THE ROLE OF GRAMMATICAL COMPETENCE IN POST-EDITING SPECIALIZED MACHINE TRANSLATION

Olena Ponomarenko
Ph.D., Associate Professor,
Kremenchuk Mykhailo Ostrohradskyi National University, Ukraine
e-mail: elena14.ponomarenko@gmail.com, orcid.org/0000-0003-1661-2151

Yuliia Artemenko
Ph.D., Associate Professor,
Kremenchuk Mykhailo Ostrohradskyi National University, Ukraine
e-mail: yulia.artemenko@gmail.com, orcid.org/0000-0002-9134-9958

Summary

The increasing use of machine translation in professional settings has significantly transformed contemporary specialized translation practices. As a result, post-editing has emerged as a core translation activity that requires not only technological literacy but also advanced linguistic competence. This article investigates the role of grammatical competence in the post-editing of machine-translated specialized texts from a translation studies perspective.

The study aims to demonstrate that grammatical competence constitutes a central component of translator competence and plays a decisive role in ensuring grammatical accuracy, semantic adequacy, and functional coherence in post-edited translations. The research is based on qualitative analysis and draws on theoretical insights from translation studies and applied linguistics. The methodology encompasses descriptive analysis of relevant theoretical frameworks, comparative analysis of machine-translated and post-edited texts, and translation-oriented linguistic analysis, with a focus on grammar-related issues.

The findings indicate that machine translation systems frequently generate grammatically plausible but functionally inadequate structures, particularly in relation to tense-aspect forms, voice, modality, and syntactic cohesion. Effective post-editing, therefore, requires interpretative judgement grounded in grammatical competence rather than mechanical error correction. The study also highlights the implications of these findings for translator training, emphasising the need to integrate post-editing as a translation-oriented practice in educational programmes. Overall, the article confirms the continued relevance of human grammatical competence in ensuring translation quality in increasingly automated translation environments.

Key words: translator competence, post-editing practices, specialized discourse, translation quality, grammatical awareness, machine-assisted translation.

DOI https://doi.org/10.23856/7314

1. Introduction

The rapid advancement of machine translation technologies has substantially reshaped contemporary translation practice, particularly within the domain of specialized translation. In professional contexts involving technical, scientific, and institutional communication, machine translation is increasingly employed as a preliminary stage of the translation process.

While such technologies offer undeniable advantages in terms of speed and accessibility, the quality of machine-translated output remains inconsistent, especially with regard to grammatical accuracy and functional adequacy.

From the perspective of translation studies, the widespread use of machine translation has led to the conceptual re-evaluation of the translator's role. Translation is no longer viewed solely as a process of direct text production but increasingly as a form of human-machine interaction in which the translator assumes the role of a post-editor. Post-editing thus emerges as a distinct translation activity that requires analytical judgement, linguistic expertise, and familiarity with translation norms rather than mere mechanical correction of errors.

Specialized texts present particular challenges for machine translation systems due to their linguistic and structural complexity. Such texts are characterised by dense informational content, frequent nominalization, extensive use of passive constructions, modality, and complex syntactic patterns that serve specific communicative and functional purposes. Machine translation systems often struggle to process these features adequately, resulting in grammatical distortions that compromise semantic precision and disrupt textual cohesion. In specialized translation, even minor grammatical inaccuracies may lead to misinterpretation or loss of terminological and conceptual clarity.

Within this context, grammatical competence becomes a central factor in the post-editing process. Grammatical competence enables the translator to identify and evaluate machine-generated structures in relation to target-language norms, genre conventions, and communicative intent. It functions not only as a mechanism for correcting surface-level errors but also as a tool for restoring logical relations, temporal consistency, and syntactic coherence in the target text. Consequently, grammar plays a decisive role in ensuring the functional equivalence of post-edited translations.

Despite the growing scholarly interest in machine translation and post-editing, the role of grammatical competence in post-editing specialized texts has not received sufficient focused attention within translation studies. Existing research predominantly addresses issues of productivity, cognitive effort, or efficiency, while grammatical analysis is often treated implicitly or subordinated to broader discussions of quality assessment. This tendency creates a theoretical gap, particularly with regard to the systematic examination of grammar as a translation-oriented category in post-editing practice.

Addressing this gap, the present study explores the role of grammatical competence in the post-editing of specialized machine-translated texts. The analysis focuses on typical grammatical inaccuracies found in machine translation output and examines how grammatical competence enables translators to resolve these issues during post-editing. By foregrounding grammar as a core component of post-editing quality, the study contributes to a more nuanced understanding of human–machine interaction in contemporary specialized translation and highlights the continued relevance of linguistic expertise in an increasingly automated translation environment.

2. Machine Translation and Post-Editing

The increasing integration of machine translation into professional translation workflows has significantly influenced contemporary translation theory and practice. Within translation studies, machine translation is no longer viewed solely as an alternative to human translation but rather as a component of hybrid translation processes in which human expertise remains indispensable *(O'Hagan, 2016; Kenny, 2020)*. This shift has led to the

reconceptualisation of translation activity as a dynamic interaction between automated systems and human translators.

Machine translation systems generate target-language texts through algorithmic processing of large-scale linguistic data. Despite continuous technological improvements, such systems lack the ability to fully account for contextual meaning, communicative intent, and functional adequacy *(Pym, 2014)*. As a result, machine-translated output frequently demonstrates limitations in handling complex grammatical relations, pragmatic meanings, and discourse coherence, particularly in specialized texts where precision and consistency are critical.

In response to these limitations, post-editing has emerged as a central practice in contemporary translation. Within translation studies, post-editing is defined as the revision of machine-generated translations with the aim of producing a target text that meets professional quality standards *(Krings, 2001; TAUS, 2010)*. Unlike automatic correction or basic proofreading, post-editing requires translators to engage in analytical decision-making, assessing grammatical structures, semantic relations, and textual organisation in relation to both the source text and target-language norms.

Theoretical discussions of post-editing emphasise its dual nature as both a technical and cognitive activity *(O'Brien, 2012)*. On the one hand, post-editing involves interaction with automated translation output; on the other hand, it relies on the translator's interpretative competence, linguistic awareness, and strategic judgement. From a translation studies perspective, post-editing cannot be reduced to mechanical error correction, as it entails the application of translation strategies and the evaluation of equivalence *(Pym, 2010)*.

The distinction between light and full post-editing further illustrates the translation-oriented nature of this activity. Light post-editing focuses on achieving basic comprehensibility and usability, whereas full post-editing aims to reach a level of quality comparable to that of human translation *(TAUS, 2010; O'Brien, 2012)*. In both approaches, grammatical competence remains a decisive factor, as grammatical inaccuracies directly affect meaning construction, coherence, and textual acceptability. Consequently, the effectiveness of post-editing largely depends on the translator's ability to interpret and reconstruct grammatical relations rather than merely correct isolated surface-level errors.

Within the broader framework of translation studies, post-editing represents a redefinition of professional translation norms in an increasingly automated environment *(Kenny, 2020)*. While machine translation provides a preliminary linguistic draft, it is the human translator who ensures that the final text conforms to grammatical, semantic, and functional requirements of specialized discourse. This perspective underscores the continued centrality of human linguistic competence in translation and challenges assumptions that technological advancement diminishes the role of the translator.

3. Grammatical Competence in Translation

Within translation studies, grammatical competence is not treated as an isolated linguistic skill but as an integral component of overall translator competence. It enables translators to accurately interpret source-text structures and produce target texts that conform to grammatical norms, genre conventions, and communicative purposes. From a translation-oriented perspective, grammar functions as a mechanism through which meaning is structured, relations between textual elements are established, and functional adequacy is achieved.

Models of translator competence emphasise the central role of linguistic competence, within which grammatical competence occupies a key position. Research conducted by the

PACTE group conceptualises translation competence as a dynamic system comprising several interrelated sub-competences, including bilingual, extra-linguistic, strategic, and instrumental components *(Hurtado Albir, 2017).* Within this framework, grammatical competence supports both comprehension and reformulation processes, underpinning the translator's ability to make informed translation decisions.

Grammatical competence in translation extends beyond knowledge of formal grammatical rules. It involves the ability to recognise how grammatical structures contribute to meaning construction in specific communicative contexts. As Baker points out, grammatical choices in translation directly influence the representation of time, agency, modality, and logical relations *(Baker, 2018).* Consequently, grammatical competence is closely linked to semantic interpretation and cannot be separated from issues of equivalence and meaning transfer.

From a functionalist perspective, grammatical choices must be evaluated in relation to the intended function of the target text. Nord's functional approach highlights that translation decisions, including grammatical ones, are guided by the communicative purpose of the translation rather than by formal correspondence alone *(Nord, 2018).* In this sense, grammatical competence enables translators to adapt grammatical structures in a way that ensures functional adequacy while maintaining coherence and acceptability within the target language system.

The relevance of grammatical competence becomes particularly evident in the translation of specialized texts. Such texts are characterised by complex grammatical features, including extensive nominalisation, passive constructions, modality expressing obligation or probability, and syntactically dense structures. These features serve specific discourse functions, such as objectivity, precision, and depersonalisation, which must be preserved in translation. Failure to adequately interpret and reconstruct these grammatical patterns may result in distortions of meaning or violations of genre conventions *(House, 2015).*

In the context of machine translation and post-editing, grammatical competence acquires additional significance. Machine translation systems frequently generate grammatically plausible but functionally inappropriate structures that do not align with target-language norms or specialized discourse conventions. As a result, post-editors must rely on grammatical competence to assess the adequacy of machine-generated structures and to reconstruct grammatical relations in accordance with translation norms and communicative intent *(Kenny, 2020).*

Thus, grammatical competence should be viewed as a translation-oriented category that supports analytical judgement, strategic decision-making, and quality assurance in both human translation and post-editing. Rather than being a secondary or mechanical aspect of translation, grammar constitutes a core element of professional translation competence and plays a decisive role in ensuring the grammatical, semantic, and functional integrity of translated specialized texts.

4. Grammatical Errors in Machine-Translated Specialized Texts

Machine-translated specialized texts frequently exhibit grammatical inaccuracies that affect both meaning construction and textual acceptability. Although contemporary machine translation systems are capable of producing grammatically well-formed sentences at a surface level, they often fail to ensure consistency and functional adequacy at the level of specialized discourse. These shortcomings become particularly visible in texts that require precise grammatical encoding of logical relations, agency, modality, and temporal structure.

One of the most recurrent issues in machine-translated specialized texts concerns the inappropriate handling of verb forms and temporal relations. Machine translation systems may

generate grammatically acceptable verb forms that nevertheless distort the intended temporal or aspectual meaning of the source text. Such inaccuracies can lead to ambiguity or misrepresentation of procedural sequences, causal relations, or conditions that are critical in technical and scientific communication *(Krings, 2001).*

Another common category of grammatical errors involves the rendering of passive constructions. Specialized texts frequently employ passive voice to achieve objectivity and depersonalisation; however, machine translation systems often produce target-language structures that either overuse passive forms or replace them with syntactically awkward active constructions. These shifts may disrupt the informational focus of the text and alter the distribution of thematic roles, thereby affecting the communicative function of the translation *(House, 2015).*

Modality represents a further area of difficulty in machine-translated specialized texts. Expressions of obligation, necessity, possibility, or probability are central to regulatory, technical, and scientific discourse. Machine translation systems tend to inadequately differentiate between modal meanings or to select modal verbs that do not correspond to the pragmatic force of the source text. As a result, the translated text may convey unintended degrees of obligation or uncertainty, which can have significant consequences for interpretation *(Daems et al., 2017).*

Syntactic cohesion and the representation of logical relations also pose challenges for machine translation. Complex sentence structures typical of specialized discourse, such as extended noun phrases and multi-clause constructions, are often fragmented or restructured in ways that weaken coherence. While individual sentences may appear grammatically correct, the overall syntactic organisation of the text may fail to reflect the logical progression of ideas present in the source text *(O'Brien, 2012).*

From a translation studies perspective, these grammatical errors cannot be regarded as isolated surface-level issues. Rather, they reflect systemic limitations of machine translation systems in processing discourse-level grammar and functionally motivated structures. Comparative analyses of human translation and post-edited machine translation demonstrate that effective correction of such errors requires interpretative judgement and translation-oriented grammatical competence *(Daems et al., 2017; Kenny, 2020).*

In sum, grammatical errors in machine-translated specialized texts reveal the inherent gap between computational processing and functional language use. While machine translation provides a preliminary linguistic framework, it is unable to fully account for the grammatical complexity of specialized discourse. Identifying and addressing these errors during post-editing thus presupposes a high level of grammatical competence, which enables translators to reconstruct grammatical relations in line with target-language norms and communicative purposes.

5. Grammatical Competence in Post-Editing

Post-editing of machine-translated specialized texts requires a high level of grammatical competence that extends beyond the correction of isolated linguistic errors. From a translation studies perspective, post-editing represents an interpretative activity in which grammatical competence functions as a core mechanism for evaluating, reconstructing, and validating machine-generated structures in relation to meaning, function, and target-language norms.

Grammatical competence enables post-editors to identify discrepancies between grammatically plausible machine output and functionally appropriate target-language structures. Machine translation systems often generate sentences that appear grammatically correct at a surface level but fail to reflect the logical relations, information structure, or discourse conventions of specialized texts. In such cases, grammatical competence enables the translator to

determine whether grammatical forms effectively convey agency, temporality, and modality in alignment with the communicative intent of the source text *(Krings, 2001; Baker, 2018).*

In post-editing, grammatical decision-making is closely linked to the concept of translation quality. Post-editors must determine not only whether a grammatical structure is formally acceptable but also whether it contributes to semantic clarity and functional adequacy. As House argues, grammatical accuracy in translation cannot be separated from considerations of pragmatic appropriateness and discourse coherence *(House, 2015).* Consequently, grammatical competence operates as a quality-control mechanism that guides post-editing decisions at both sentence and text levels.

The distinction between light and full post-editing further highlights the role of grammatical competence. While light post-editing may tolerate minor grammatical inconsistencies provided that the text remains comprehensible, full post-editing requires systematic grammatical revision to ensure conformity with professional translation standards *(TAUS, 2010; O'Brien, 2012).* In both scenarios, the translator's ability to interpret and restructure grammatical relations remains essential, particularly in specialized texts where grammatical precision is closely tied to meaning.

Grammatical competence also supports strategic decision-making during post-editing. Post-editors must continuously decide whether to retain, modify, or completely reformulate machine-generated structures. These decisions are informed by an understanding of grammatical patterns typical of specialized discourse and by the ability to anticipate the effects of grammatical choices on textual cohesion and reader interpretation *(Nord, 2018; Kenny, 2020).* As such, grammatical competence functions as a strategic resource rather than a mechanical skill.

Ultimately, the effectiveness of post-editing depends on the translator's capacity to integrate grammatical knowledge with translation-oriented judgement. While machine translation systems provide a preliminary linguistic framework, it is the human post-editor who ensures that grammatical structures align with communicative purpose, genre conventions, and professional norms. This confirms the central role of grammatical competence in post-editing and reinforces the view that human linguistic expertise remains indispensable in specialized translation workflows.

6. Educational Implications for Translator Training

The increasing integration of machine translation and post-editing into professional translation workflows necessitates a reconsideration of translator training within translation studies. As post-editing becomes a routine component of specialised translation practice, translator education must address not only technological literacy but also the linguistic competencies required to critically evaluate and improve machine-generated output. Among these competences, grammatical competence plays a central and non-substitutable role.

From a translation-oriented perspective, training in post-editing should not be limited to familiarisation with machine translation tools or productivity metrics. Instead, it should emphasise the development of analytical skills that enable future translators to assess grammatical structures in relation to meaning, function, and genre conventions. Research on translation competence highlights that linguistic and grammatical knowledge supports both comprehension and reformulation processes, remaining fundamental even in technology-mediated translation environments *(Hurtado Albir, 2017).*

Grammar instruction in translator training programmes, therefore, requires a shift from rule-based description towards a functional and translation-oriented approach. Rather than

treating grammar as an abstract system, educational practice should focus on how grammatical choices shape meaning, agency, modality, and coherence in specialized discourse. Such an approach aligns with functionalist views of translation, which stress that linguistic decisions are guided by communicative purpose and target-text norms *(Nord, 2018).*

The use of machine translation in educational settings can further enhance grammatical awareness when integrated critically into the curriculum. By comparing machine-translated output with post-edited versions, students can identify recurring grammatical inadequacies and reflect on the strategies required to resolve them. This practice promotes translation-oriented grammatical competence and encourages students to view post-editing as an interpretative activity rather than a mechanical task *(Bowker & Ciro, 2019).*

Moreover, exposure to post-editing tasks contributes to the development of quality awareness in translation training. As discussions of translation quality demonstrate, grammatical accuracy cannot be isolated from considerations of semantic adequacy and discourse coherence *(House, 2015).* Training that foregrounds grammatical competence in post-editing helps future translators internalise professional quality standards and understand the limits of automated translation solutions.

Incorporating post-editing into translator education also prepares students for the realities of contemporary translation markets. Studies on the future of the translation profession indicate that translators are increasingly expected to work in hybrid environments where human expertise complements automated systems *(Kenny, 2020).* Developing grammatical competence as a core component of post-editing competence thus equips graduates with skills that remain relevant and transferable across evolving translation workflows.

In sum, translator training programmes should integrate post-editing not as a purely technical skill but as a translation-oriented practice grounded in grammatical competence. Such integration reinforces the role of grammar as a central element of translator competence and ensures that future translators are capable of maintaining quality, accuracy, and functional adequacy in specialized translation in an increasingly automated context.

7. Conclusions

The present study has examined the role of grammatical competence in the post-editing of specialized machine-translated texts from a translation studies perspective. The analysis has demonstrated that grammatical competence constitutes a central component of professional translation competence, playing a decisive role in ensuring grammatical accuracy, semantic adequacy, and functional coherence in post-edited translations.

The findings indicate that machine translation systems, despite ongoing technological advances, remain limited in their ability to process complex grammatical structures typical of specialized discourse. Grammatical inaccuracies related to verb forms, voice, modality, and syntactic cohesion persist in machine-generated output, frequently affecting meaning construction and communicative clarity. These limitations confirm that post-editing cannot be reduced to mechanical correction but requires interpretative judgement grounded in translation-oriented grammatical competence.

The study has further shown that grammatical competence enables translators to critically evaluate machine-generated structures and to reconstruct grammatical relations in accordance with target-language norms and discourse conventions. In post-editing, grammar serves not merely as a formal corrective tool, but also as a mechanism for restoring logical relations, ensuring coherence, and achieving functional equivalence between source and target texts.

From an educational perspective, the findings highlight the importance of integrating post-editing into translator training as a translation-oriented practice, rather than a purely technical skill. Developing grammatical competence within the framework of post-editing enhances quality awareness and prepares future translators to operate effectively in hybrid translation environments where human expertise complements automated systems.

Overall, the study confirms that grammatical competence remains indispensable in specialized translation workflows and that human linguistic expertise continues to play a central role in post-editing machine-translated texts. Future research may further explore the interaction between grammatical competence and other components of translator competence, as well as investigate the impact of post-editing strategies on translation quality across different types of specialized discourse.

References

1. Baker, M. (2018). In other words: A coursebook on translation (3rd ed.). Routledge. https://doi.org/10.4324/9781315619187

2. Bowker, L., & Ciro, J. B. (2019). Machine translation and global research: Towards improved machine translation literacy in the scholarly community. Emerald Publishing. https://doi.org/10.1108/9781787560896

3. Daems, J., Vandepitte, S., Hartsuiker, R. J., & Macken, L. (2017). Translation methods and experience: A comparative analysis of human translation and post-editing of machine translation. Meta, 62(2), 245–270. https://doi.org/10.7202/1041025ar

4. House, J. (2015). Translation quality assessment: Past and present. Routledge. https://doi.org/10.4324/9781315759678

5. Hurtado Albir, A. (2017). Researching translation competence by PACTE group. Translation, Cognition & Behavior, 1(1), 31–52. https://doi.org/10.1075/tcb.00002.hur

6. Kenny, D. (2020). Machine translation, post-editing and the future of the translator. Perspectives: Studies in Translation Theory and Practice, 28(4), 497–503. https://doi.org/10.1080/0907676X.2020.1762987

7. Krings, H. P. (2001). Repairing texts: Empirical investigations of machine translation post-editing processes. Kent State University Press.

8. Nord, C. (2018). Translating as a purposeful activity: Functionalist approaches explained (2nd ed.). Routledge. https://doi.org/10.4324/9781315619309

9. O'Brien, S. (2012). Post-editing of machine translation: Processes and applications. In C. Millán & F. Bartrina (Eds.), The Routledge handbook of translation studies (pp. 451–465). Routledge. https://doi.org/10.4324/9780203102893

10. O'Hagan, M. (2016). Massively open translation: Unpacking the relationship between technology and translation. International Journal of Communication, 10, 929–946.

11. Pym, A. (2014). Exploring translation theories (2nd ed.). Routledge. https://doi.org/10.4324/9781315760100

12. Translation Automation User Society. (2010). Post-editing guidelines. https://www.taus.net