.

Comparative study of news headlines using Bing translator and DeepL

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Abstract

This research examines the application of Nida's (1964) formal equivalence theory in machine translation, with a focus on the structural and grammatical aspects of CNN headlines translated by Bing Translator and DeepL. This research uses a descriptive qualitative approach, analyzing translated headlines related to the 2024 United States Election. Data was collected from CNN's official website from October to November 2024, and translations were obtained from both machine translation tools. The analysis shows that whereas both translation tools attempt to maintain structural accuracy, Bing Translator tends to preserve rigid sentence structures, while DeepL adapts phrases to improve fluency, sometimes at the expense of grammatical accuracy. A readability assessment, based on the researcher's interpretation, shows that DeepL produces smoother translations, which are more accessible to readers. This research contributes to the machine translation reliability discussion in journalism and emphasizes the challenge of maintaining formal equivalence while ensuring readability. Future research can explore a broader corpus or integrate computational linguistic analysis to improve translation evaluation methodology.

Keywords: *Formal Equivalence; Machine Translation; News Translation; Readability; News Headlines*

Introduction

Rapid technological advances have significantly changed the way information is accessed and disseminated (Kong et al., 2022, p. 2). This evolution is driven by innovations ranging from high-speed networks to artificial intelligence, which initially emerged as a tool to assist humans in their daily lives (Zuhdi et al., 2024). Despite these technological advancements, language barriers continue to pose a challenge in ensuring linguistic consistency and contextual accuracy, ultimately affecting comprehension and accessibility (Abdalla & Devi, 2023). As news reporting aims to provide timely and precise information, the translation of headlines presents unique challenges due to space constraints and the need for semantic clarity. Similarly, Sigalingging (2017, p. 98) characterized translation as the act of conveying a message from the source language (SL) to the target language (TL) by employing appropriate equivalences, emphasizing the necessity of accuracy in linguistic transfer.

McQuail & Deuze (2020) argued that news serves as a structured presentation of important events, making linguistic accuracy a fundamental aspect of media communication. In addition, Edgerly & Vraga (2020) emphasized that news not only functions as media content, but also as an instrument of democracy, which supports journalistic practices and supports the democratic process. Meanwhile, Bednarek & Caple (2019), highlighted how variations in news construction affect audience interpretation, reinforcing the importance of analyzing how different translation tools affect information delivery in multilingual contexts. Hard news, particularly political reporting, has different language structures that affect readability and audience reception. Readability of a text plays a role in determining the extent to which the text can be read easily (Fata et al., 2022, p. 98).

One prominent example is CNN, a globally recognized news network that plays an important role in shaping political narratives and informing international audiences about major events, including the 2024 United States presidential election. Given its wide reach, the translation of CNN

headlines requires a balance between structural accuracy and readability to ensure that the intended message remains intact. Headlines serve as the main entry point for readers, and their effectiveness depends on the quality of cross-language translation. Rich (2016) asserted that headlines summarize key messages, shaping public engagement and understanding. However, machine translation tools often struggle to maintain linguistic structure and contextual meaning, which calls for further investigation into their effectiveness (Normalita & Nugroho, 2023, p. 58).

Bing Translator, developed by Microsoft in 2007, supports more than 100 languages and uses Neural Machine Translation (NMT) technology to improve translation accuracy. Despite its wide linguistic coverage, Bing Translator has been observed to have difficulty in maintaining structural consistency, especially in complex sentence structures. In contrast, DeepL, introduced in 2017, integrates deep learning algorithms to improve fluency and contextual understanding, despite supporting a more limited range of languages (Slayter & Forget, 2020). According to Fitria (2023) DeepL produces more natural translations, but its ability to maintain formal equivalence is still a matter of research. Machine translation, as defined by Pudjiati et al. (2022), utilizes artificial intelligence to automate the translation process, but factors beyond linguistic elements-such as real-world knowledge-also play a role in achieving effective translations (Bowker & Buitrago Ciro, 2019, p. 137).

This research applies Nida (1964) theory of formal equivalence, which prioritizes preserving the message itself, both in form and content of the source language (SL) to target language (TL). Nonetheless, this research focuses solely on the analysis of form, specifically the structural and grammatical elements of the translated headlines. Readability is evaluated based on the researcher's interpretation, considering textual clarity, syntactic coherence, and accessibility for target readers. Since language functions as a symbolic system representing individual experiences and conveying information (Widodo & Rahayu, 2024), its appropriate use is essential for effective communication (Ramadhan et al., 2024).

This study explores the similarities and differences in formal equivalence within CNN's hard news headlines translated by Bing Translator and DeepL, particularly analyzing the structural and grammatical elements. The research focused on coverage of the United States Election in October and November 2024, periods of heightened media attention on campaign developments, key political events, and post-election analysis. Furthermore, this study examines how translation variations affect readability. By addressing these aspects, this research contributes to a deeper understanding of how machine translation tools mediate global news dissemination.

Methods

This research employs a descriptive qualitative approach to analyze the application of formal equivalence in the translation of CNN's hard news headlines concerning the 2024 United States Election. In designing qualitative research, it is crucial to consider how the chosen approach defines the relationship between the researcher and the subject being studied (Mirhosseini, 2020, p. 45). Crabtree & Miler (2023) asserted that qualitative research are typically employed to identify, describe, and generate explanations, while (Creswell & Poth, 2018, p. 73) emphasized the inductive nature of qualitative inquiry, which builds themes from data and accounts for contextual complexity. Since this research focuses on linguistic structure and the interpretative assessment of readability in translated headlines, the descriptive qualitative method is suitable for providing an in-depth evaluation of translation patterns and their potential impact on audience comprehension.

The data for this research consists of hard news headlines published by CNN between October and November 2024, specifically those related to the United States Election 2024. These headlines are selected due to their influence on public discourse and the potential consequences of translation inaccuracies (McQuail & Deuze, 2020) The research compares translation results produced by Bing Translator and DeepL, two neural machine translation (NMT) systems known for their differing linguistic processing capabilities. The data collection process involves systematically accessing CNN's official website, selecting election-related headlines,

and obtaining their translations using both machine translation systems. The translated headlines are then prepared for analysis.

Data analysis follows a structured qualitative framework as outlined by Creswell & Creswell, p. (2018, p. 333), which includes organizing, reading, coding, and interpreting textual data. This research applies Nida's (1964) formal equivalence theory to evaluate the extent to which translated headlines preserve the structural and grammatical aspects of the source text. Additionally, readability is evaluated based on the researcher's interpretation, focusing on textual clarity, syntactic coherence, and accessibility for target readers rather than relying on respondent-based assessments. By integrating findings from both formal equivalence analysis and researcher-interpreted readability assessment, this research provides insights into the strengths and limitations of machine translation in conveying politically significant news content. The results contribute to the broader discourse on the reliability of machine translation in journalism and its role in enhancing multilingual news accessibility.

Findings and discussion

This section examines the application of formal equivalence in the translation of CNN headlines by Bing Translator and DeepL. focuses solely on structural and grammatical aspects in the translated texts. In addition, readability was evaluated based on the researcher's interpretation, by considering textual clarity and syntactic coherence.

Datum 1
SL: "Voting nationwide has been mostly orderly, despite non-credible bomb threats from Russian origin"
TL (Bing Translator): *"Pemungutan suara* **secara nasional** *sebagian besar tertib, meskipun ancaman bom yang tidak kredibel* **berasal** *dari Rusia"*
TL (DeepL): *"Pemungutan suara* **di seluruh negeri** *sebagian besar* **berlangsung** *tertib, meskipun* **ada** *ancaman bom yang tidak kredibel dari Rusia"*

In the noun phrase element, "Voting nationwide" is translated differently by Bing Translator and DeepL. Bing renders it as *"Pemungutan suara secara nasional,"* while DeepL translates it as *"Pemungutan suara di seluruh negeri."* The SL structure consists of a gerund "Voting" as the head noun, modified by the adverb "nationwide." Bing's translation follows a noun phrase structure where *"Pemungutan suara"* serves as the head noun, and *"secara nasional"* functions as an adverbial phrase.

DeepL, on the other hand, restructures the modifier as a prepositional phrase *"di seluruh negeri."* While both structures convey similar meanings, Bing maintains a closer alignment with the SL by using an adverbial modifier. Whereas DeepL adapts it into a prepositional phrase, slightly altering the syntactic structure.

In the verb phrase element, "has been mostly orderly" is translated as *"sebagian besar tertib"* by Bing and *"sebagian besar berlangsung tertib"* by DeepL. The SL structure consists of the auxiliary verb "has been" in the present perfect tense, followed by the adverb "mostly" and the adjective "orderly." Bing omits the auxiliary verb and translates the adjective "orderly" as *"tertib,"* making it a predicate adjective rather than maintaining the verb phrase structure. DeepL, however, introduces *"berlangsung,"* which functions as a verb and aligns more closely with the present perfect structure of the SL. This results in a higher degree of formal equivalence in DeepL's version, as it preserves the verb phrase construction more effectively than Bing's translation.

In the prepositional phrase element, "despite non-credible bomb threats from Russian origin" is translated differently. Bing's version, *"meskipun ancaman bom yang tidak kredibel berasal dari Rusia,"* maintains a similar syntactic structure to the SL by explicitly including *"berasal dari"* to indicate origin. DeepL, however, translates it as *"meskipun ada ancaman bom yang tidak kredibel dari Rusia,"* restructuring the phrase by adding *"ada"* before *"ancaman bom."* The SL phrase consists of the subordinating conjunction "despite," followed by a noun phrase with a prepositional phrase modifier. Bing closely mirrors this structure, while DeepL

slightly modifies it by inserting *"ada,"* which introduces a subject-like element into the phrase.

Bing's translation, *"Pemungutan suara secara nasional sebagian besar tertib, meskipun ancaman bom yang tidak kredibel berasal dari Rusia,"* is comprehensible. The phrase *"pemungutan suara secara nasional"* is actually more straightforward and commonly used in Indonesian, especially in formal contexts. However, the verb phrase *"sebagian besar tertib"* lacks an explicit verb, which may make the sentence feel static rather than conveying an ongoing situation. DeepL's translation, *"Pemungutan suara di seluruh negeri sebagian besar berlangsung tertib, meskipun ada ancaman bom yang tidak kredibel dari Rusia,"* presents a more fluid and readable structure. The phrase *"di seluruh negeri"* provides a clearer spatial reference compared to *"secara nasional."*

Additionally, the use of *"berlangsung"* in *"sebagian besar berlangsung tertib"* enhances readability by making the sentence feel more dynamic and reflective of an ongoing process. The insertion of *"ada"* before *"ancaman bom"* also improves the flow of the sentence, making it sound more natural in Indonesian. This version feels more aligned with how news reports are typically structured in Indonesian media, enhancing accessibility for readers.

Datum 2
SL: "Harris urges supporters to accept results after Trump's election win"
TL (Bing Translator): *"Harris mendesak pendukungnya untuk menerima hasil setelah* **kemenangan pemilihan Trump"**
TL (DeepL): *"Harris mendesak* **para** *pendukungnya untuk menerima hasil setelah* **kemenangan Trump dalam pemilu"**

In the noun element, "Harris" remains unchanged in both translations, maintaining full formal equivalence. The SL structure consists of a proper noun without modifiers, and both TL versions preserve this structure identically, ensuring structural consistency between the source and target languages. In the verb element, "urges" is translated identically as *"mendesak"* by both Bing Translator and DeepL. The SL structure consists of a third-person singular verb in present tense, and both TL versions maintain the equivalent verb form without modification.

In the noun element, "supporters" is translated differently by the two engines. Bing translates it as *"pendukungnya,"* while DeepL renders it as *"para pendukungnya."* The difference lies in the inclusion of *"para"* in DeepL's translation The SL structure consists of a plural noun, but since Indonesian does not explicitly mark plurality in noun morphology, both translations maintain formal equivalence. However, DeepL adds "para," which explicitly signals plurality in Indonesian. While this does not alter the fundamental structure, it introduces an additional element that is not present in the SL, making Bing's translation more structurally aligned with the original form.

In the infinitive phrase, "to accept results" is translated identically as *"untuk menerima hasil"* by both engines. The SL phrase consists of the particle "to" followed by the base verb "accept" and the noun "results." The TL structure mirrors this by using *"untuk"* as the functional equivalent of "to," followed by the verb *"menerima"* and the noun *"hasil."* Since both translations retain the original syntactic structure without modification, they maintain a high level of formal equivalence.

In the prepositional phrase, "after Trump's election win" is translated differently. Bing renders it as *"setelah kemenangan pemilihan Trump,"* while DeepL translates it as *"setelah kemenangan Trump dalam pemilu."* The SL phrase consists of the preposition "after," followed by a noun phrase with a possessive structure. Bing's translation follows this structure more closely, placing *"kemenangan"* (equivalent to "win") before *"pemilihan"* (election). DeepL, however, restructures the phrase by introducing *"dalam pemilu,"* which shifts the modifier placement.

The source text conveys that Harris urged her supporters to accept the election results following Trump's victory. One noticeable difference lies in the translation of "supporters." Bing translates it as *"pendukungnya,"* while DeepL renders it as *"para pendukungnya."* In English, plurality is explicitly marked with "supporters," but Indonesian does not always require a plural marker.

While *"pendukungnya"* is grammatically correct, it leaves room for ambiguity, as it could refer

to a single supporter or a group. DeepL's use of *"para"* explicitly clarifies that it refers to multiple people, making the translation more precise and reducing any potential misinterpretation. Another key difference appears in the phrase "after Trump's election win." Bing translates it as *"setelah kemenangan pemilihan Trump,"* whereas DeepL renders it as *"setelah kemenangan Trump dalam pemilu."* Although both translations are understandable, Bing's choice of *"kemenangan pemilihan"* is slightly awkward in Indonesian.

The term *"pemilihan"* typically refers to the voting process itself rather than the outcome, making it a less natural fit. In contrast, DeepL's *"pemilu"* directly refers to a general election, making it more precise and immediately clear to Indonesian readers.

> Datum 3
> SL: "Trump looms large as Congress faces shutdown threat and 'dizzying' to-do list"
> TL (Bing Translator): *"Trump **mendominasi** saat Kongres menghadapi ancaman penutupan dan daftar tugas yang **'membingungkan'"***
> TL (DeepL): *"Trump **tampak besar** saat Kongres menghadapi ancaman penutupan dan daftar tugas yang **'memusingkan'"***

In the noun element, "Trump" is retained without modification in both translations. The SL structure consists of a proper noun, and both TL versions maintain this unchanged, ensuring complete formal equivalence. In the verb phrase (VP) element, "looms large" is translated differently by Bing Translator as *"mendominasi"* and by DeepL as *"tampak besar."* The SL phrase consists of a main verb "looms" and an adverb "large." Bing's translation restructures the phrase into a single verb, *"mendominasi,"* which shifts the focus toward dominance rather than prominence.

DeepL translates the phrase more literally as *"tampak besar,"* keeping the two-word structure intact but losing the idiomatic meaning of "loom large." In terms of structure, DeepL maintains closer alignment with the SL, whereas Bing condenses the phrase into a single verb, diverging from the original syntax. In the conjunction (Conj.) element, "as" is translated identically as *"saat"* in both versions. This choice maintains formal equivalence, as *"saat"*

functions as a conjunction in Indonesian to indicate simultaneous events, aligning with the role of "as" in the source text. The SL structure positions "as" at the beginning of the dependent clause, and both translations retain this placement. In the noun element, "Congress" is translated identically as *"Kongres"* in both versions, maintaining formal equivalence without alteration.

In the verb element, "faces" is translated identically as *"menghadapi."* The SL structure consists of a singular present-tense verb, and both TL versions maintain this as an active verb without restructuring. In the noun phrase (NP) element, "shutdown threat" is consistently translated as *"ancaman penutupan"* by both engines. The SL phrase consists of a noun "threat" modified by a noun "shutdown," forming a compound noun. Both TL translations maintain this structure by using *"ancaman"* (threat) as the head noun and *"penutupan"* (shutdown) as the modifier.

In the conjunction (Conj.) element, "and" is translated identically as *"dan"* by both engines. The SL structure uses "and" to coordinate two noun phrases, and both TL translations retain this function without alteration, maintaining structural consistency. In the noun phrase (NP) element, "'dizzying' to-do list" is translated differently. Bing renders it as *"daftar tugas yang 'membingungkan,'"* while DeepL translates it as "*daftar tugas yang 'memusingkan.'"*

The SL phrase consists of an adjective "dizzying" modifying a noun "to-do list." Both TL translations maintain the structure by using *"daftar tugas"* (to-do list) as the head noun and placing the modifying adjective after *"yang."* This reordering is a necessary syntactic adjustment in Indonesian but still adheres to formal equivalence by preserving the original phrase structure. However, the choice of adjective differs, with Bing opting for *"membingungkan"* and DeepL choosing *"memusingkan."*

The source text describes how Trump remains a dominant figure in politics, pressuring a Congress grappling with the threat of a shutdown and a backlog of legislative tasks. Nevertheless, one key factor influencing readability is the translation of "looms large." Bing's choice of *"mendominasi"* presents a dynamic, action-oriented description that

immediately signals Trump's strong influence over Congress. This phrasing makes it easier for readers to understand the gravity of Trump's presence without needing further contextual interpretation.

DeepL's *"tampak besar,"* however, introduces a more neutral and literal perspective, which, while structurally aligned with the SL, does not effectively capture the figurative sense of urgency. As a result, a reader unfamiliar with the English idiom might find DeepL's version somewhat lacking in impact, requiring additional inference to grasp its full meaning. Another factor impacting readability is the translation of "'dizzying' to-do list." Bing's *"daftar tugas yang membingungkan"* conveys the overwhelming and chaotic nature of Congress's workload in a straightforward manner, ensuring clarity. In contrast, DeepL's "*daftar tugas yang memusingkan"* could be misinterpreted as inducing physical dizziness rather than intellectual overload.

Conclusion

This study explores how Bing Translator and DeepL apply formal equivalence, based on Nida's (1964) theory, in translating CNN headlines, focusing on structural and grammatical elements. It also analyzes the readability of the translations in terms of clarity, coherence, and accessibility. The findings show that while both systems aim to preserve the original structure, Bing tends to produce more rigid yet syntactically faithful translations, whereas DeepL prioritizes fluency, sometimes at the expense of strict grammatical accuracy. Differences are especially evident in verb phrases, noun modifications, and prepositional structures, all of which affect readability and accuracy. Overall, DeepL provides smoother and more accessible translations, while Bing maintains closer adherence to source syntax but may sound overly formal. The study emphasizes the challenge of balancing accuracy and readability in machine-translated headlines, particularly in politically sensitive news. It also suggests that future research should examine how formal equivalence affects reader trust, expand to different news genres, compare more translation engines, and incorporate computational or hybrid approaches to improve translation quality in cross-language journalism.

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