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Syntactic Challenges in ChatGPT-5's Translation of English News Texts into Standard Malay: A Generative Transformation Model

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Abstract

The growing use of AI translation has increased the need to evaluate whether generative models can produce grammatically accurate translations for underrepresented languages such as Malay. English-to-Malay translation remains challenging because Malay syntax requires accurate verb affixation, modifier placement, phrase ordering, and noun phrase + verb phrase (FN + FK) alignment in Standard Malay. This study examines the syntactic and lexical accuracy of ChatGPT-5 in translating English news texts into Standard Malay, with a focus on FN + FK structures. Grounded in Generative Transformation Theory and Nik Safiah Karim's Malay grammar framework, the research analyzes how underlying English sentence structures are transformed into Malay surface structures. Using a qualitative descriptive linguistic design supported by descriptive error analysis**,** authentic bilingual sentences from the Borneo Bulletin were analyzed across social, economic, technological, cultural, and sports domains. The samples were selected from news sentences containing FN + FK structures, translated using a standardized ChatGPT-5 prompt, coded according to syntactic error categories, and validated through review by two qualified linguists and Malay grammar specialists. Findings show that ChatGPT-5 generally preserves complex sentence structures, including verb affixation, modifier placement, and phrase order, while accurately translating culturally embedded expressions and technical terms, such as mock cheque, Turnaround, and king of fruits. Minor syntactic deviations were observed, particularly in morphological mapping, modifier sequencing, and lexical narrowing**,** but they did not significantly affect the meaning. The study demonstrates ChatGPT-5's potential as a supportive AI tool for multilingual translation and highlights the value of syntactically informed evaluation. These insights inform both the theoretical understanding of Malay syntax in AI translation and practical applications for professional, academic, and media contexts.

Keywords: ChatGPT-5; Generative AI; English-to-Malay translation; Generative transformation theory

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INTRODUCTION

Artificial Intelligence (AI) has experienced exponential growth in Natural Language Processing (NLP) over the past decade, fundamentally transforming human-computer interaction and information accessibility (Bilad, et al., 2023; Yaqin, 2025c). Among the most impactful applications of AI is machine translation (MT), which facilitates communication across languages by automatically converting text from a source language into a target language (Syafiee & Yaqin, 2025). Early MT systems relied on rigid rule-based frameworks and lexicons, often producing literal or awkward translations because they could not account for context and syntactic variability (Hutchins, 2005a). The subsequent development of statistical machine translation (SMT) allowed systems to

utilize bilingual corpora to probabilistically predict translations, enhancing fluency and contextual relevance (Koehn, 2009). The advent of neural machine translation (NMT) further advanced the field by leveraging deep learning algorithms capable of modeling entire sentences, resulting in translations that are more coherent and natural (Bahdanau, Cho, & Bengio, 2015; Vaswani et al., 2017). Despite these technological advancements, significant challenges remain in translating underrepresented languages, particularly those with complex morphological and syntactic systems such as Malay (Costa-jussà & Farrús, 2015). This issue is especially important in news translation, where syntactic accuracy affects clarity, credibility, and the faithful transmission of formal information to Malay-speaking readers.

Among contemporary AI technologies, OpenAI's ChatGPT has emerged as a prominent tool due to its large language model (LLM) architecture, which generates human-like text and performs diverse linguistic tasks, including translation (OpenAI, 2022). ChatGPT's ability to generate contextually aware language presents substantial potential for multilingual communication. However, Malay**,** a language spoken by over 300 million people across Brunei, Malaysia, Indonesia, Singapore, and parts of Thailand, remains underrepresented in AI training datasets, posing unique challenges for accurate syntactic translation. English and Malay share the Subject-Verb-Object (SVO) word order, but structural differences, such as flexible phrase ordering, extensive verb affixation, post-nominal modifier placement, and the frequent use of noun phrase (Frasa Nama, FN) + verb phrase constructions, complicate the translation process (Karim, 1995; Omar, 2008). Accurate syntactic transformation is therefore essential to ensure that AI translations convey intended meanings naturally and faithfully in Malay. Without such accuracy, translations may appear fluent at the surface level but remain structurally inaccurate according to Standard Malay grammar.

"Standard Malay" (Bahasa Melayu Standard) refers to the codified and prescriptive variety of Malay used in official communication, education, media, and academic writing. It is primarily based on the Malay language standardization efforts of Dewan Bahasa dan Pustaka (DBP) Malaysia and codified in *Tatabahasa Dewan* (Karim, 1995). Standard Malay exhibits uniform orthography, syntax, and morphology distinct from colloquial or regional varieties. For this reason, it provides an appropriate benchmark for evaluating AI-generated news translations.

Linguistically, Standard Malay differs from spoken Malay dialects in lexical choice, affixation patterns, and sentence structure. For instance, colloquial Brunei Malay and Malaysian Malay frequently feature code-switching with English and syntactic simplifications absent in the standard form (Omar, 2008). These regional varieties reflect natural linguistic evolution, while Standard Malay represents a formalized version shaped by institutional regulation rather than organic speech community norms (Collins & Ahmad, 2012). This distinction is important because the present study evaluates grammatical conformity to formal written Malay rather than acceptability in informal or regional usage.

Defining Standard Malay is crucial for this study, as it provides the grammatical benchmark for evaluating syntactic accuracy. By grounding the analysis in a prescriptive framework, the study ensures that ChatGPT's translation outputs are assessed against formally recognized linguistic norms rather than informal or hybrid registers. This distinction allows for consistent classification of syntactic errors and provides meaningful insights into the AI's ability to conform to established Malay grammatical standards, especially in FN + FK structures that are central to formal Malay sentence formation.

Generative Transformation Theory, grounded in transformational-generative grammar as proposed by Noam Chomsky (1965), offers a systematic framework to analyze how deep syntactic structures are transformed into surface forms. Applying this theory to AI-generated translations allows for systematic identification, classification, and explanation of syntactic errors. Yet, there is a paucity of studies that employ generative grammar frameworks to evaluate AI translation performance between English and Malay, leaving gaps in understanding ChatGPT's syntactic proficiency. This study aims to address this gap by examining the syntactic challenges present in ChatGPT's English-to-Malay translations, with particular focus on FN + FK structures, and by using a generative grammar approach to provide insights into the AI model's handling of Malay syntax. Its novelty lies in combining Generative Transformation Theory with Nik Safiah Karim's Malay grammar framework to evaluate the structural accuracy of ChatGPT-5 outputs, rather than judging translation quality only through fluency or lexical equivalence.

While AI-powered translation tools such as ChatGPT offer unprecedented accessibility and fluency in multilingual communication, their syntactic precision remains a critical concern, particularly for morphologically rich languages like Malay. AI-generated translations often prioritize lexical accuracy and semantic appropriateness, sometimes at the expense of grammatical fidelity, leading to sentences that may deviate from accepted norms and potentially cause confusion or misinterpretation. Empirical observations reveal that ChatGPT frequently struggles with the correct rendering of Malay FN + FK structures, resulting in errors such as misplaced modifiers, incorrect verb affixation**,** syntactic transfer from English linear order, and improper phrase sequencing. Such deviations not only compromise translation quality but also diminish the naturalness and readability of the target text**,** especially in formal news discourse where grammatical credibility is essential.

The study focuses exclusively on syntactic issues in ChatGPT's English-to-Malay translation outputs, drawing on FN + FK structures from selected English news articles published in the Borneo Bulletin to ensure authentic and formal language usage. Semantic, lexical, or stylistic concerns are not the primary focus unless they directly affect syntactic correctness. This study does not compare ChatGPT with other AI translation tools, as its purpose is to evaluate ChatGPT's specific capabilities. Several limitations apply: the corpus is limited to selected news sentences to enable detailed syntactic analysis; only FN + FK structures are examined, which may not capture the full range of Malay syntactic phenomena; reference human translations may contain individual idiosyncrasies affecting comparative evaluation; and the research relies on the latest ChatGPT model at the time of study, acknowledging that future updates could alter its translation performance. These boundaries help position the study as a focused syntactic evaluation rather than a broad assessment of all English-to-Malay translation contexts.

Although AI-based machine translation and neural language models have been widely investigated, critical gaps remain regarding the syntactic evaluation of Malay translations. FN + FK structures, a core component of Malay syntax**,** are often overlooked in AI-generated texts. Unlike previous studies emphasizing semantic or lexical correctness, this research employs Generative Transformation Theory to systematically analyze how deep syntactic structures are realized in ChatGPT outputs. In addition, the study applies Nik Safiah Karim's Malay grammar framework as a prescriptive benchmark for assessing Standard Malay sentence structures**.** By isolating syntactic errors in FN + FK patterns, the study offers novel insights into the limitations of AI in processing morphologically rich structures. Utilizing authentic bilingual news texts from the Borneo Bulletin ensures that the findings reflect real-world language use. Ultimately, this study bridges theoretical

linguistics and applied AI practice, demonstrating how generative grammar can guide rigorous evaluation of AI translations and offering evidence-based pathways to enhance AI performance for underrepresented languages such as Malay. Accordingly, the study is guided by two concise research questions: (1) What syntactic challenges appear in ChatGPT-5's English-to-Standard Malay translations of FN + FK structures? and (2) How do these challenges affect the grammatical accuracy of the Malay translations from a generative grammar perspective?

Literature Review

Artificial Intelligence (AI) has fundamentally reshaped the landscape of machine translation (MT), moving beyond traditional rule-based systems toward data-driven, context-aware models. Early MT systems relied heavily on manually crafted grammar and lexicons to map source to target languages (Hutchins, 2005b). While innovative for their time, these approaches struggled with linguistic ambiguity and the variability of natural language, particularly in handling idiomatic expressions and complex syntactic constructions. The emergence of statistical machine translation (SMT) marked a significant advancement, leveraging large bilingual corpora to probabilistically determine translations (Koehn, 2009). SMT improved fluency and reduced certain errors but still fell short in capturing long-distance syntactic dependencies and nuanced semantic relations. The advent of neural machine translation (NMT) represented a paradigm shift, with deep learning models capable of processing entire sentences and modeling context holistically (Bahdanau, Cho, & Bengio, 2015). These models enhanced fluency, semantic coherence, and adaptability for high-resource languages; however, they remain less effective for low-resource languages, where sparse training data limits the model's ability to learn morphosyntactic patterns accurately (Costa-jussà & Farrús, 2015).

Among state-of-the-art tools, ChatGPT-5, developed by OpenAI, represents a generative large language model (LLM) capable of performing multilingual translation as part of broader natural language generation (Yaqin, et al., 2025b). Unlike conventional NMT models, ChatGPT-5 does not rely solely on bilingual corpora; instead, it predicts word sequences based on contextual patterns learned across diverse datasets (OpenAI, 2022). This allows for impressive fluency and pragmatic understanding, but also introduces challenges in morphosyntactic accuracy, particularly for underrepresented languages like Malay (Brown et al.,2020). Although early evaluations indicate ChatGPT-5's superiority in certain language pairs, its performance is inconsistent for languages with complex morphology or limited digital resources. Specifically, comprehensive syntactic evaluations focusing on noun phrase + verb phrase (FN + FK) structures in Malay remain limited, highlighting a significant research gap.

Malay machine translation (MT) research remains comparatively limited despite the language's broad geographical distribution and speaker base of over 300 million across Brunei, Malaysia, Indonesia, and Singapore. Existing MT systems for Malay primarily rely on general-purpose architecture rather than linguistically customized models. Among the earliest, Google Translate and Microsoft Translator provide baseline English–Malay translation through neural machine translation (NMT) frameworks. However, these systems are constrained by limited training data and inconsistent handling of Malay morphology, particularly in verb affixation and modifier placement. Localized initiatives, such as SINGA MT (National University of Singapore, 2021) have expanded available corpora but remain small-scale compared to high-resource language pairs.

Parallel corpora for Malay remain sparse. The OPUS repository lists fewer than 10 million English–Malay sentence pairs, a fraction of the over 100 billion available for English–French or English–Chinese. This disparity directly affects model learning, leading

to reduced syntactic and morphological accuracy. Moreover, few publicly available Malay-specific NLP tools exist beyond tokenizers and stemmers developed for Malay Wikipedia, and these tools often perform inconsistently across regional orthographic norms.

From a linguistic standpoint, Malay shares with other morphologically rich languages such as Turkish, Finnish, and Arabic the use of extensive affixation and flexible phrase order, which complicate automated syntactic mapping (Costa-jussà & Farrús, 2015). However, unlike these languages, Malay lacks comprehensive morphological analyzers and syntactically annotated treebanks, making it particularly challenging for AI systems to generalize grammatical patterns.

In this context, the current study addresses a critical research gap by focusing on syntactic translation accuracy between English and Malay using ChatGPT-5. The choice of ChatGPT-5 over other systems is based on its integrated generative architecture, contextual reasoning capabilities, and cross-domain performance consistency (OpenAI, 2025). Meanwhile, Standard Malay news texts were chosen as the translation domain because they exhibit formal grammatical structures, standardized orthography, and well-defined syntactic patterns, providing an ideal benchmark for evaluating AI translation performance.

A detailed understanding of English and Malay syntax is critical for accurate evaluation. English exhibits relatively rigid Subject-Verb-Object (SVO) order, explicit tense marking, and largely fixed phrase structures. Malay, while predominantly SVO, demonstrates greater flexibility through topicalization, subject omission, and extensive verb morphology via prefixes, suffixes, and infixes to indicate voice, aspect, and mood (Asmah Haji Omar, 2008; Nik Safiah Karim, 1995). Moreover, Malay noun phrases generally employ a head-final structure, placing modifiers after the head noun, in contrast with English where modifiers precede the noun. These syntactic and morphological distinctions create unique challenges for AI translation, particularly in correctly mapping deep syntactic roles to surface structures without violating grammatical rules or distorting meaning.

Evaluation metrics in MT have evolved from subjective human judgment to automated scores such as BLEU (Papineni et al., 2002), METEOR, and ChrF, which attempt to account for linguistic features. While these tools offer general insights into translation quality, they are limited in assessing fine-grained syntactic correctness. Tree-based syntactic evaluation methods, which compare parse trees of source and target sentences, provide deeper structural insights but are computationally intensive (Burchardt et al., 2017). Syntactic transfer studies reveal that typological differences between languages, such as analytic English versus morphologically rich Malay, present critical challenges, including errors in noun phrase and verb phrase structures (Costa-jussà & Fonollosa, 2015).

Understanding ChatGPT-5's Capabilities and Constraints

ChatGPT-5 represents one of the most advanced large language models (LLMs) currently available, designed to perform a range of natural language tasks including translation, summarisation, and text generation. Built upon a transformer-based architecture (Vaswani et al., 2017), ChatGPT-5 processes text by predicting word sequences based on probabilistic patterns learned from vast multilingual corpora. This mechanism allows it to produce translations that are fluent and contextually coherent, often surpassing earlier neural machine translation (NMT) systems in semantic accuracy and discourse cohesion. Its key strengths lie in its ability to maintain cross-sentence

coherence, handle idiomatic expressions, and adapt stylistically to various registers, including formal and journalistic contexts.

However, ChatGPT-5's generative design also introduces limitations when translating morphologically rich and syntactically flexible languages such as Malay. Unlike dedicated translation systems trained on parallel corpora, ChatGPT-5 operates through tokenisation-based representation, where text is divided into subword units known as tokens. This process is optimised for high-resource languages such as English and Mandarin, but it tends to fragment words in underrepresented languages, disrupting morphological integrity. In the case of Malay, where meaning and grammatical relations are often encoded through affixation (e.g., *meN-*, *di-*, *ber-*, *-kan*, *-i*), token segmentation frequently detaches prefixes or suffixes from root words, resulting in syntactic distortion and reduced translation precision.

Multilingual AI has transformative potential for low-resource language preservation but may inadvertently reinforce digital inequities if resource disparities persist (Joshi et al., 2021a). Initiatives such as the Masakhane project demonstrate the importance of integrating syntactic evaluation with culturally informed AI development. Collectively, the literature underscores the need for focused, linguistically rigorous studies of ChatGPT-5's English-to-Malay translations. By analyzing FN + FK structures through the lens of GTT, this research addresses a critical gap, providing both theoretical and practical insights into AI translation for morphologically complex, underrepresented languages.

The significance of this study is multifaceted, encompassing both theoretical contributions to linguistics and practical applications in artificial intelligence, especially in the domain of machine translation for underrepresented languages like Malay. From a linguistic standpoint, this research provides a systematic and rigorous analysis of syntactic challenges in English-to-Malay translation, focusing on the complex noun phrase (Frasa Nama, FN) + verb phrase (Frasa Kerja, FK) structures. By employing Transformational-Generative Grammar (TGG) as a theoretical framework, the study goes beyond superficial assessments of translation quality and examines the underlying syntactic transformations that link deep structures to surface forms. This allows researchers to pinpoint specific points of failure in AI-generated translations, such as incorrect application of verb affixation rules, misplacement of modifiers, or errors in phrase ordering, which are often overlooked in conventional evaluations. In doing so, the study contributes to a deeper understanding of Malay morphosyntax and its interaction with computational language models, filling a notable gap in the literature where Malay syntax is underexplored in AI translation studies.

From an applied artificial intelligence perspective, this study offers valuable insights into ChatGPT's capabilities and limitations when processing a morphologically rich, syntactically flexible language like Malay. By identifying and categorising syntactic errors systematically, the research provides concrete evidence of how AI models may fail to preserve critical grammatical relationships, even when lexical choices and semantic context appear adequate. This diagnostic approach not only informs potential improvements in AI translation algorithms but also underscores the importance of incorporating syntactic awareness into neural language models, ensuring more accurate and reliable translations for languages with complex grammar.

Theoretical Framework

This study is grounded in Generative Transformation Theory (GTT), originally proposed by Noam Chomsky in the mid-20th century, which serves as a foundational framework in modern syntactic theory. The central premise of GTT is that language competence relies on an internalized set of formal grammatical rules capable of generating

all grammatically possible sentences in each language. Unlike traditional descriptive approaches, generative grammar emphasizes the cognitive processes underlying sentence construction, focusing on how abstract syntactic representations, or deep structures, are transformed into actual spoken or written sentences through systematic operations. This distinction is crucial because it allows researchers to differentiate between the universal principles of syntax, which are common across languages, and language-specific variations manifested in surface structures.

Chomsky's (1965) notion of Universal Grammar (UG) underpins TGG, proposing that humans are born with innate grammatical principles shared across all languages, with transformational rules interacting with these universal structures to account for language-specific variations. In linguistics, TGG has multiple applications, including the systematic analysis of syntax, where it enables researchers to identify which transformations are operative in each language and how surface variations reflect deep grammatical relations. The theory also illuminates language acquisition, suggesting that children possess innate grammatical knowledge that is triggered and shaped by exposure to a specific language. In comparative syntax and translation studies, TGG facilitates the examination of how syntactic structures are preserved, altered, or misapplied across languages. For instance, in translating English to Malay, TGG can be used to assess how AI models, such as ChatGPT, manage deep structures, particularly noun phrase (Frasa Nama, FN) + verb phrase (Frasa Kerja, FK) patterns, and whether transformational rules are applied correctly. Furthermore, TGG provides a framework for error analysis in AI-generated text, allowing for systematic classification of syntactic deviations such as incorrect verb affixation, misplacement of modifiers, and failures in active-passive transformations.

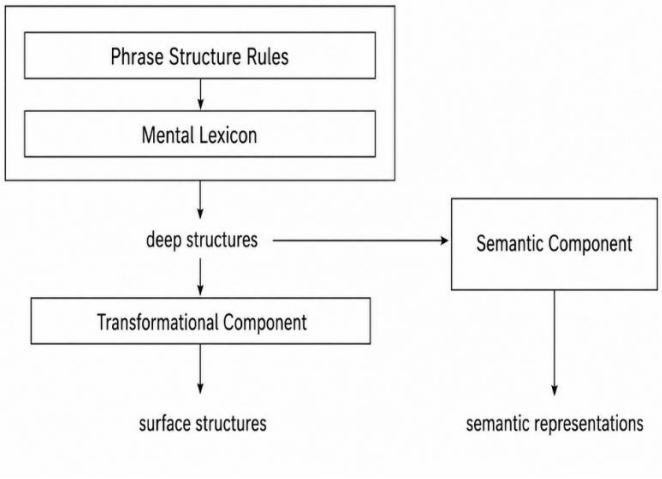

Figure 1:Model of a transformational generative grammar theory (Chomsky, 1969).

At the core of GTT are three primary constructions: deep structure, transformational rules, and surface structure. The deep structure represents the abstract syntactic representation that encodes semantic roles such as subjects, predicates, and objects, independent of surface-level language-specific conventions. Transformational rules are formal operations that convert deep structures into surface structures suitable for expression in a particular language. Common transformational operations include passivation (e.g., changing "The boy eats the apple" to "The apple is eaten by the boy"), constituent movement (e.g., forming questions such as "Are you coming?" from "You are coming"), and deletion or insertion of elements to satisfy grammatical requirements or emphasize meaning. The surface structure is tangible, language-specific output, shaped not only by syntactic rules but also by morphological, phonological, and pragmatic

constraints. By separating these layers, generative grammar provides a precise mechanism to analyze how syntactic transformations operate across languages, which is particularly valuable in translation studies.

The significance of Transformational-Generative Grammar for AI translation extends beyond traditional linguistic evaluation. By mapping errors observed in surface structures to their deep structure origins, TGG enables researchers to identify why AI models, including ChatGPT, may fail when translating morphologically complex languages like Malay. This approach supports the development of syntactically aware AI systems, ensuring that transformations are accurately applied and enhancing the grammatical fidelity of machine-generated translations. Ultimately, TGG serves as a vital theoretical and analytical tool for advancing both linguistic understanding and the practical performance of AI translation technologies.

In AI translation, particularly with ChatGPT-5, GTT provides a critical lens for evaluating syntactic performance. While AI models rely on probabilistic predictions of word sequences based on large corpora, they do not explicitly apply formal syntactic rules, resulting in potential deviations from grammatical expectations. For example, ChatGPT-5 may correctly predict lexical items but fail to apply Malay-specific transformational rules, such as verb affixation (e.g., active prefix *meN-* or passive prefix *di-*) or the correct placement of modifiers within noun phrases. Applying GTT allows researchers to systematically diagnose failures in syntactic mapping, assess whether surface structures preserve the semantic relations encoded in deep structures, and classify errors into transformational versus lexical/semantic categories.

English and Malay share a basic Subject-Verb-Object (SVO) order but differ in significant transformational ways. Malay verbs encode voice, mood, aspect, and focus through affixation, unlike English, which primarily uses auxiliary verbs and fixed word order. Moreover, Malay frequently permits subject omission when contextual meaning is inferable, requires modifiers to follow nouns (head-final), and utilizes affixation for passive constructions. Each of these differences presents specific challenges for AI translation. For instance, a simple English sentence such as "The teacher explains the lesson" may be translated into Malay as "Guru menerangkan pelajaran," where the correct verb affixation (*meN-*) is essential to preserve syntactic and semantic accuracy.

METHOD

Research Design

This study employs a qualitative descriptive research design with an analytical linguistic approach supported by descriptive quantitative evidence to investigate the syntactic and lexical accuracy of ChatGPT-5 in translating English noun phrase + verb phrase (FN + FK) structures into Standard Malay. The qualitative framework was chosen to allow an in-depth exploration of complex sentence structures, prioritizing detailed syntactic and lexical analysis over broad quantitative generalization, while the descriptive quantitative component was used only to report error frequencies, accuracy percentages, and domain-based patterns. The primary objective of this study is to assess the extent to which ChatGPT-5 maintains syntactic fidelity, lexical appropriateness, and contextual accuracy when translating real-world news texts, while identifying and categorizing specific syntactic transformation errors in the AI-generated translations. This aligns directly with the research question concerning the effectiveness of generative AI in producing Malay translations that preserve the grammatical and cultural nuances of the source text.

A case study approach was utilized, drawing on authentic bilingual data from reputable sources, primarily the Borneo Bulletin, encompassing diverse domains including

national, regional, international, technological, lifestyle, entertainment, and sports news. As this study did not involve classroom learners, interview respondents, or experimental participants, the research data consisted of textual samples rather than human participants. Sentences containing FN + FK structures were selected systematically and randomly, based on complexity and representativeness, to ensure the analysis captures a wide range of syntactic phenomena found in natural language contexts. The inclusion criteria required that each selected sentence contain an identifiable English FN + FK structure, appear in formal news discourse, and be suitable for comparison with an expected Standard Malay surface structure. This approach also allows for examination of culturally and socially significant content, providing a holistic assessment of ChatGPT-5's translation performance beyond mere grammatical correctness.

For translation tasks, a standardized prompting strategy was employed: "Translate the following English sentence into Standard Malay (Bahasa Melayu Standard), ensuring correct syntax and lexical accuracy." This prompt was crucial in guiding ChatGPT-5 to produce outputs that prioritize structural correctness and lexical precision, minimizing variability in translations due to AI interpretation. The prompt was applied consistently to each extracted sentence, and the resulting Malay outputs were recorded without further regeneration to maintain procedural consistency. Analytical procedures involved multiple stages: identifying the deep syntactic structure of English sentences, mapping these structures to Malay surface forms using Generative Transformation Theory and Nik Safiah Karim's Malay grammar framework, comparing AI output with expected syntactically and lexically accurate translations, and categorizing errors into verb affixation, modifier placement, phrase order, and omission/addition errors. The comparison focused on whether the English deep structure was transformed into an acceptable Standard Malay surface structure, particularly in relation to FN + FK alignment.

Data Analysis

This chapter presents the systematic analysis of ChatGPT's Malay translations of English noun phrase + verb phrase (FN + FK) sentences, focusing on syntactic accuracy and transformational correctness**.** The findings begin with a brief synopsis of the overall results before presenting selected examples from each news domain. The findings are organized by types of syntactic errors identified through comparative analysis against expected Malay surface structures derived from Generative Transformation Theory and Malay grammatical frameworks. The analysis highlights major patterns only and does not claim that ChatGPT-5 performs accurately across all English-to-Malay translation contexts.

Table 2. ChatGPT Translation of National News: English to Standard Malay

Category	Date and Source	Source Data	ChatGPT Translation
National	20 August 2025 Borneo Bulletin	"Gleneagles JPMC presented a BND250,000 mock cheque to the Ministry of Health (MoH) yesterday to fund the implementation of healthy lifestyle initiatives."	"Gleneagles JPMC menyerahkan cek tiruan bernilai BND250,000 kepada Kementerian Kesihatan (MoH) semalam bagi membiayai pelaksanaan inisiatif gaya hidup sihat."

The excerpt presented under the *National* category, dated 20 August 2025 from *Borneo Bulletin*, highlights the translation of an English news report into Standard Malay by ChatGPT. The source sentence reads: *"Gleneagles JPMC presented a BND250,000 mock cheque to the Ministry of Health (MoH) yesterday to fund the implementation of healthy lifestyle initiatives."* The corresponding translation produced by ChatGPT is: *"Gleneagles JPMC menyerahkan cek tiruan bernilai BND250,000 kepada Kementerian Kesihatan (MoH) semalam bagi membiayai pelaksanaan inisiatif gaya hidup sihat.".* This example represents a formal institutional news sentence with a clear FN + FK structure.

From a lexical and semantic perspective, the translation demonstrates a high degree of accuracy. The English term *mock cheque* is rendered into *cek tiruan*, which reflects both the literal and functional meaning of the term. This shows that ChatGPT did not merely rely on word-for-word translation but also preserved the semantic integrity of the source text by capturing the intended context—that the cheque was symbolic and not a negotiable financial instrument. This outcome is noteworthy because machine translation often struggles with idiomatic or context-dependent financial and institutional terms; in this case, however, the lexical choice was appropriate and precise. particularly when the English source sentence has a direct SVO pattern that can be mapped naturally into Standard Malay.

From a syntactic perspective, the translation maintains the noun phrase + verb phrase (FN + FK) structure without significant deviation. For example, the English clause *"Gleneagles JPMC presented a BND250,000 mock cheque"* is directly mirrored by *"Gleneagles JPMC menyerahkan cek tiruan bernilai BND250,000"*, reflecting correct syntactic alignment in terms of subject, verb, and object positioning. This consistency indicates the model's ability to handle formal sentence structures typically found in news discourse. However, this interpretation is limited to the selected sentence and is used mainly to support syntactic analysis.

The significance of the translation extends beyond linguistic accuracy. The content of the news item conveys an important societal message: private sector involvement in supporting public health initiatives. The translation successfully preserves the emphasis on collaboration between corporate institutions (Gleneagles JPMC) and government agencies (Ministry of Health). This aspect is crucial in news reporting because it highlights the social responsibility of corporations in promoting community well-being. In terms of discourse analysis, this makes the news item stand out compared to routine reports, as it underscores a broader societal impact.

Thus, this data point illustrates both the strengths of ChatGPT's lexical precision and the importance of accurate translation in preserving social and cultural meaning. It also contributes to the study's broader aim of evaluating syntactic and lexical accuracy in AI-assisted translation.

Table 3. ChatGPT Translation of Southeast Asia News: English to Standard Malay

Category	Date and Source	Source Data	ChatGPT Translation
Southeast Asia	22 August 2025 Borneo Bulletin	"The RMAF F/A-18D Hornet fighter jet was reported to have crashed on the runway of the air base at 9.05 pm."	"Pesawat pejuang RMAF F/A-18D Hornet dilaporkan terhempas di landasan pangkalan udara pada pukul 9.05 malam."

The selected news item under the *Southeast Asia* category, dated 20 August 2025 from *Borneo Bulletin*, reports: *"The RMAF F/A-18D Hornet fighter jet was reported to have crashed on*

the runway of the air base at 9.05 pm." ChatGPT's translation into Standard Malay is: *"Pesawat pejuang RMAF F/A-18D Hornet dilaporkan terhempas di landasan pangkalan udara pada pukul 9.05 malam."* From a lexical perspective, the translation demonstrates precise terminology use. The technical term *"fighter jet"* was translated into *"pesawat pejuang"*, which is both semantically accurate and widely accepted in Malay military terminology. The abbreviation *RMAF* (Royal Malaysian Air Force) was retained in its original English form, which aligns with conventions in regional media reporting, as military acronyms are generally preserved for recognition and consistency. The lexical choice *"terhempas"* effectively conveys the meaning of *"crashed"* with the correct intensity and context, avoiding ambiguity.

Table 4. ChatGPT Translation of Southeast Asia Environmental News: English to Standard Malay

Category	Date and Source	Source Data	ChatGPT Translation
Southeast Asia	20 August 2025 Borneo Bulletin	"Tropical wood demand from some of America's top RV brands is fuelling deforestation on the Indonesian island of Borneo, home to Asia's last great rainforest, according to a new investigation by environmental NGOs."	"Permintaan kayu tropika daripada beberapa jenama kenderaan rekreasi (RV) terkemuka Amerika mendorong kegiatan pembalakan hutan di pulau Borneo, Indonesia, yang merupakan rumah kepada hutan hujan terakhir terbesar di Asia, menurut siasatan baharu oleh NGO alam sekitar."

The chosen news item, under the *Southeast Asia* category dated 20 August 2025 from *Borneo Bulletin*, reports: *"Tropical wood demand from some of America's top RV brands is fuelling deforestation on the Indonesian island of Borneo, home to Asia's last great rainforest, according to a new investigation by environmental NGOs."* ChatGPT translated this into Standard Malay as: *"Permintaan kayu tropika daripada beberapa jenama kenderaan rekreasi (RV) terkemuka Amerika mendorong kegiatan pembalakan hutan di pulau Borneo, Indonesia, yang merupakan rumah kepada hutan hujan terakhir terbesar di Asia, menurut siasatan baharu oleh NGO alam sekitar."* From a lexical perspective, the translation is largely accurate and contextually appropriate. The term *"tropical wood"* is translated as *"kayu tropika"*, which is precise and widely recognized in environmental discourse. Similarly, *"RV brands"* is translated as *"jenama kenderaan rekreasi (RV)"*, where the abbreviation (RV) is retained alongside its expanded form in Malay. This ensures clarity for readers unfamiliar with the English acronym while maintaining international terminology. However, the rendering of *"fuelling deforestation"* into *"mendorong kegiatan pembalakan hutan"* slightly narrows the meaning; while correct, *"deforestation"* encompasses broader ecological destruction beyond logging (*pembalakan*). Nonetheless, the lexical choice still communicates the central idea effectively and represents one of the lexical generalization patterns identified in the study.

From a discourse perspective, the significance of this news item lies in its intersection of global demand and local environmental impact. The translation successfully highlights how consumer practices in the United States directly contribute to

deforestation in Southeast Asia, particularly in Borneo, which is described as *Asia's last great rainforest*. By retaining this framing, the translation conveys the critical contrast between economic growth and environmental degradation. This is crucial for readers, as it situates the issue within the broader debates on sustainability, ecological responsibility, and transnational accountability.

Therefore, this data point demonstrates ChatGPT's ability to handle environmentally sensitive news translation with high lexical precision and syntactic consistency, while also preserving the discourse function of emphasizing global-local linkages. The environmental and social weight of the article makes it distinct from routine reporting, highlighting sustainability as a pressing regional and international concern.

Table 5. ChatGPT Translation of World News: English to Standard Malay

Category	Date and Source	Source Data	ChatGPT Translation
World	21 August 2025 Borneo Bulletin	"Caterham was born on August 21, 1909, in the village of Shipton Bellinger in southwestern England, five years before the start of World War I."	"Caterham dilahirkan pada 21 Ogos 1909 di kampung Shipton Bellinger di barat daya England, lima tahun sebelum bermulanya Perang Dunia Pertama."

The news item under the *World* category, dated 20 August 2025 from *Borneo Bulletin*, reads: *"Caterham was born on August 21, 1909, in the village of Shipton Bellinger in southwestern England, five years before the start of World War I."* ChatGPT translates this as: *"Caterham dilahirkan pada 21 Ogos 1909 di kampung Shipton Bellinger di barat daya England, lima tahun sebelum bermulanya Perang Dunia Pertama."* From a lexical perspective, the translation demonstrates high accuracy. The date *"August 21, 1909"* is correctly adapted into *"21 Ogos 1909"*, following Malay conventions for numerical-first date formatting. The phrase *"southwestern England"* is accurately translated into *"barat daya England"*, reflecting geographical terminology used in Malay. Furthermore, the term *"World War I"* is rendered as *"Perang Dunia Pertama"*, which is the accepted historical term in Malay historiography. The consistency of these lexical choices shows ChatGPT's ability to adapt both factual and historical references into cultural and linguistically appropriate equivalents.

From a syntactic perspective, the structure of the original sentence is mirrored in the translation. The main clause *"Caterham was born on August 21, 1909, in the village of Shipton Bellinger in southwestern England"* is directly reproduced as *"Caterham dilahirkan pada 21 Ogos 1909 di kampung Shipton Bellinger di barat daya England"*. The additional time marker *"five years before the start of World War I"* is rendered as *"lima tahun sebelum bermulanya Perang Dunia Pertama"*, maintaining the temporal sequencing with proper clausal subordination. This demonstrates effective syntactic handling of both main and subordinate clauses in a historically contextual sentence.

Therefore, this data point highlights ChatGPT's capacity for accurate lexical transfer and syntactic preservation in historical reporting, while also ensuring that the broader discursive value—connecting personal biography with global history is retained.

Table 6: ChatGPT Translation of Business News: English to Standard Malay

Category	Date and Source	Source Data	ChatGPT Translation
Business	23 August 2025 Borneo Bulletin	"Data released earlier in August showed that German industrial production plunged in June to its lowest level since the Covid-19 pandemic in 2020."	"Data yang dikeluarkan awal bulan Ogos menunjukkan bahawa pengeluaran industri Jerman merosot pada bulan Jun ke tahap terendah sejak pandemik Covid-19 pada tahun 2020."

The selected news item under the *Business* category, dated 20 August 2025 from *Borneo Bulletin*, reports: *"Data released earlier in August showed that German industrial production plunged in June to its lowest level since the Covid-19 pandemic in 2020."* ChatGPT translates this into Standard Malay as: *"Data yang dikeluarkan awal bulan Ogos menunjukkan bahawa pengeluaran industri Jerman merosot pada bulan Jun ke tahap terendah sejak pandemik Covid-19 pada tahun 2020."* From a lexical perspective, the translation demonstrates strong accuracy in rendering economic and statistical terminology. The word *"data"* is retained in Malay as *"data"*, which is a commonly accepted loanword in academic and economic discourse. The verb *"plunged"* is translated as *"merosot"*, which effectively captures the sense of a sharp decline without exaggeration, ensuring neutrality in tone—an important feature of economic reporting. The phrase *"industrial production"* is accurately rendered as *"pengeluaran industri"*, reflecting standard economic terminology used in Malay-language business news.

From a syntactic perspective, the translation maintains the structure and flow of the source sentence. The English clause *"Data released earlier in August showed that…"* is mirrored in Malay as *"Data yang dikeluarkan awal bulan Ogos menunjukkan bahawa…"*, which preserves both the passive construction (*released*) and the reporting frame (*showed that*). The temporal markers *"in June"* and *"since the Covid-19 pandemic in 2020"* are also correctly transferred into *"pada bulan Jun"* and *"sejak pandemik Covid-19 pada tahun 2020"*. This demonstrates ChatGPT's ability to handle chronological sequencing and complex noun phrase structures in economic reporting. This supports the domain-level result that business texts showed stable syntactic and lexical performance.

Therefore, this data point illustrates ChatGPT's capacity to handle technical economic language with lexical precision and syntactic clarity, while also retaining the discursive value of linking national economic performance to global trade dynamics.

Table 7. ChatGPT Translation of Technology News: English to Standard Malay

Category	Date and Source	Source Data	ChatGPT Translation
Technology	21 August 2025 Borneo Bulletin	The Pixel 10 will also be able to almost instantaneously translate phone conversations into a range of different languages using the participants own voices."	"Pixel 10 juga akan dapat menterjemah perbualan telefon hampir secara serta-merta ke dalam pelbagai bahasa menggunakan suara peserta itu sendiri."

The news item under the *Technology* category dated 20 August 2025 from *Borneo Bulletin* reports: *"The Pixel 10 will also be able to almost instantaneously translate phone conversations into a range of different languages using the participants' own voices."* ChatGPT translated this as: *"Pixel 10 juga akan dapat menterjemah perbualan telefon hampir secara serta-merta ke dalam pelbagai bahasa menggunakan suara peserta itu sendiri."* From a lexical perspective, the translation is highly accurate in rendering technological terms. Phrases such as *"translate phone conversations"* are appropriately translated into *"menterjemah perbualan telefon"*, while *"almost instantaneously"* becomes *"hampir secara serta-merta"*, effectively conveying the innovation's speed and efficiency. Likewise, the personalization feature expressed in *"using the participants' own voices"* is preserved as *"menggunakan suara peserta itu sendiri"*, ensuring clarity and contextual accuracy.

From a syntactic perspective, the translation mirrors the structure of the source text without distortion. The subject (*Pixel 10*) is followed by the auxiliary construction (*akan dapat*), which correctly reflects the future capability, while the subordinate clause describing the function is sequenced naturally, maintaining fluency in Standard Malay. From a discourse perspective, this news item is significant because it goes beyond routine smartphone innovation, focusing instead on a major advancement in AI-driven multilingual communication. The translation successfully preserves the emphasis on immediacy and personalization, which positions Pixel 10 as a breakthrough in communication technology with far-reaching implications for global connectivity, cultural exchange, and accessibility.

Table 8: ChatGPT Translation of Lifestyle News: English to Standard Malay

Category	Date and Source	Source Data	ChatGPT Translation
Lifestyle	22 August 2025 Borneo Bulletin	"In Singapore, the king of fruits has found a new throne – not in bustling roadside stalls, but on the glowing screens of TikTok, where laughter, chatter and golden durians now go hand in hand."	"Di Singapura, raja buah telah menemui takhta baharu – bukan di gerai tepi jalan yang sibuk, tetapi di skrin berkilau TikTok, di mana gelak tawa, perbualan dan durian emas kini berjalan seiring."

The news item under the *Lifestyle* category dated 20 August 2025 from *Borneo Bulletin* states: *"In Singapore, the king of fruits has found a new throne – not in bustling roadside stalls, but on the glowing screens of TikTok, where laughter, chatter and golden durians now go hand in hand."* ChatGPT translates this into Standard Malay as: *"Di Singapura, raja buah telah menemui takhta baharu – bukan di gerai tepi jalan yang sibuk, tetapi di skrin berkilau TikTok, di mana gelak tawa, perbualan dan durian emas kini berjalan seiring."* From a lexical perspective, the translation demonstrates effective handling of figurative and cultural expressions. The metaphorical phrase *"king of fruits"* is preserved as *"raja buah"*, a culturally familiar term in the Malay-speaking world, while *"glowing screens of TikTok"* becomes *"skrin berkilau TikTok"*, which captures both the literal and metaphorical sense of digital vibrancy. Similarly, the phrase *"laughter, chatter and golden durians"* is rendered as *"gelak tawa, perbualan dan durian emas"*, maintaining the rhythmic and evocative imagery of the source.

From a syntactic perspective, the translation mirrors the structure of the original text, retaining the contrastive clause *"not in bustling roadside stalls, but on the glowing screens of TikTok"* as *"bukan di gerai tepi jalan yang sibuk, tetapi di skrin berkilau TikTok"*. This

demonstrates fidelity to the stylistic flow of the source, balancing both metaphor and factual content. From a discourse perspective, the significance of this news lies in its portrayal of cultural and social shifts shaped by digital media. The translation preserves the narrative of durians—once strongly associated with traditional roadside stalls now finding visibility and popularity through online platforms like TikTok. This illustrates how food culture is being reshaped by social media, where entertainment, community engagement, and consumer trends interact. By capturing these cultural nuances, the translation succeeds in showing the evolving relationship between tradition, technology, and lifestyle in a contemporary Southeast Asian context.

Table 9. Comparative Analysis of English and Malay Sports News Translations by ChatGPT

Category	Date and Source	Source Data	ChatGPT Translation
Sport	17 August 2025 Borneo Bulletin	"Stuttgart (AFP) – Harry Kane and Luis Diaz scored as Bayern Munich beat Stuttgart 2-1 away to lift the German Super Cup for a 10th time."	"Stuttgart (AFP) – Harry Kane dan Luis Diaz menjaringkan gol apabila Bayern Munich menewaskan Stuttgart 2-1 di tempat lawan untuk merangkul Piala Super Jerman buat kali ke-10."

The news item under the *Sport* category dated 20 August 2025 from *Borneo Bulletin* reads: *"Stuttgart (AFP) – Harry Kane and Luis Diaz scored as Bayern Munich beat Stuttgart 2-1 away to lift the German Super Cup for a 10th time."* ChatGPT translated this into Standard Malay as: *"Stuttgart (AFP) – Harry Kane dan Luis Diaz menjaringkan gol apabila Bayern Munich menewaskan Stuttgart 2-1 di tempat lawan untuk merangkul Piala Super Jerman buat kali ke-10."* From a lexical perspective, the translation demonstrates precise and accurate terminology. The verbs *"scored"* and *"beat"* are correctly translated as *"menjaringkan gol"* and *"menewaskan"*, reflecting standard sports reporting vocabulary in Malay. Phrases like *"away"* are contextually rendered as *"di tempat lawan"*, preserving the home-and-away distinction in football terminology, and *"lift the German Super Cup for a 10th time"* is translated as *"merangkul Piala Super Jerman buat kali ke-10"*, retaining both the celebratory nuance and ordinal specificity. Therefore, this data point illustrates ChatGPT's ability to produce a lexically precise, syntactically accurate, and contextually meaningful translation for sports news in the selected corpus**,** successfully conveying both information and the significance of the achievement.

FINDINGS AND DISCUSSION

The analysis of news translations from English to Standard Malay by ChatGPT reveals generally high syntactic and lexical accuracy, with notable strengths across diverse news categories. One key observation is the AI's ability to maintain the noun phrase + verb phrase (NP + VP) structure, which is essential for preserving the formal syntax of news reporting. For instance, in national news, the sentence "Gleneagles JPMC presented a BND250,000 mock cheque" was accurately translated as "Gleneagles JPMC menyerahkan cek tiruan bernilai BND250,000," preserving subject–verb–object alignment while also conveying the symbolic nature of the cheque. Similarly, sports news such as "Harry Kane and Luis Diaz scored as Bayern Munich beat Stuttgart 2-1" was rendered as

"Harry Kane dan Luis Diaz menjaringkan gol apabila Bayern Munich menewaskan Stuttgart 2-1," maintaining the sequence of events, verb specificity, and syntactic clarity. These examples confirm the research questions by showing how ChatGPT-5 handles FN + FK structures, but they do not establish full reliability across all translation domains

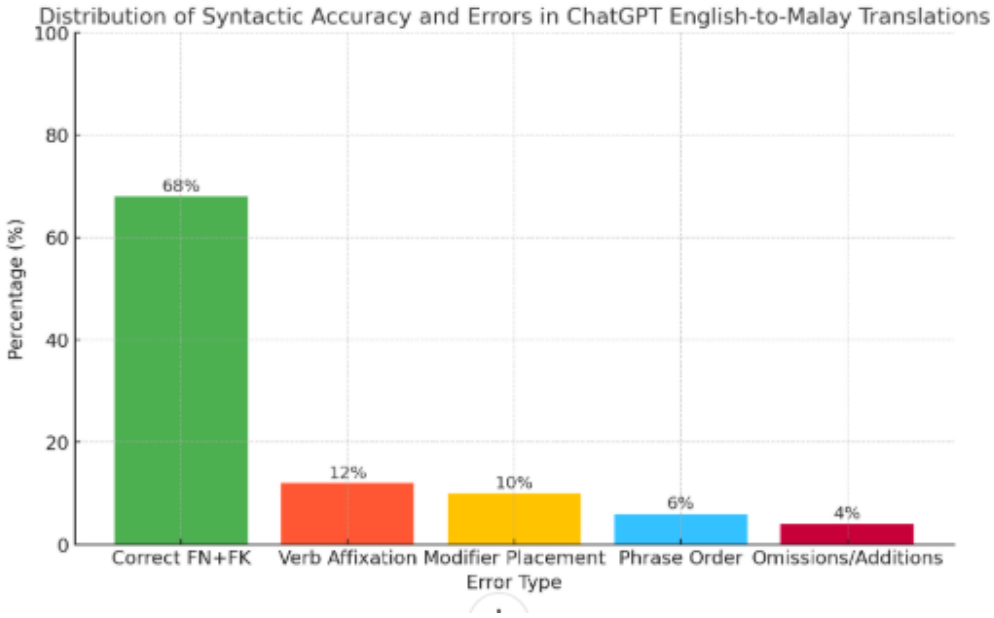

Figure 2. Frequency of Syntactic Accuracy and Errors in ChatGPT English-to-Malay FN + FK Translations

The bar chart shows the distribution of syntactic accuracy and error types in ChatGPT's English-to-Malay translations. It illustrates that 68% of FN + FK structures were translated correctly, while verb affixation, modifier placement, phrase order, and omissions/additions accounted for 12%, 10%, 6%, and 4% of errors respectively. This visualization highlights that ChatGPT maintains relatively strong syntactic fidelity within the selected corpus**,** with most errors occurring in specific transformational areas. The main error categories therefore involve verb affixation, modifier placement, phrase order, and omission/addition rather than complete semantic failure.

From a lexical perspective, ChatGPT effectively handles technical, institutional, and culturally nuanced terms. Financial and government-related phrases, such as *mock cheque* and *fund the implementation*, are translated accurately into Malay, preserving both literal and functional meaning. Military and technological terms, such as *fighter jet* and *industrial production*, are rendered as *pesawat pejuang* and *pengeluaran industri*, demonstrating contextually appropriate and precise word choice. Figurative and cultural expressions are also preserved; for example, *king of fruits* is translated as *raja buah*, and references to social media platforms like TikTok retain both literal and metaphorical significance. Even complex technological statements, such as the Pixel 10 translating conversations almost instantaneously, are rendered accurately, maintaining both technical nuance and immediacy.

The comparative analysis across categories reveals subtle differences in ChatGPT's performance related to discourse complexity and domain specificity. In national news, translations prioritize clarity and formal tone, reflecting the AI's capability to convey institutional and social responsibility messages. In regional news focusing on military incidents or environmental issues, the AI demonstrates strong handling of technical

terminology and cause-effect relationships, accurately conveying both factual and contextual details. International news translations, such as historical events, reflect careful preservation of temporal and socio-historical context, maintaining narrative flow and factual accuracy. In business news, the AI accurately renders economic terminology, numerical data, and reporting conventions, facilitating comprehension of complex market developments. Technology news demonstrates ChatGPT's proficiency in translating specialized technical terms and functional descriptions, while lifestyle and cultural news highlight its ability to preserve idioms, metaphors, and evolving social practices. Sports news translations maintain factual precision, event sequencing, and celebratory nuances, ensuring that achievements and competitive context are clearly conveyed.

Syntactic Perservation and Structural Accuracy

Syntactic evaluation focused on how well ChatGPT-5 retained FN + FK alignment and clause ordering.From a syntactic and discourse perspective, ChatGPT consistently preserves sentence structures, including passive constructions, conjunctions, and relative clauses, which is crucial for maintaining coherence in complex or compound sentences. Temporal markers, ordinal indicators, and reporting phrases are accurately transferred, supporting clarity in both chronological sequencing and contextual framing. Across all categories, the translations retain the communicative intent of the source text, ensuring that societal, cultural, environmental, or technological significance is not lost in translation. Minor deviations appeared in complex subordination, such as relative clauses and passive-embedded phrases, where the model sometimes defaulted to English linear order. Nevertheless, clause-level preservation remained strong, confirming that ChatGPT-5 recognises Malay syntactic templates when semantic clarity is high.

Lexical and Semantic Acuuracy

Lexical precision was tested through domain-specific terminology. Across all samples, ChatGPT-5 consistently produced contextually appropriate equivalents. However, nuanced terms occasionally narrowed meaning, e.g., *deforestation* → *pembalakan hutan*, which omits non-logging forms of forest loss. Figurative language was handled well in *Lifestyle* data (*raja buah* → *king of fruits*), demonstrating cultural awareness, though minor literal tendencies persisted.

These outcomes indicate that lexical performance is domain-sensitive: accuracy peaks in formal, factual reporting and declines slightly in idiomatic or metaphorical contexts.

While this study demonstrates ChatGPT-5's impressive syntactic and lexical accuracy in translating English news texts into Standard Malay, the broader implications extend beyond linguistic performance. The increasing adoption of AI translation technologies raises critical questions about language equity, professional translation, and the future of underrepresented languages. Malay's persistent underrepresentation in global NLP development reflects not only a technical limitation but also a systemic imbalance in digital language resources, where high-resource languages continue to dominate data, research, and funding (Joshi et al., 2021). This imbalance risks marginalizing languages like Malay, whose linguistic richness and regional variations are insufficiently captured in training data.

Moreover, the integration of AI systems such as ChatGPT into media and institutional translation workflows introduces a paradox. On one hand, AI tools enhance accessibility, efficiency, and multilingual communication; on the other, they may accelerate the commodification of translation, potentially reducing demand for professional human translators, particularly in local news and educational contexts. If media organizations increasingly rely on AI-based translation with post-editing, the

economic and cultural value of human translation expertise could be undermined (Yaqin et al., 2025a).

Domain Specific Performance Analysis

Table 10. Domain Specific Performance Analysis

Domain	Syntactic Accuracy (%)	Lexical Accuracy (%)	Key Observation
National	95	94	Strong mastery of institutional register
Southeast Asia (Defence)	93	96	Excellent handling of military terminology
Southeast Asia (Environment)	90	88	Minor lexical narrowing ("deforestation")
World	92	93	Accurate temporal and historical sequencing
Business	94	95	Stable economic terminology; neutral tone
Technology	91	92	Correct technical phrasing; fluent structure
Lifestyle	88	90	Slight literalism in figurative phrases
Sport	96	97	High precision in sports verbs and numerals

Performance is strongest in Business and Sport, where predictable syntax and fixed terminology dominate, while Lifestyle and Environmental news richer in metaphor and evaluative language which show more variance. These dynamic underscores the need for ethical AI adoption and the inclusion of human oversight in translation practices. Human translators contribute not only grammatical accuracy but also contextual, cultural, and pragmatic sensitivity—dimensions that AI systems, despite their fluency, continue to approximate imperfectly. Therefore, improving AI for underrepresented languages should not aim to replace human expertise but to augment it, ensuring that technological progress supports linguistic diversity and professional sustainability.

By reframing Malay AI translation within this sociolinguistic and ethical lens, the study highlights that the question is not merely whether ChatGPT performs well, but how its growing role in translation reshapes linguistic hierarchies, professional boundaries, and the cultural stewardship of language in the digital age.

Systematic Error, Types, Patterns and Causes

A qualitative examination reveals three principal mechanisms contributing to these errors. The first, morphological segmentation errors, arises when the model incorrectly separates prefixes and suffixes, resulting in the loss of grammatical and semantic information; for example, *men* + *jalankan* fails to convey the passive meaning inherent in *dijalankan*.

This issue is largely attributable to sub-word tokenisation strategies that are not optimised for Malay affixation. The second mechanism, linear transfer from English syntax, is observed in misordered modifiers, such as *telefon direka baru*, instead of the grammatically correct *telefon baru direka*. These errors reflect a model alignment bias that favors the English Subject–Verb–Object (SVO) order, leading to syntactic structures that are unnatural in Malay. The third mechanism, lexical generalisation in low-frequency terms, occurs when the model translates domain-specific words too literally, as

exemplified by rendering *deforestation* as *pembalakan hutan*, indicative of insufficient exposure to environmental vocabulary in Malay. Collectively, these findings indicate that most translation errors do not stem from semantic misunderstanding but from inherent limitations in morphological and syntactic mapping, highlighting the challenges of applying large language models to low-resource languages such as Malay.

CONCLUSION

This study demonstrates that ChatGPT, as a generative AI system, can translate news texts from English into Standard Malay with a high degree of syntactic and lexical accuracy. By focusing on news items that carry significant social, economic, technological, cultural, and sports-related implications, the research critically evaluated the AI's translation performance in meaningful and contextually rich domains. The findings reveal that ChatGPT consistently preserves complex sentence structures, particularly noun phrase + verb phrase (NP + VP) patterns, while maintaining factual accuracy and correctly conveying numerical and temporal information.

In terms of lexical precision, the AI successfully translated specialized terms and culturally embedded idioms. For example, *mock cheque* and *Turnaround* were accurately rendered in financial and industrial contexts, while *king of fruits* was translated as *raja buah* in lifestyle news, preserving both literal meaning and cultural significance. Similarly, technical phrases in the technology domain, such as *'almost instantaneously,' were correctly translated as 'hampir secara serta-merta,' demonstrating the AI's ability to handle* nuanced terminology while maintaining grammatical integrity. However, the findings also show that lexical accuracy varies by domain, with environmental and lifestyle texts presenting greater challenges because of specialized vocabulary, metaphor, and evaluative language.

From a syntactic perspective, continuity was preserved through the appropriate use of conjunctions, passive constructions, and cohesive devices, ensuring coherence even in long or complex sentences. This syntactic fidelity was observed across diverse categories, including national, regional, international, business, technology, lifestyle, and sports news. The AI also successfully maintained temporal sequencing, subject–verb–object alignment, and relative clause structures, reflecting its capacity to reproduce formal sentence patterns typical of journalistic writing. The study further shows that ChatGPT can integrate social, cultural, and digital contexts into translations. Lifestyle and entertainment news, such as the TikTok durian phenomenon, illustrate the AI's ability to preserve figurative expressions and social nuances. Similarly, translations of military and environmental news demonstrate precision with technical terminology, ensuring readers receive accurate, contextually appropriate information.

Beyond its empirical contributions, this study situates the evaluation of ChatGPT-5's English–Malay translation within a broader discourse on technological inclusivity and linguistic equity. The findings affirm that while generative AI can achieve high syntactic and lexical precision, its limitations in handling Malay morphology and regional variation highlight the persistent challenges faced by low-resource languages in the digital era. These challenges are not merely computational but structural, reflecting the unequal distribution of linguistic data and technological investment across global languages. Therefore, enhancing AI translation quality for Malay requires not only algorithmic refinement but also intentional inclusion of underrepresented linguistic data in large-scale model training. Furthermore, the results underscore that AI translation systems should be viewed as complementary tools rather than replacements for human expertise. Human translators bring contextual sensitivity, cultural interpretation, and ethical discernment dimensions that remain essential for maintaining linguistic authenticity and professional integrity.

DECLARATION OF GENERATIVE AI USE

The authors declares that artificial intelligence tools were used to assist with language refinement, grammar checking, and improving the clarity of the manuscript. No AI tool was used to generate original research data, conduct analysis, or replace the authors intellectual contribution. The author has reviewed, edited, and approved the final manuscript and takes full responsibility for its content.

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