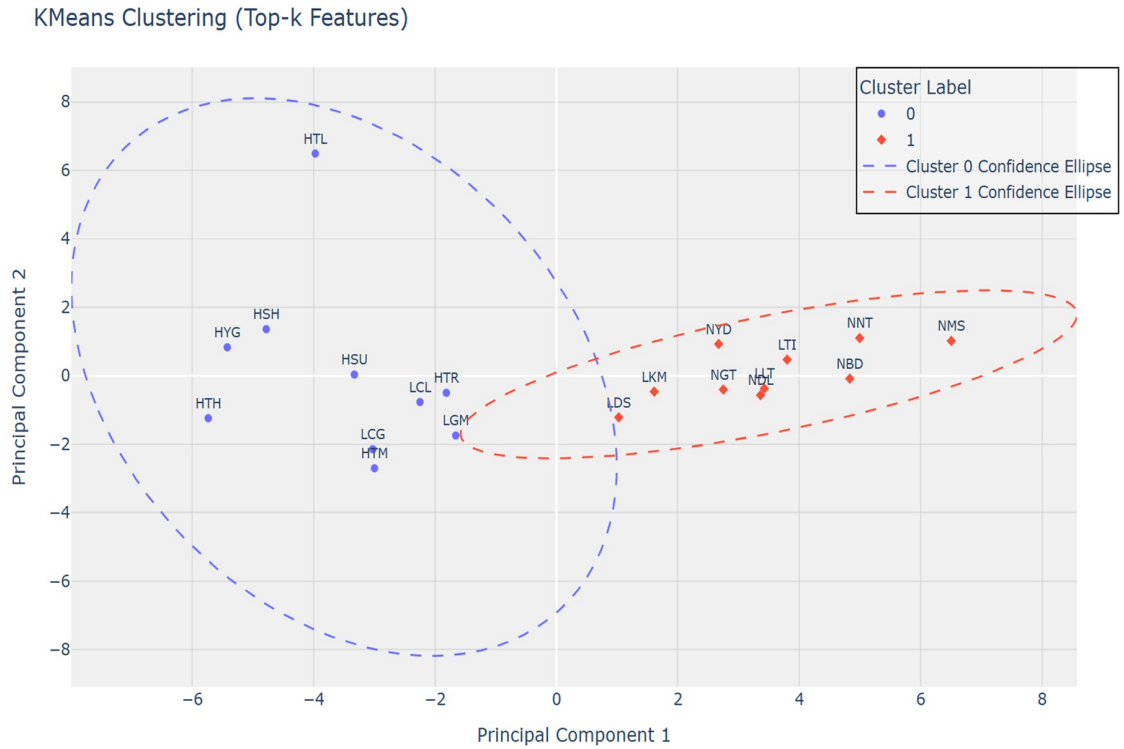
Feature level	Sub level	Total	Feature instances
Generic textual features	Lexical	69	STTR, MTLD, noun, verb, content words, idioms ...
	Syntactical	26	WordsPerSent, QuestionSent, MDD, AvgChildrenPerNode...
	Readability	16	lexical_richness, Concreteness score, AvgConcrete ...
	N-grams	309	N_word_gram, N_PoS_gram, N = 1 - 3 ...
CTT-specific features	Repetition	7	ratio_AA, ratio_ABAB, ratio_AAA, ratio_AABB...
	Rhythm	10	Open Syllable Ratio, Rhyme Density, Rhyme Ratio ...
	Translatability	5	completeness, foreignness, code_switching, untranslatable ...
	Miscellaneous	5	ratio_onomatopoeia, ratio_StrongModifier, ratio_er_suffix ...

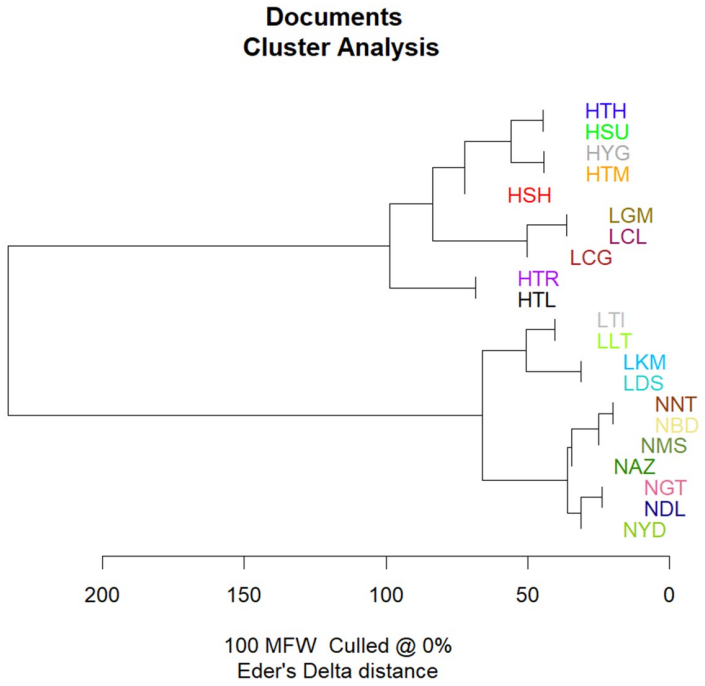
Kong & Macken (2025) Can Peter Pan Survive MT? A Stylometric Study of LLMs, NMTs, and HTs in Children's Literature Translation. In Proceedings of the 2nd Workshop on Creative-text text Translation and Technology, Geneva, Switzerland

GHENT UNIVERSITY

Machine learning approaches

Can you distinguish HT, NMT and LLM translations automatically?





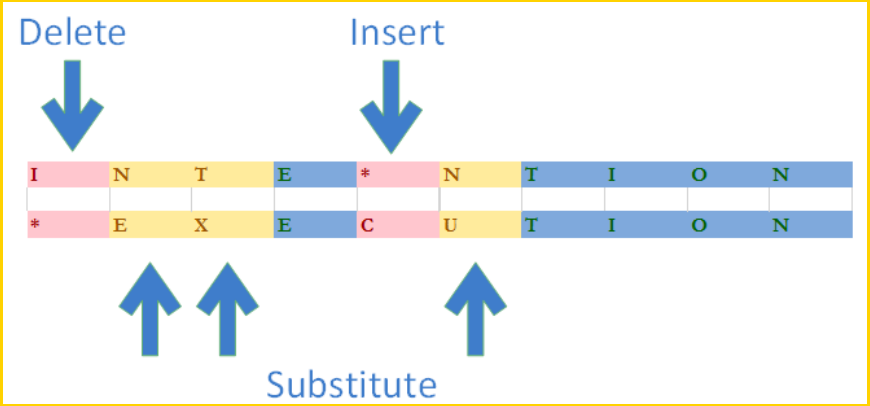
GHENT UNIVERSITY

Does AI actually 'standardise' and impoverish our language?

- Neural MT: decrease in lexical variety, follow more syntactic structure of the source texts
- Machine Learning approaches can detect which translations are NMT
- Picture is less clear when we look at LLM translations

Is post-editing literary texts truly a 'time-sink' rather than a 'time-saver'?

Post-editing literary texts



DUAL-T project

MSCA-PF Paola Ruffo

GHENT UNIVERSITY

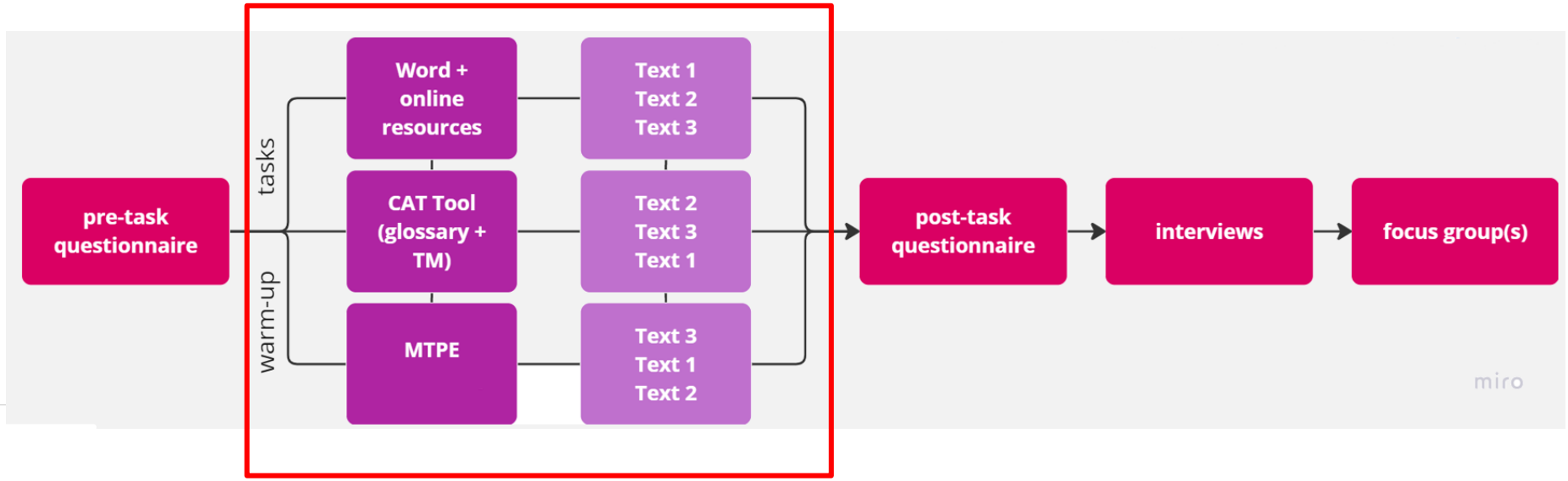
language and translation technology team

Methodology: data

23 professional literary translators, En-Nl

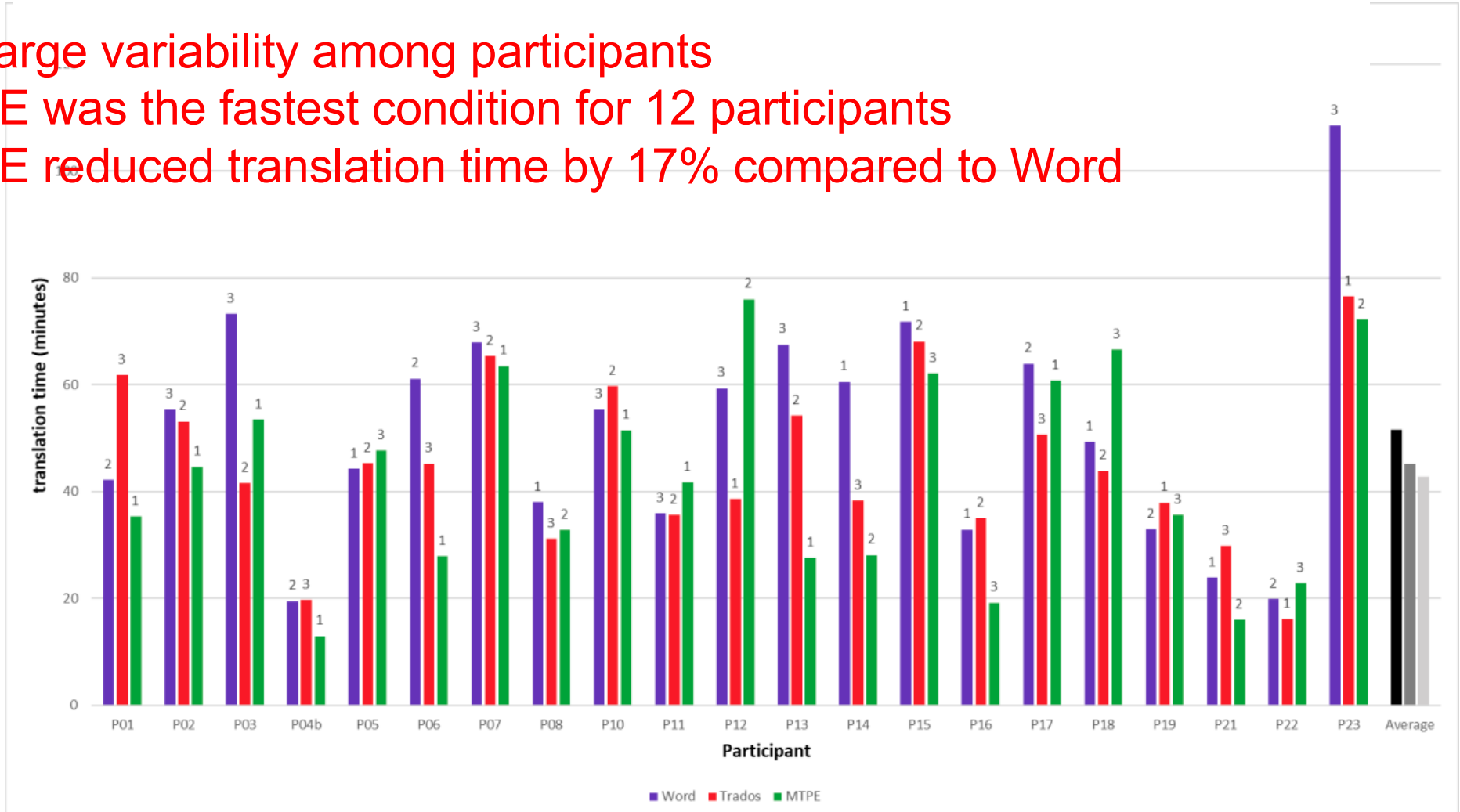
3 short stories (300-350 words) < ‘One More thing’ B.J. Novak

→ 7-8 versions per condition + published translation



Temporal effort

Large variability among participants
PE was the fastest condition for 12 participants
PE reduced translation time by 17% compared to Word



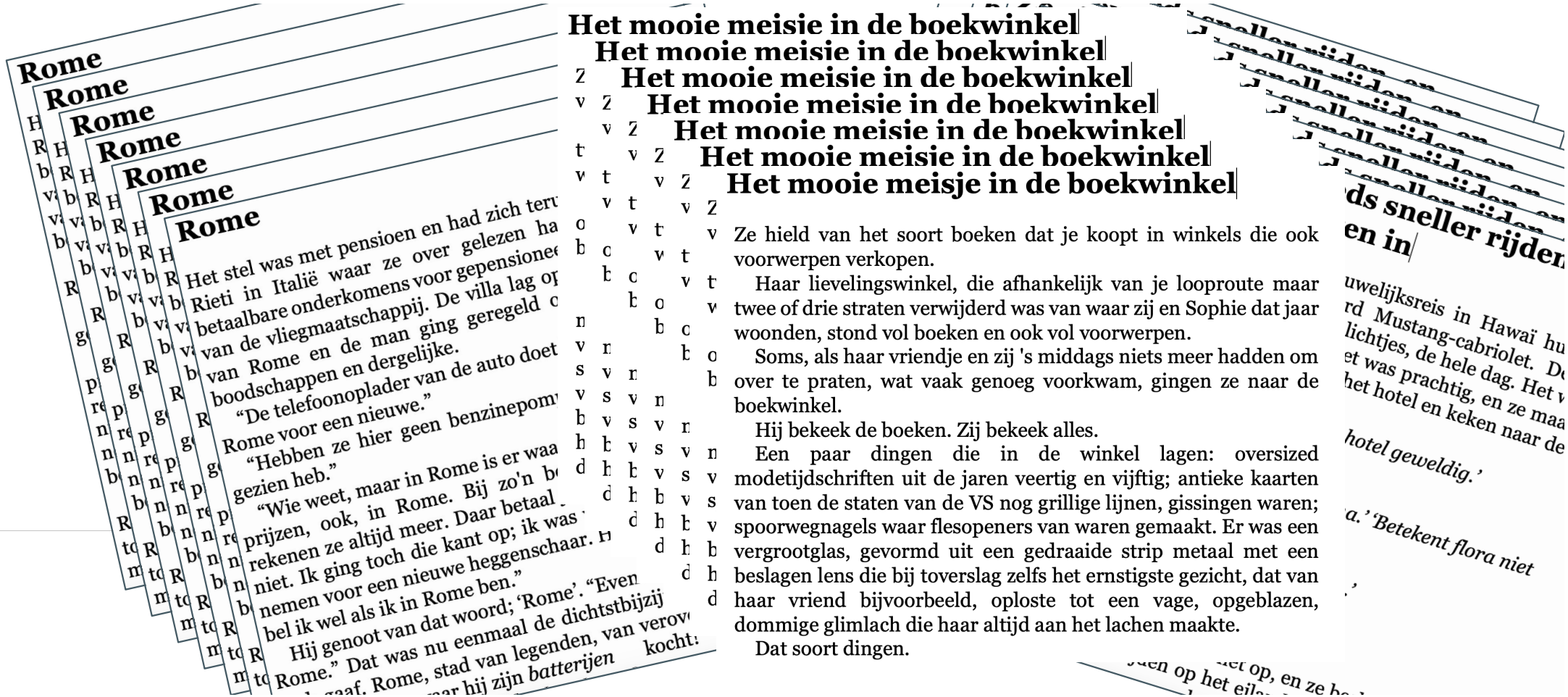
Temporal effort

“Due to the high variability of speed, number of keystrokes and pauses, the effects of each workflow on the literary translation process might be highly dependent on each ***translator's specific way of working****, as well as the type of* ***text*** *being translated”*

“saving time or effort might not be a priority for literary translators, who might deem it more important to retain control over their translation and workflow”

Ruffo, Daems, & Macken (2024). Measured and perceived effort : assessing three literary translation workflows. Tradumatica, (22), 238–257.

Data: 72 translated texts

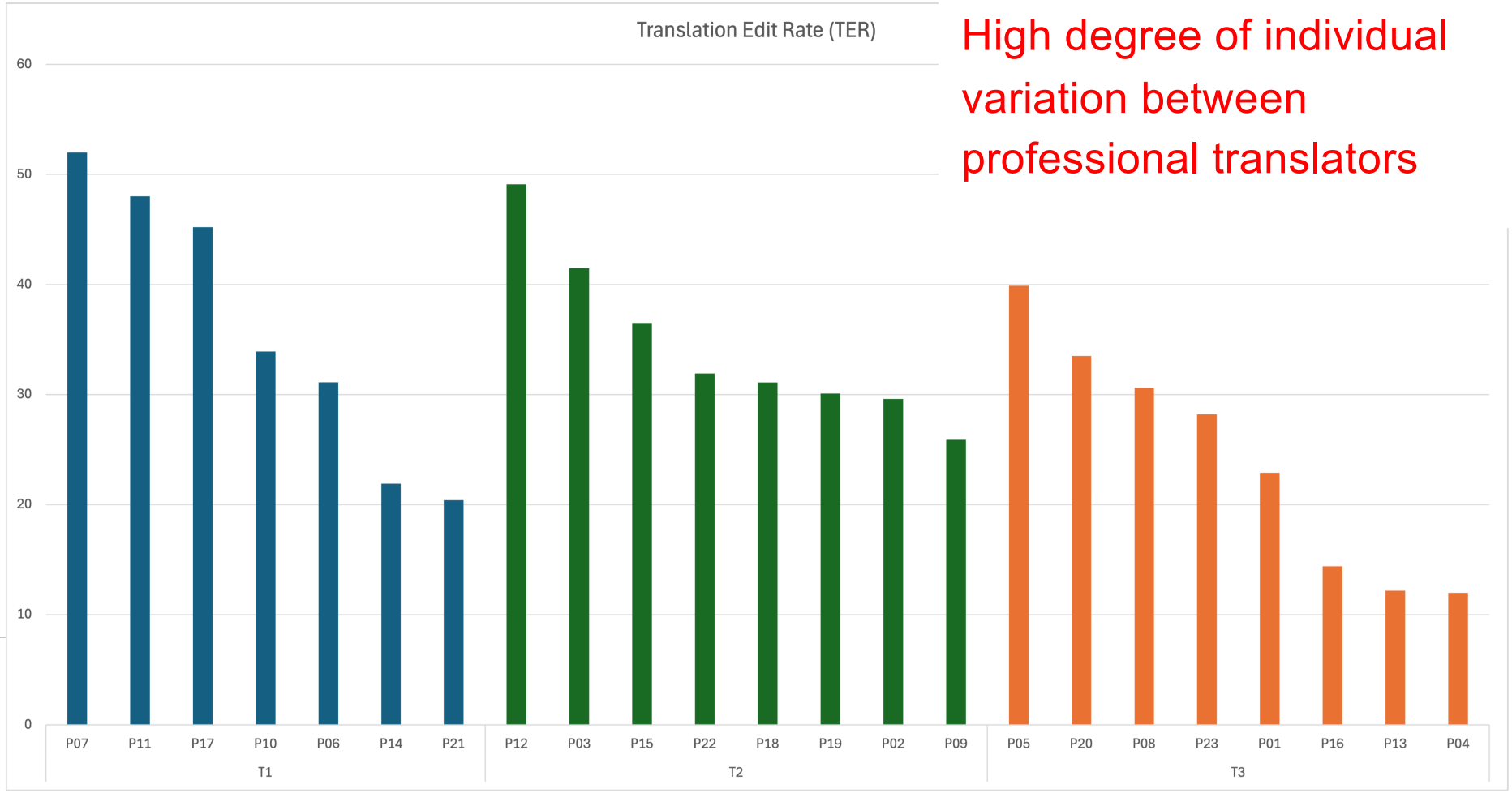


Does the process impact the product?

Do we observe differences between texts translated through different modalities?

Does the translation process (post-editing) reduce the role and influence of the individual translator? Or can individual translator styles and preferences still be observed even when using translation technology/tools?

Amount of post-editing



High degree of individual variation between professional translators

GHENT UNIVERSITY

Lexical diversity

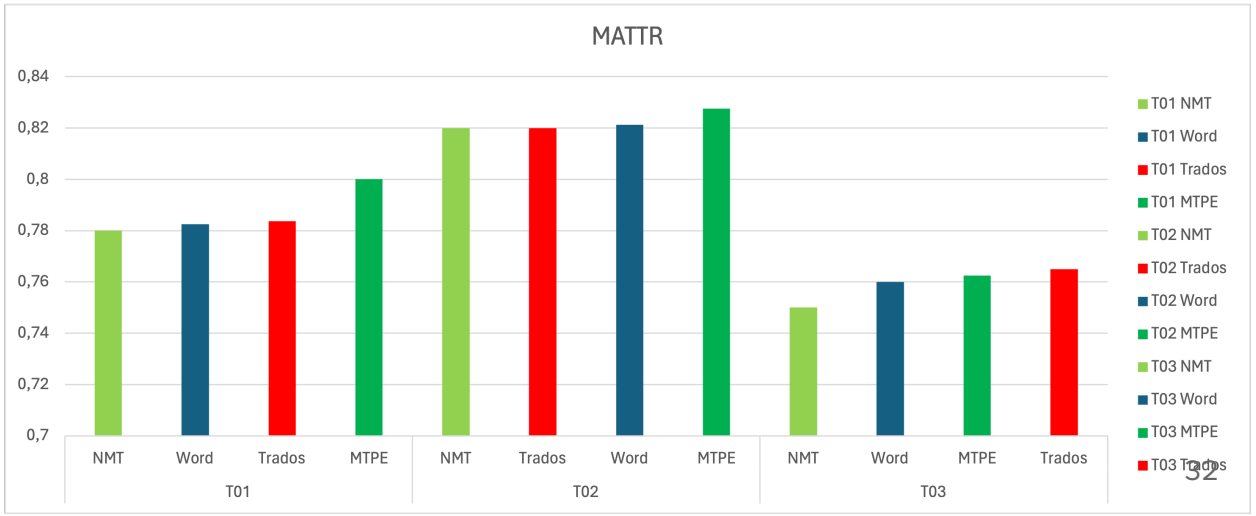
Method

- Moving average type-token ratio (50 words window)

Expectations

- MTPE less diverse

✗ → most diverse for 2/3 texts



GHENT UNIVERSITY

language and translation technology team

Stylometric differences

Method

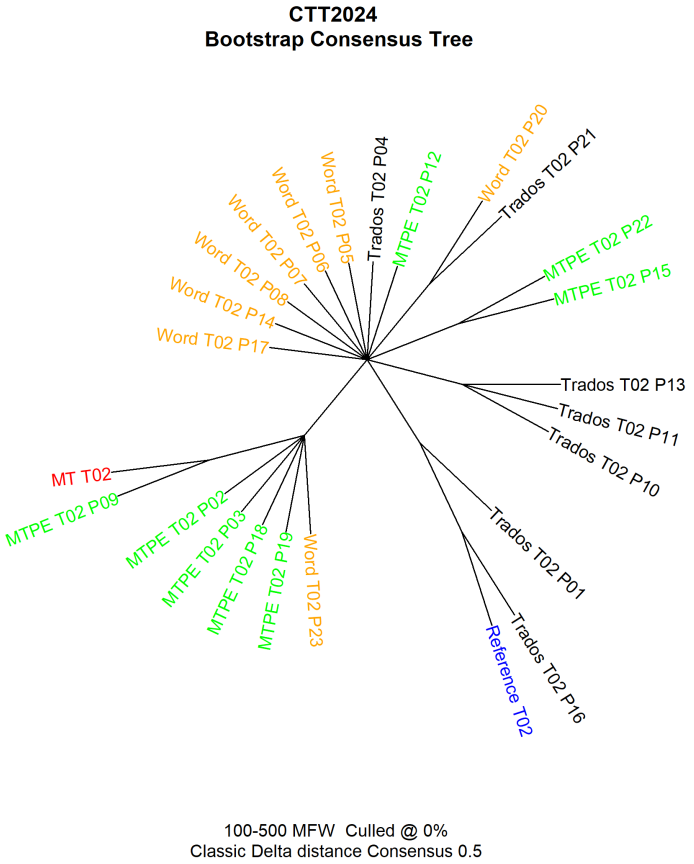
- Bootstrap consensus tree (Stylo package R)
- Burrows Delta distances
  - Normalized word frequences to measure distance between word use in a given text and a corpus
- Cluster analysis on 100, 200, 300, 400 and 500 most frequent words
- Consensus tree based on results of cluster analyses

GHENT UNIVERSITY

Stylometric differences

Expectations

- MTPE closer to original MT output ✓
- MTPE less diverse (more similar) ✓
- More variety between Word translations ✓



GHENT UNIVERSITY

Key takeaways

High degree of individual variation among literary translators

More research is needed on the interplay between individual translator preferences, source text characteristics and translation technology

We must be cautious when generalising findings based on individual translators or small text samples

Commercial fiction versus literary titles

Vertalers vertellen - Over het onderscheid tussen literair vertalen en boekvertalen

Geplaatst op: 16 juni 2020

Is het zinvol om onderscheid te maken tussen literair vertalen en boekvertalen? En zo ja, wat maakt een tekst literair en wat betekent dat voor het vertaalproces? Negen vertalers geven hun kijk op de kwestie.

v.l.n.r.v.b.n.o: Jan Willem Bos, Goedele De Sterck, Martin de Haan, Nicolette Hoekmeijer, Andrea Kluitmann, Lies Lavrijsen, Huub Stegeman, Luk Van Haute en Laura Watkinson.

"The characteristic of literary texts is that they use literary devices, figures of speech. This means that a translation must do justice not only to the content, but also to the style"

"No, that distinction does not seem meaningful to me. We could argue endlessly about what qualifies as literature. Is a literary thriller literature? Is Harry Potter literature? Some literary translations are easy to translate, while others (because of the realia, puns and slang) pose a major challenge."

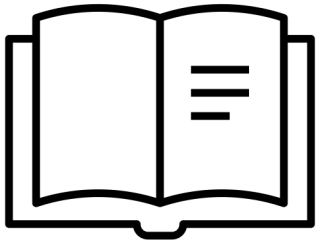
"Of course, everyone knows that [...] publishers deal with them differently."

Source: Expertisecentrum literair vertalen
https://literairvertalen.org/kennisbank/vertalers-vertellen-over-het-onderscheid-tussen-literair-vertalen-en-boekvertalen

Key questions

- What are translation difficulties in literary translation?
- How do translators solve translation problems? What techniques do they use?
- What is the impact of the use of translation technology?

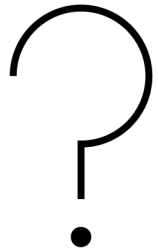
Literary translation



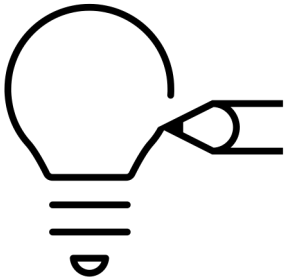
- Challenging
- Conveys more than meaning
- Involves different types of translation difficulties
- Often requires creative solutions

- Text-specific problems
- Culture-specific problems
- Language-pair specific challenges
- Change in communicative situation

Translation problems



Solutions

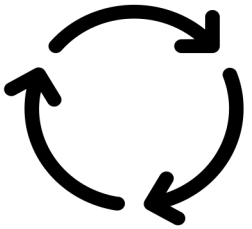


Zhai et al. (2018/2019)

- Categorisation scheme
- Non-literal techniques (particularization, generalization, modulation, …)

- **Human (conventional) translation**
- **CAT**
- **MTPE**

Translation workflows

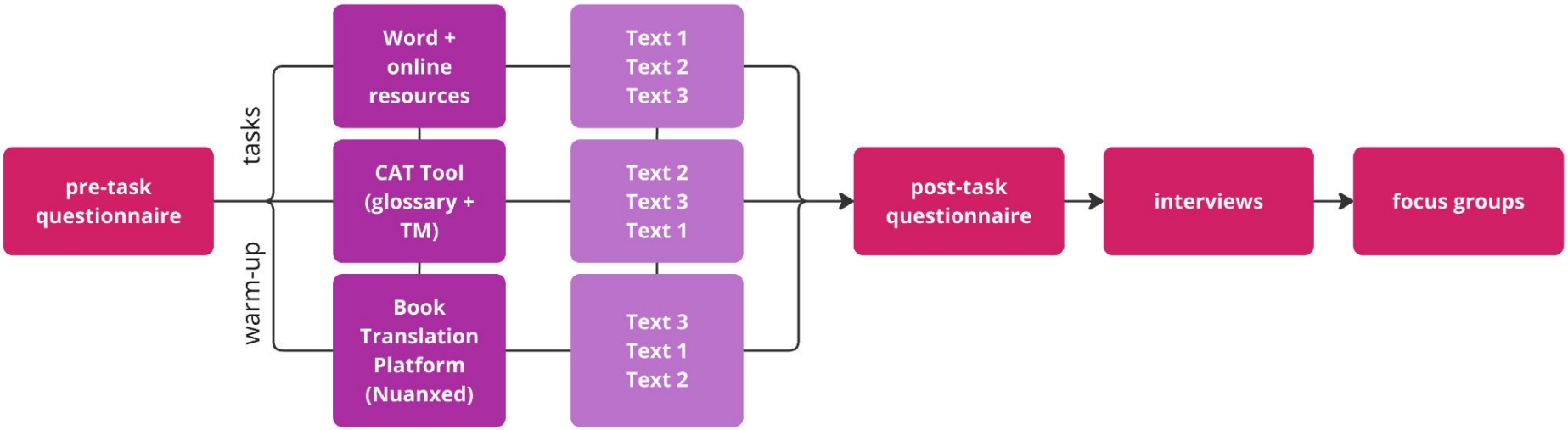


Research questions

- RQ1: What are the typical English-Dutch translation problems for which non-literal translation techniques are used?
- RQ2: How do the translation techniques used differ between different translation modalities?
- RQ3: How do the translation techniques used differ between NMT systems and those based on LLMs?

GHENT UNIVERSITY

DUAL-T data set



3 short stories (300-350 words) < ‘One More thing’ B.J. Novak

24 professional literary translators, En-Nl

7-8 versions per condition

Ruffo et al. 2024

DUAL-T data set

- Selected translations by 9 most experienced translators
- Made sure that each text has 3 versions per condition
- Added
  - Published Dutch translation
  - DeepL
  - GPT-4o
  - TowerInstruct 7B (Unbabel)
- 13 translations per short story

Potential translation difficulties

- Guerberof-Arenas & Toral (2020): units of creative potential
- Sun (2015): various types of multiword, complex noun phrases and syntactic structures

The couple retired to [MWE: verb-particle construction] a villa in Rieti , Italy , that they had learned about [complex syntactic stucture] from an in-flight magazine feature [complex noun phrase] on affordable retirement destinations [complex noun phrase] .

Potential translation difficulties

	T1	T2	T3	Total
Multiword	34	23	13	70
Compounds	7	5	1	13
Fixed expr.	12	6	4	22
Idiomatic expr.	1	2	0	3
Light-verb constr.	1	0	2	3
Verb-particle constr.	13	10	6	29
Complex structure	20	12	12	44
Noun phrase	4	3	4	11
Syntactic structure	16	9	8	33
Cultural & linguistic variant	0	3	0	3
Cultural references	0	1	0	1
Linguistic variant	0	2	0	2
Colloquial language	4	2	7	13
Metaphor & original image	0	2	5	7
Total	**58**	**42**	**37**	**137**

Translation solutions/techniques

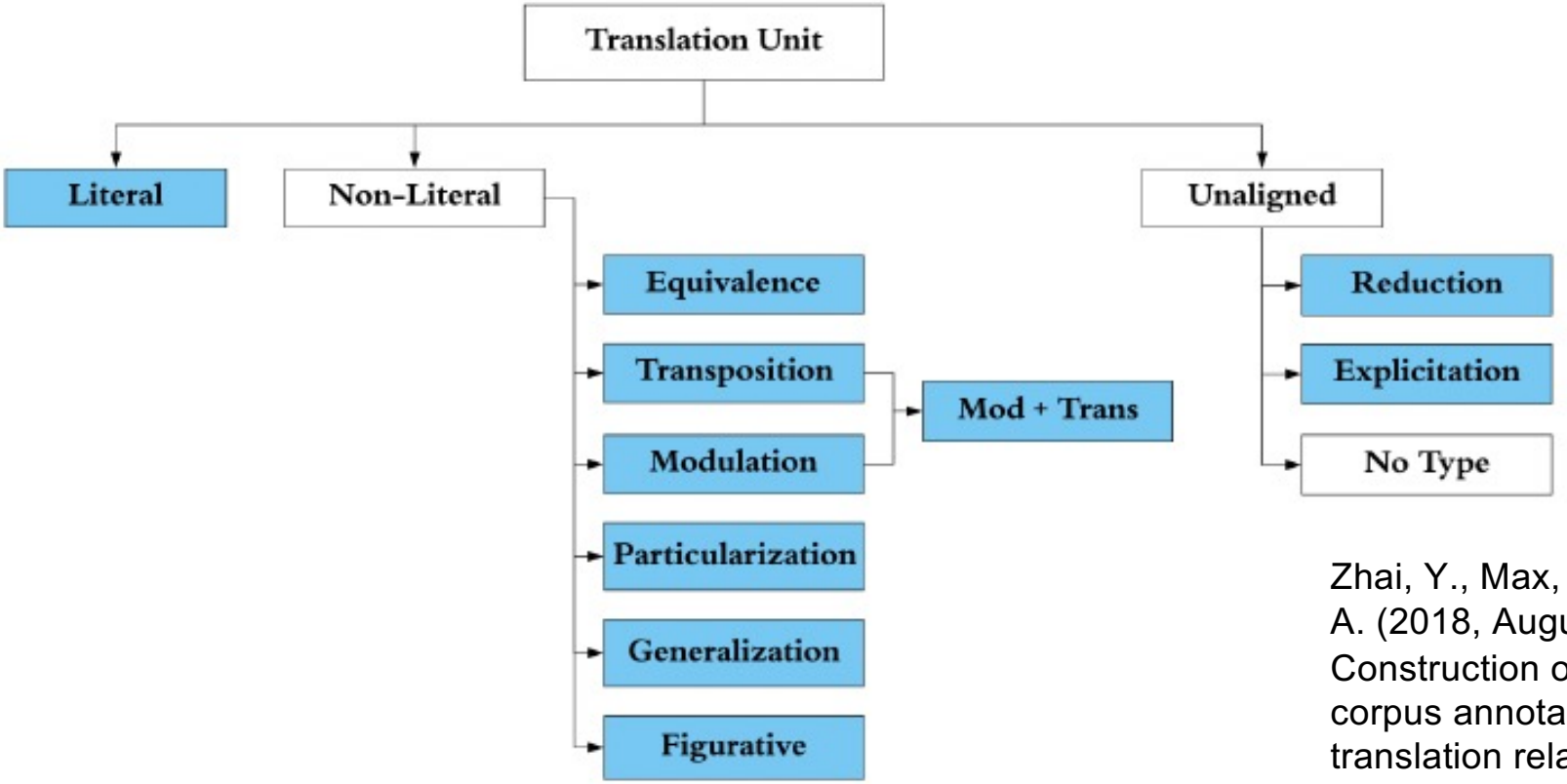
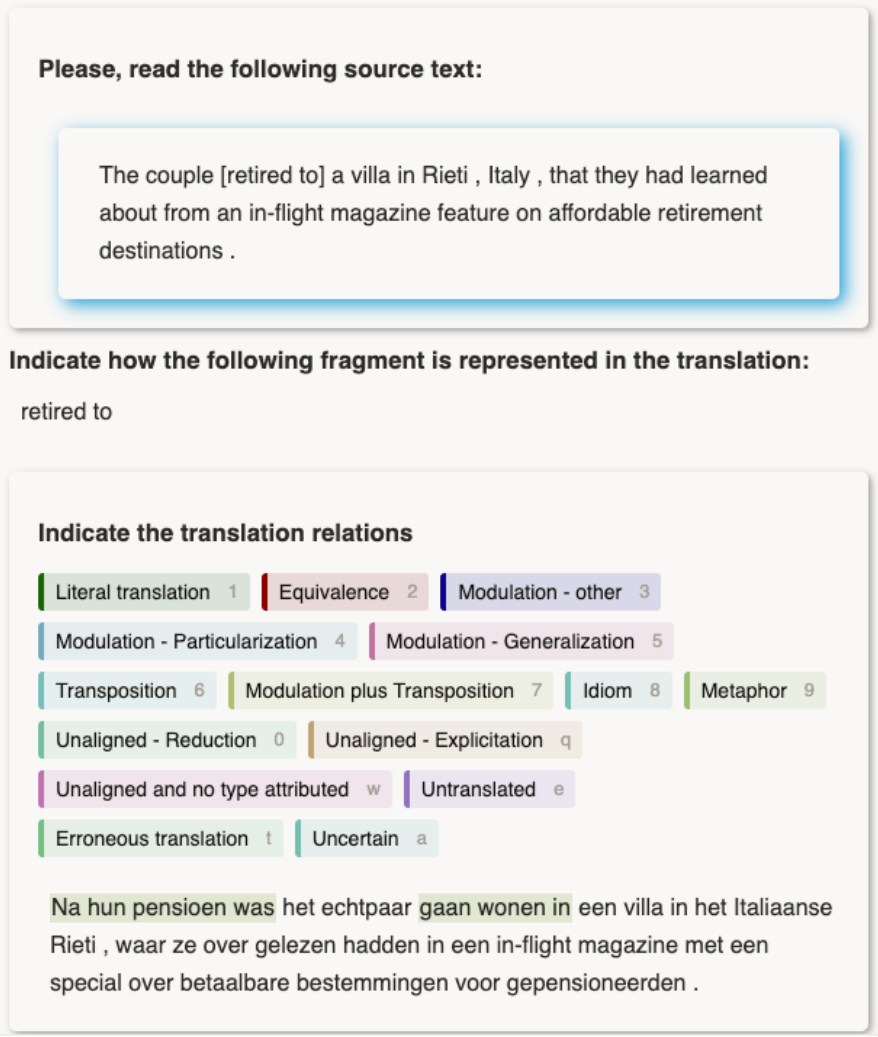


Figure 1: Typology of translation techniques

Zhai, Y., Max, A., & Vilnat, A. (2018, August). Construction of a multilingual corpus annotated with translation relations. In First Workshop on Linguistic Resources for Natural Language Processing (pp. 102-111).

Translation techniques



- Student with degree in languages and literature and Master's in translation
- Labeled 2225 translation techniques for translation difficulties identified in first step
- Difficult cases were discussed with one of the authors

GHENT UNIVERSITY

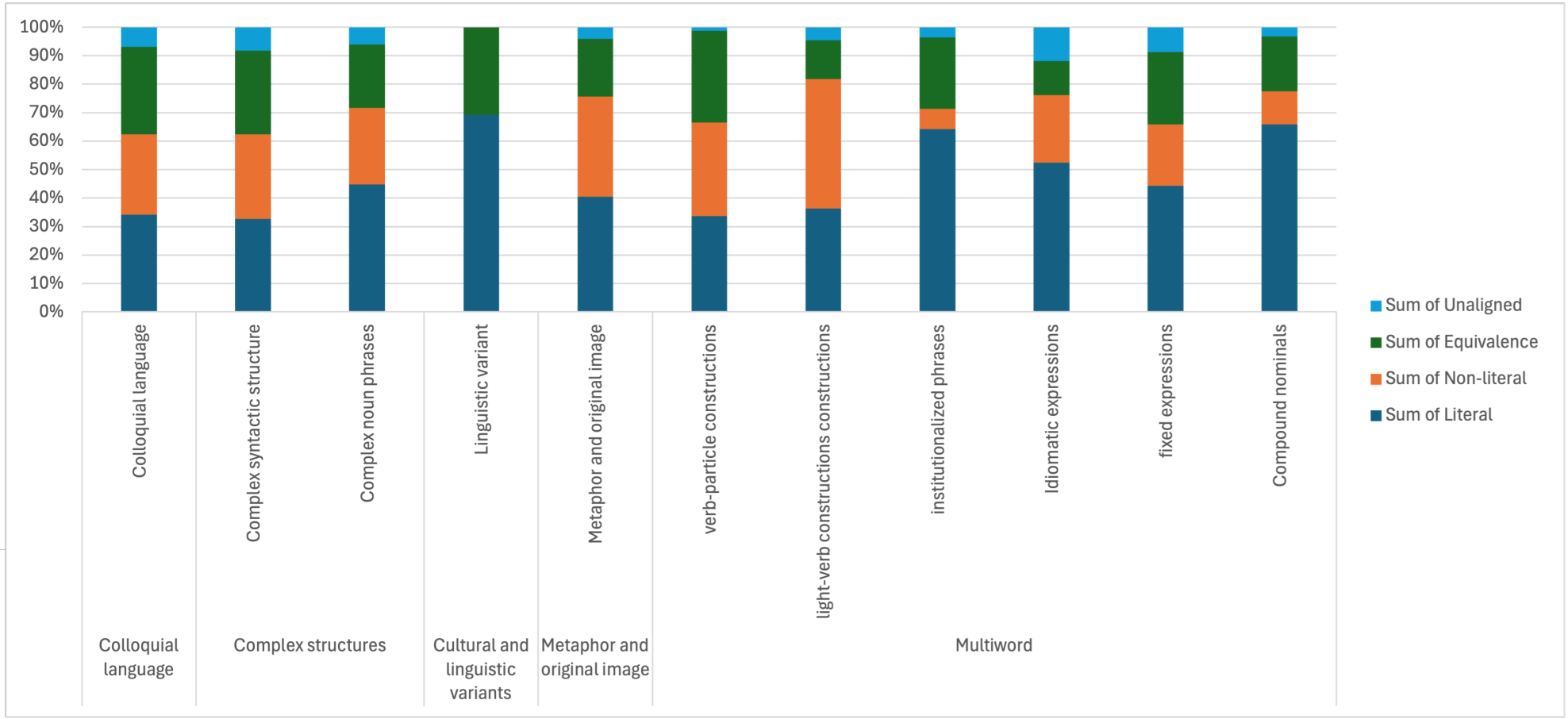
Translation techniques

The couple retired to[MWE: verb-particle construction] a villa in Rieti , Italy , that they had learned about from an in-flight magazine feature on affordable retirement destinations.

- Na hun pensioen was het echtpaar gaan wonen in een villa in het Italiaanse Rieti
  [After their retirement, the couple had moved]
  → Modulation + Transposition

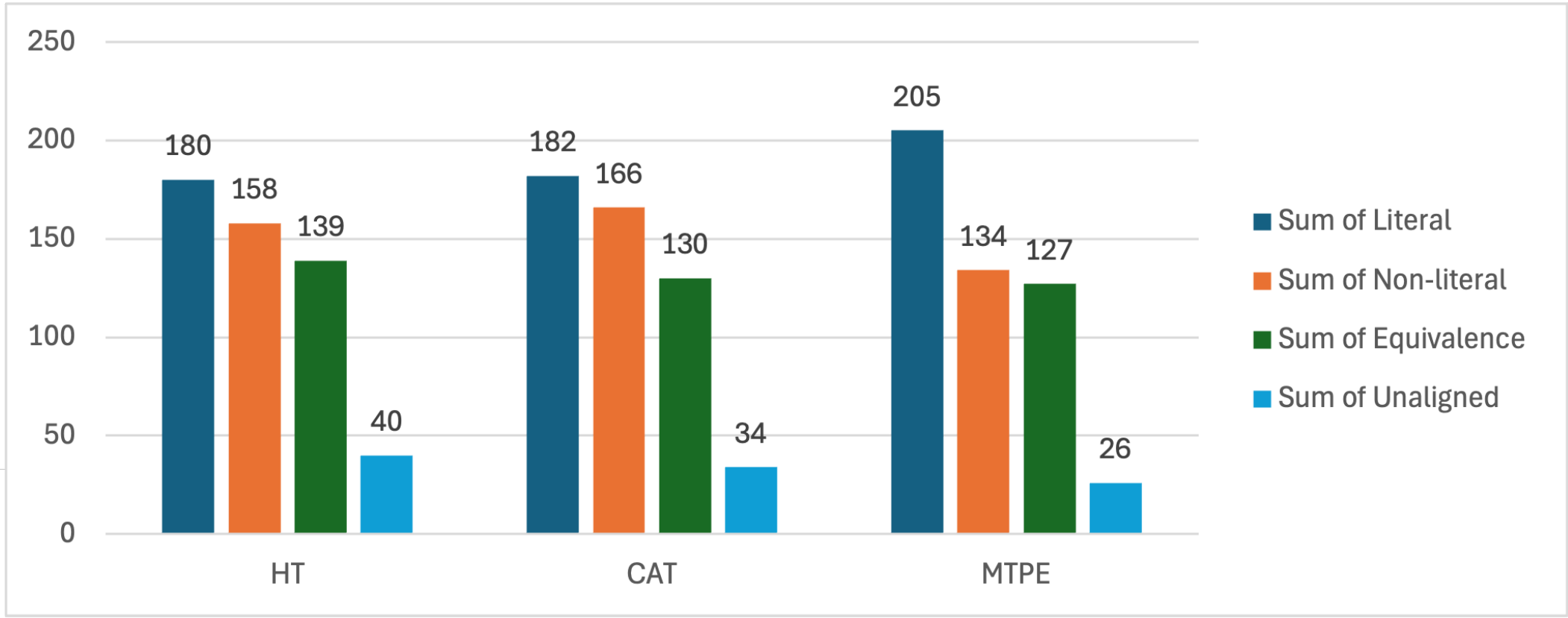
- Het echtpaar trok zich terug in een villa in Rieti
  [The couple retreated to a villa in Rieti]
  → Generalization

RQ1: typical En-NI problems for which non-literal techniques are used?



GHENT UNIVERSITY

RQ2: how do translation techniques differ between translation modalities?



RQ2: how do translation techniques differ between translation modalities?

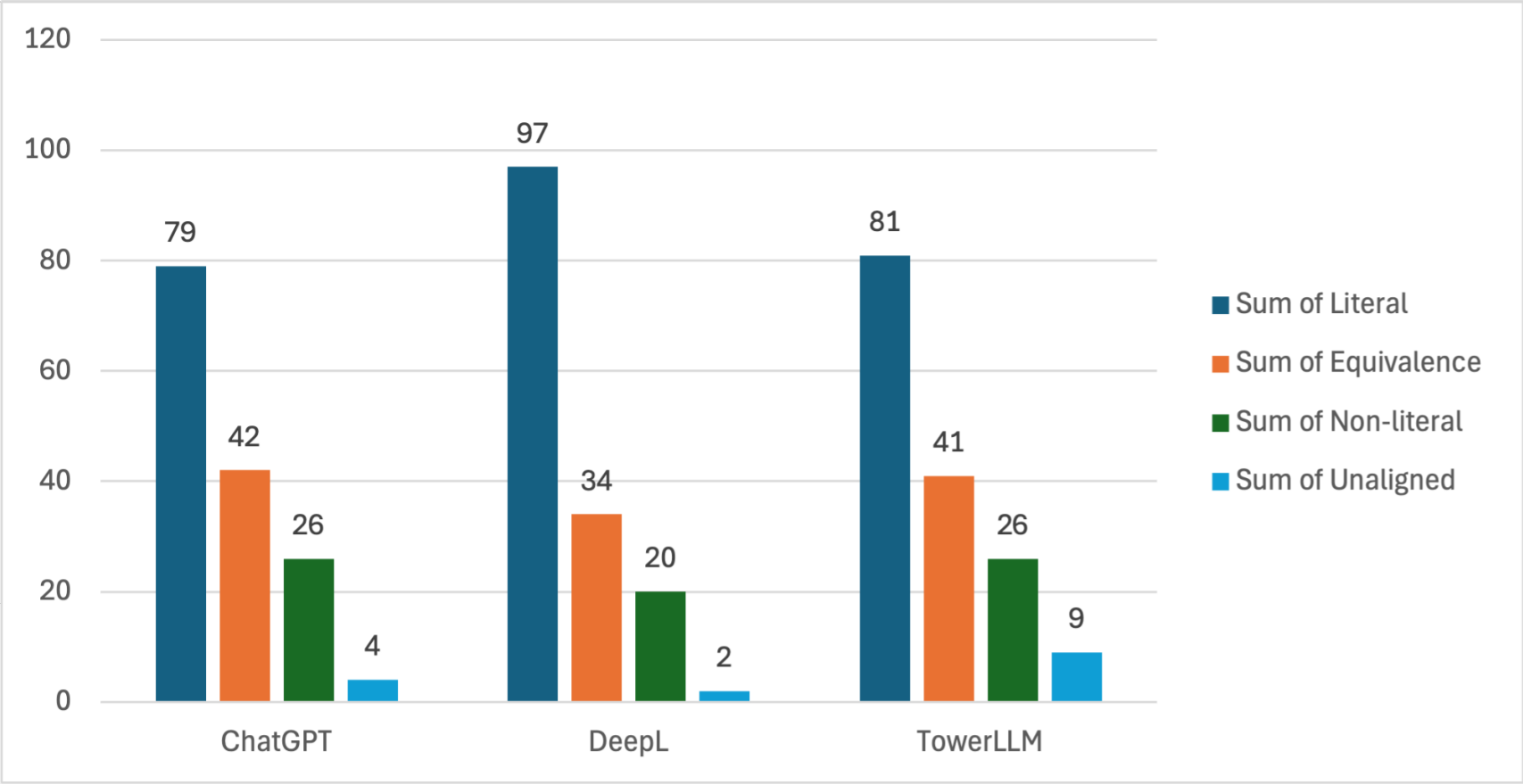
EN	She loved the kind of books you could buy in stores **that also sold things**.
MT	Ze hield van het soort boeken dat je kon kopen in winkels **die ook dingen verkochten**.
MTPE	Ze was dol op de boeken die je kon krijgen in van die winkels **die ook spullen verkochten**.
HT	Ze hield van het soort boeken dat je kon kopen in winkels **waar ook andere spullen werden verkocht**.

GHENT UNIVERSITY

RQ2: how do translation techniques differ between translation modalities?

EN	It was about fifty minutes outside of Rome by car . . .
MT	Het was ongeveer vijftig minuten buiten Rome met de auto . . .
MTPE	Het lag op zo'n vijftig minuten rijden van Rome . . .
HT	**Vanuit Rieti** was het ongeveer vijftig minuten rijden naar Rome . . .

RQ3: how do translation techniques differ between MT systems?



GHENT UNIVERSITY

Wrap-up

MT generates more literal translation techniques than HT/CAT
~ Webster et al. (2020), Vanmassenhove et al. (2021)

PE reduces slightly the number of literal translation solutions, but degree of literal translation techniques is higher in MTPE condition
~ Castilho & Resende (2022) and Kolb (2024)

Wrap-up

LLMs employ less literal translation techniques

→ Post-editing LMM output might lead to a reduction of literal translation techniques

But…

… considerable variation between participants and texts: HT only

GHENT UNIVERSITY

Conclusion

Conclusion

Does AI actually 'standardise' and impoverish our language?

- Yes, for NMT
- Less clear for LLMs, although LLMs have more literal, low-creativity solutions
- Depending on source text characteristics

Conclusion

Is post-editing literary texts truly a 'time-sink' rather than a 'time-saver'? → high variability across translators

How can we foster a creative collaboration between humans and computers in the field of literary translation?

Conclusion

Is the distinction between 'commercial' and 'literary' fiction a real linguistic boundary, or just a convenient excuse?

Need automatic methods that can identify translation challenges in source texts

More work needs to be done in more languages, more genres !

lt3.ugent.be

Lieve.Macken@ugent.be

Associate Professor Translation Technology

References

- Sheila Castilho and Natália Resende. 2022. Post-editese in literary translations. Information, 13(2):66.
- Ana Guerberof-Arenas and Antonio Toral. 2020. The impact of post-editing and machine translation on creativity and reading experience. Translation Spaces, 9(2):255–282.
- Waltraud Kolb. 2024. “Quite puzzling when I first read it”: Is reading for literary translation different from reading for post-editing? Palimpsestes. Revue de traduction, (38).
- Delu Kong and Lieve Macken (2025) Can Peter Pan Survive MT? A Stylometric Study of LLMs, NMTs, and HTs in Children’s Literature Translation. In Proceedings of the 2nd Workshop on Creative-text text Translation and Technology, Geneva, Switzerland
- Paola Ruffo, Joke Daems, and Lieve Macken. 2024. Measured and perceived effort : assessing three literary translation workflows. Revista Tradumàtica.
- Arda Tezcan, Joke Daems and Lieve Macken (2019). When a ‘sport’ is a person and other issues for NMT of novels. In Proceedings of the Qualities of Literary Machine Translation (pp. 40–49). Dublin, Ireland
- Sanjun Sun. 2015. Measuring translation difficulty: Theoretical and methodological considerations. Across Languages and Cultures, 16(1):29 – 54.
- Eva Vanmassenhove, Dimitar Shterionov, and Andy Way. 2019. Lost in Translation: Loss and Decay of Linguistic Richness in Machine Translation. In Proceedings of Machine Translation Summit XVII
- Eva Vanmassenhove, Dimitar Shterionov, and Matthew Gwilliam. 2021. Machine translationese: Effects of algorithmic bias on linguistic complexity in machine translation. EACL
- Jean-Paul Vinay and Jean Darbelnet. 1958. Stylistique comparée du français et de l’anglais: méthode de traduction. Didier, Paris.
- Rebecca Webster, Margot Fonteyne, Arda Tezcan, Lieve Macken, and Joke Daems. 2020. Gutenberg goes neural: Comparing features of Dutch human translations with raw neural machine translation outputs in a corpus of English literary classics. In Informatics, volume 7, page 32. MDPI.