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AI-BASED TRANSLATION OF KOREAN IDIOMS INTO THAI: ACCURACY AND ERROR PATTERNS

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ABSTRACT

This study aims to demonstrate the accuracy of AI in translating Korean idioms into Thai and to identify common error patterns. The sample consists of 39 Korean idioms that retain the same meaning when translated into Thai. The study found that AI had an overall average translation accuracy of 27.11%, with ChatGPT having the highest accuracy at 61.54%, followed by Gemini at 46.15%, DeepSeek at 41.03%, Perplexity at 30.77%, Claude at 5.13%, Papago at 5.13%, and Google Translate at 0%. In addition, LLMs demonstrated significantly higher accuracy in translating Korean idioms into Thai compared to MT. Considering the common error patterns in translating Korean idioms into Thai using AI, the following error patterns and their frequency were identified: literal translation (66.33%), misinterpretation (20.60%), explanation (8.04%), grammatical error (4.02%), and incomplete translation (1.1%). Since AI's average translation accuracy for Korean idioms into Thai is relatively low, it should be used in conjunction with an instructor's guidance to help Thai learners understand vocabulary, grammar, idiom origins, meanings, and appropriate contextual usage. Nevertheless, Thai learners can use LLMs as a self-study tool, especially when seeking explanations of the meanings of Korean idioms, as LLMs achieves an average accuracy of 95.90% in this area.

KEYWORDS: Translation, Korean Proverb, AI, ChatGPT, DeepSeek, Google Translate.

1. INTRODUCTION

The increasing integration of Artificial Intelligence (AI) in language education and translation studies has prompted new questions about the capacities and limitations of automated translation systems particularly in handling idiomatic expressions. Idioms, by nature, resist literal interpretation, as their meanings are deeply embedded in cultural, contextual, and figurative dimensions. As such, they serve as a critical benchmark for evaluating the semantic competence and contextual sensitivity of AI systems (Gibbs, 1994; Fernando, 1996; Naciscione, 2010).

Among current AI technologies, two dominant paradigms have emerged in the field of translation: Machine Translation (MT), which includes tools like Google Translate and Papago, and Large Language Models (LLMs), such as ChatGPT, Gemini, and Claude. While MT has evolved through neural machine learning approaches, LLMs are designed to emulate human reasoning and contextual understanding. These systems have demonstrated remarkable advancements in recent years, leading to widespread use by both educators and learners in foreign language contexts (Park, 2023a; Pérez-Núñez, 2024; Phosa, 2024). However, despite these developments, empirical research continues to reveal that both MT and LLMs struggle with idiomatic translation due to their limited access to sociocultural schemas and figurative nuance (Donthi et al., 2023; Li et al., 2023; Li, 2024; Kim et al., 2025).

The definition of MT refers to the use of artificial intelligence to automatically render text or speech from one language into another. While the idea of MT dates back to the mid-20th century, its development has long been constrained by the inherent intricacies of human language, including syntax, semantics, pragmatics, and cultural nuances. Early MT systems were predominantly rule-based, relying on handcrafted grammatical frameworks and bilingual dictionaries to generate translations. Although pioneering for their time, these systems struggled with scalability and contextual interpretation. A transformative shift occurred in the 2010s with the advent of Neural Machine Translation (NMT), which harnesses deep learning architectures capable of processing entire sentences through attention-based mechanisms. This approach significantly enhanced the fluency, coherence, and overall accuracy of translations. Today, NMT underpins the majority of state-of-the-art translation platforms and is considered the prevailing standard in the field (Hutchins, 2005; ElShiekh, 2012; Naveen & Trojovsky, 2024; Sen & Jamwal, 2024). While the definition of LLMs represent an advanced branch of artificial intelligence (AI) that seeks to replicate key aspects of human cognition. Trained on extensive and diverse textual corpora drawn from the internet, these models are capable of engaging in complex reasoning, analytical tasks, and adaptive learning. By leveraging Natural Language Processing (NLP), LLMs can produce coherent, context-sensitive language outputs that closely resemble human communication. Their versatility allows them to perform a wide range of tasks ranging from answering user queries and summarizing articles to translating text across languages thereby positioning them as powerful tools in both academic and practical applications (Brown et al., 2020; Bubeck et al., 2023; OpenAI, 2023; Maslej et al., 2024).

In the context of Korean–Thai translation, these challenges are even more pronounced due to the linguistic and cultural distance between the two languages. Korean idioms are often rooted in Confucian social hierarchy and moral philosophy (Chung, 2015; Jeong, 2015; Ozoda, 2022), while Thai idioms frequently reflect Buddhist cosmology and oral folk traditions (Kanchanakhaphan, 1998; Thongbai, 2007; Sangtaksin, 2012). The structural and cultural asymmetries between these languages complicate direct equivalence and further challenge AI's ability to render accurate idiomatic translations.

The Standard Korean Language Dictionary (국립국어원 표준국어대사전) defines the word "idiom" (관용어) as "a group of two or more words whose overall meaning cannot be understood from the meanings of the individual words, but which has its own special meaning." Additionally, Kim (1974) defines idioms as "a broad concept that includes subcategories such as proverb (속담), slang (은어) and metaphor (비유어)" (as cited in Lim, 2012, 10). In Thai, Office of the Royal Society (2015) defines idioms as "words that do not have a literal meaning and must be interpreted to be understood. Idioms encompass aphorisms, proverbs, and comparisons." When comparing the definitions of idioms in Korean and Thai, they appear highly similar. Since both definitions include proverbs, and the sample group in this study consists of both Korean idioms and proverbs, the researcher refers to the entire sample group as idioms to encompass their broader meaning within the context of this study.

Despite the long-standing presence of Korean language education in Thailand spanning over 39 years learners and educators continue to face critical shortages in native-speaking instructors, pedagogically suitable textbooks, and the limited

availability of modern instructional tools that are culturally and socially attuned to the Thai context (Kobsirithiwara, 2024). As AI tools become increasingly prevalent in classroom settings, many Korean language learners have turned to applications such as Google Translate and ChatGPT for support. These tools are now being used not only to translate isolated words or sentences, but also to interpret complex expressions, including idioms and proverbs. However, their reliability and accuracy in translating culturally embedded idiomatic expressions remain underexamined particularly in the Korean–Thai pair.

This study addresses these gaps by examining the performance of both LLMs and MT tools in translating Korean idioms into Thai. It investigates the accuracy of each AI model and analyzes the types of translation errors produced. By focusing on idiomatic translation a task requiring high levels of contextual and cultural understanding this research aims to assess the potential and limitations of AI as a pedagogical tool for Korean–Thai translation. The findings offer insights not only into the current capabilities of AI systems but also into their implications for Korean language education in Thailand, especially in supporting Thai learners' idiomatic comprehension.

2. LITERATURE REVIEW

2.1. Evolution of Machine Translation and Neural Models

The evolution of MT since the 1950s has mirrored advances in computational linguistics. Early rule-based MT systems relied heavily on formal grammar and dictionary-based mappings (Hutchins, 2005; ElShiekh, 2012). The emergence of Neural Machine Translation (NMT) in the 2010s marked a significant shift, with deep learning models incorporating attention mechanisms to enhance fluency and contextuality (Naveen & Trojovsky, 2024; Sen & Jamwal, 2024).

Modern MT systems, such as Google Translate and Papago, are now widely used among language learners. Research by Panyakham (2024) demonstrated notable reductions in translation errors in the 2023 version of Google Translate compared to its 2018 counterpart (from 87% to 39%). However, idiomatic and syntactic inaccuracies persist, especially when translating structurally or culturally complex expressions (Promdam & Yutdhana, 2024; Kanchanakas & Rungruangthum, 2024).

Papago, developed by Naver, also shows mixed results. Kim (2023) reported a 70.83% accuracy rate in translating English passive constructions into Korean, outperforming Google Translate (48.5%). Yet, both MT systems exhibit limitations in idiomatic and figurative language translation, especially where cultural nuance is essential.

Emergence of Large Language Models

LLMs such as ChatGPT, Claude, DeepSeek, Gemini, and Perplexity represent the latest innovation in AI-driven language processing. Unlike conventional MT systems, LLMs are general-purpose tools trained on vast, diverse corpora, enabling more flexible applications such as reasoning, summarizing, and translating (Brown et al., 2020; Bubeck et al., 2023; OpenAI, 2023; Maslej et al., 2024). While not designed explicitly for translation, their ability to generate coherent, contextually appropriate output makes them increasingly viable for such tasks.

Yoon (2023) evaluated ChatGPT's accuracy in translating Korean academic texts, literature, and idioms into English. The model excelled in academic translation but performed poorly in idiom translation. A subsequent study by Yoon and Son (2023) compared Google Translate and ChatGPT-3.5 in translating French literary texts into Korean, concluding that while Google Translate yielded higher overall accuracy, both models displayed similar errors in idiomatic meaning, structure, and lexical choice.

2.2. Idioms as Cultural and Linguistic Challenges

Numerous scholars agree that idioms represent one of the most challenging aspects of translation due to their fixed structure and culture-specific meaning argued that idioms cannot be interpreted compositionally and require contextualized inferencing (Gibbs, 1994; Sinclair, 1991; Biber et al., 1999; Fernando, 1996; Ishida, 2008; Naciscione, 2010, as cited in Juknevičiene, 2017, 28). Pinmanee (2021) emphasized that idiomatic translation necessitates awareness of the sociocultural frames in both the source and target languages an area where AI remains limited.

This issue is particularly salient for languages such as Korean and Thai, where idiomatic expressions are deeply embedded in collective worldviews. Cho (2007), Park (2023b) and Yoon (2023) note that figurative texts such as idioms are significantly harder to translate due to their implicit meanings and cultural embeddedness, reinforcing the need for culturally grounded models such as Cultural Linguistics.

2.3. Recent Evaluations of AI in Idiom Translation

The following studies have underscored the linguistic, social, and cultural complexities inherent in idiomatic translation, while also illustrating the extent to which AI particularly MT systems and LLMs can effectively address these challenges. Collectively, this body of research highlights a recurring theme: although advanced LLMs have demonstrated significant progress in cross-linguistic

idiom translation, they continue to exhibit notable limitations, especially in distinguishing between literal and figurative meanings and in maintaining pragmatic and cultural appropriateness.

Li et al. (2023) examined MT and LLMs' ability to detect and interpret semantic shifts in English idioms translated into Chinese and Japanese, revealing that even GPT-4 struggled in ambiguous contexts where literal–figurative disambiguation is required. Mi et al. (2024) reinforced these findings through contrastive evaluation, showing that GPT-4 correctly classified idiomatic usage in only 59.62% of cases, further confirming that disambiguation remains a core limitation.

Extending the scope to additional languages, Donthi et al. (2024) focused on enhancing idiomatic translation accuracy and cultural fidelity across English, Chinese, Urdu, and Hindi. Their results showed that GPT-4o achieved better semantic alignment with human judgement than GPT-4, suggesting gradual improvements but still highlighting a clear performance gap.

Zaitova et al. (2025) added a comparative dimension by evaluating Speech-to-Text Translation (SLT) alongside MT and LLMs for idioms in German and Russian translated into English. Their study found MT and LLMs to be significantly more reliable than SLT, but also demonstrated that idiomatic translation reduces overall model accuracy by over 24%, underlining idioms' inherent translation difficulty.

On a larger scale, Kim et al. (2025) contributed the MIDAS dataset, encompassing over 70,000 idiomatic entries in six languages. Their findings highlighted that LLMs rely on both memorization and reasoning when handling idioms, with memorization especially crucial in low-resource languages such as Korean and Turkish.

Finally, Li (2024) contrasted AI performance with that of Chinese EFL learners translating English idioms into Chinese. The study confirmed that LLMs produced more semantically accurate outputs than learners, yet still failed to match human-level pragmatic appropriateness in culturally nuanced contexts.

Collectively, these studies converge on the conclusion that while LLMs and MT systems continue to evolve and surpass human performance in some aspects of semantic accuracy, their ability to interpret idioms with full contextual and cultural sensitivity remains incomplete.

3. RESEARCH GAP

Despite these advancements, no study has specifically explored the translation of Korean idioms into Thai using both MT and LLMs. Given the unique syntactic, semantic, and cultural features of both languages, this gap presents a critical opportunity for research. Moreover, evaluating the patterns and types of errors through the lens of Error Analysis, observing systemic behaviors through Descriptive Translation Studies, and interpreting failures in cultural transference through Cultural Linguistics enables a multidimensional understanding of AI translation efficacy.

Therefore, the present study seeks to fill this gap by systematically analyzing how AI systems handle Korean–Thai idiomatic translation, identifying both successful strategies and recurring error patterns that may impede communicative effectiveness and cultural transfer.

4. THEORETICAL FRAMEWORK

Translation has long been acknowledged as a crucial mechanism for cross-linguistic communication, enabling the transfer of meaning between languages. Traditional translation theories provide foundational perspectives for understanding this process. Among them, Newmark's (1988) taxonomy of translation strategies dividing approaches into source-language-oriented (e.g., word-for-word, literal, faithful, semantic translation) and target-language-oriented (e.g., idiomatic, communicative, adaptive translation) remains central. This dichotomy highlights the tension between structural fidelity and contextual appropriateness, offering a lens through which both human and AI translation performance can be evaluated.

Complementing this perspective, Pinmanee (2019, as cited in Promdam & Yutdhana, 2024) proposed analyzing translation at three interrelated levels: lexical, syntactic, and message. At each level, translators or AI systems must make informed choices to balance accuracy with communicative intent. This layered approach is particularly useful for evaluating AI-assisted idiom translation, where meaning often extends beyond literal interpretation.

From a micro-analytical perspective, Corder's (1967) Error Analysis (EA) provides a systematic methodology for identifying, classifying, and explaining deviations in translation. Originally developed for second language acquisition, EA distinguishes between interlingual errors, caused by negative transfer from the source language, and intralingual errors, arising from misapplications of linguistic rules. Applied to AI translation systems, this framework facilitates the tracing of error patterns

and systemic limitations, enabling a nuanced understanding of how and why certain mistranslations occur.

On a broader scale, Toury's (1995) Descriptive Translation Studies (DTS) framework emphasizes observing translation behavior as it naturally occurs, without imposing prescriptive norms. This non-judgmental stance is particularly useful for studying AI outputs, which often reflect internal algorithmic tendencies rather than human-like sensitivity to context. DTS thus provides a valuable tool for identifying recurrent error types, systemic biases, and translation regularities in AI-generated texts.

Finally, idiomatic translation requires sensitivity not only to linguistic structure but also to cultural context. Cultural Linguistics, as articulated by Sharifian (2017), highlights the culturally constructed schemas embedded within language, particularly in idiomatic expressions. Idioms frequently encode metaphors, values, and lived experiences that are deeply rooted in sociocultural knowledge. This framework explains why AI systems despite their growing linguistic capabilities often struggle with idiomatic and culturally nuanced expressions, as these demand an understanding of cultural cognition that extends beyond literal meaning.

Together, these theoretical perspectives Newmark's taxonomy, Pinmanee's layered analysis, Corder's Error Analysis, Toury's Descriptive Translation Studies, and Sharifian's Cultural Linguistics form a comprehensive framework for examining AI translation of idioms. They collectively support the evaluation of accuracy, error patterns, and cultural appropriateness in AI-generated outputs, offering both micro- and macro-level insights into the challenges and possibilities of AI-assisted translation.

Building upon these theoretical underpinnings, the study further incorporates the evaluative criteria proposed by Kanchanakas and Rungruangthum (2024, 80–81), which provide 1) four accuracy criteria for assessing Korean–Thai idiom translation main meaning, supporting details, clarity, and naturalness and 2) a typology of four translation error types: literal translation, incomplete translation, misinterpretation, and grammatical error. This integration enables a comprehensive and systematic evaluation of both accuracy and recurring error patterns in AI-based idiom translation.

5. OBJECTIVES

1. To examine the accuracy of translating Korean idioms into Thai using various AI tools, including ChatGPT, Gemini, Claude, Perplexity, DeepSeek, Google Translate, and Papago.
2. To analyze the error patterns in the translation of Korean idioms into Thai using AI tools such as ChatGPT, Gemini, Claude, Perplexity, DeepSeek, Google Translate, and Papago.

6. METHODOLOGY, INSTRUMENTS, AND SAMPLE GROUP

This study adopts a mixed-methods research design to evaluate the performance of various AI systems in translating Korean idiomatic expressions into Thai, and to identify recurring translation error patterns.

6.1. Phase 1: Quantitative Analysis

The quantitative phase focused on evaluating the accuracy of Korean idiom translations into Thai. Seven AI tools were selected, comprising five LLMs-based models (ChatGPT, Gemini, Claude, Perplexity, DeepSeek) and two MT-based systems (Google Translate and Papago).

A total of 91 Korean idioms were initially extracted from textbooks used by eight major Korean universities. After a screening process to ensure semantic and cultural equivalence with Thai idioms, 39 idioms were selected for translation.

Each idiom was translated using all seven tools, producing 273 translation outputs. These were evaluated using accuracy criteria informed by prior studies (e.g., Kanchanakas & Rungruangthum, 2024), and analyzed statistically using SPSS.

6.2. Phase 2: Qualitative Analysis

In the qualitative phase, the researcher examined translation error patterns based on the taxonomy proposed by Kanchanakas and Rungruangthum (2024), with additional error categories emerging from the data, particularly for LLMs. These included instances of "explanation" errors where LLMs provided accurate paraphrases rather than idiomatic equivalents highlighting a novel operational behavior.

6.3. AI Used for Translation

The selection of AI translation tools in this study was guided by the prior works of Kim (2023) and Yoon (2024), and included widely recognized LLMs available in Thailand . In addition to these, DeepSeek V3, a Chinese-developed LLMs which recorded the highest number of downloads on the U.S. App Store in January 2025 , was also incorporated to ensure diversity in model origin and user adoption. The LLMs employed for the translation task comprised

ChatGPT-4o, Gemini 1.5 Flash, Claude 3.5 Sonnet, Perplexity (free version), and DeepSeek V3. For comparison, two mainstream machine translation (MT) tools Google Translate (Version 2024) and Papago (Version 11.10) were included. DeepL Translate was excluded from the study due to its lack of Thai language support.

For each translation, Korean idiomatic expressions were input into the selected AI systems to produce Thai equivalents. In the case of LLMs (ChatGPT, Gemini, Claude, Perplexity, and DeepSeek), the researcher used a standardized prompt: "Please translate from Korean to Thai," followed by the Korean idiom on the subsequent line. For MT tools (Google Translate and Papago), Korean was selected as the source language and Thai as the target language, after which the idioms were entered directly into the input field.

Translation outputs from ChatGPT, Gemini, Claude, Perplexity, Google Translate, and Papago were collected between November 16 and December 1, 2024. Data from DeepSeek V3 was gathered separately on January 28, 2025, due to its later public availability.

6.4. Sample Selection and Idiomatic Equivalence Criteria

Korean idioms were chosen as the sample for this study due to their high degree of linguistic intricacy and cultural specificity, which present substantial challenges for both human and machine translation. To assess the accuracy of AI-based translation in handling such complex language units, the study focused on idioms frequently featured in standard Korean language textbooks. These textbooks are officially published and widely adopted by language institutes affiliated with eight major universities in the Republic of Korea, namely: 1) Kyung Hee University, 2) Korea University, 3) Sun Moon University, 4) Sung Kyun Kwan University, 5) Silla University, 6) Yonsei University, 7) Ewha Womans University, and 8) Seoul National University. The idioms were selected based on their frequency of occurrence across these instructional materials, thereby reflecting their pedagogical significance and representativeness in formal Korean language education.

The distribution of idioms by frequency of occurrence is as follows: 3 idioms appeared in 7 textbooks, 6 idioms in 6 textbooks, 8 idioms in 5 textbooks, 10 idioms in 4 textbooks, 22 idioms in 3 textbooks, and 41 idioms in 2 textbooks, resulting in an initial pool of 91 idioms.

To establish semantic clarity, the meanings of the Korean idioms were interpreted based on definitions provided by Chun (2024), Kim et al. (2014a), and Kim et al. (2014b). Corresponding Thai idioms were identified and verified through authoritative sources including Chaiyanon (2000), Kanchanakhaphan (1998), and Sangtaksin (2012). Each idiom was examined for lexical meaning, conceptual clarity, naturalness, and cultural appropriateness in both languages.

This selection process adhered to the idiom translation criteria outlined by Kanchanakas and Rungruangthum (2024, 80), as well as the translation principles proposed by Pinmanee (2014, 150–151), which stress that "idioms cannot be translated literally on a word-for-word basis, as such translations do not accurately convey the intended meaning. Effective idiom translation requires a clear understanding of the original idiom's meaning, followed by the selection of an equivalent idiomatic expression in the target language."

Following a comparative semantic analysis, only idioms that demonstrated equivalence in both linguistic meaning and cultural context were retained. As a result, 39 Korean idioms were identified as having culturally and semantically corresponding Thai idioms. These 39 idiom pairs constituted the final dataset used to evaluate the translation accuracy of selected AI tools. A detailed list of the idioms included in the sample is presented in Table 1.

Table 1: Korean and Thai Idioms That Retain the Same Meaning.

Orders	Korean Idioms	Matching Thai Idioms	Meanings
1	낮말은 새가 듣고 밤 말은 쥐가 듣는다. [nan ma ɾɯn sɛ ga dɯt k'o bam ma ɾɯn ʧwi ga dɯn nɯn da][1] (Birds hear what is said during the day, and mice hear what is said at night.)[2]	**หน้าต่างมีหูประตูมีช่อง** [nâ: tà:ŋ mi: hŭ: prà tu: mi: tɕʰɔ̂ŋ][3] (Windows have ears, doors have holes.)	Words spread easily, be careful with your words.

[1] The criteria for transcribing Korean into IPA were referenced from Heo and Kim (2011).
[2] To facilitate understanding of the literal meanings of Korean and Thai idioms, the researcher provides their literal translations.
[3] The criteria for transcribing Thai into IPA were referenced from Booncun (2005).

Orders	Korean Idioms	Matching Thai Idioms	Meanings
2	말 한마디에 천냥 빚을 갚는다. [mal han ma di e ʧʰən nyang pi ʤil kam nun da] (A single word can repay a debt of a thousand pieces of gold.)	**ปากเป็นเอก เลขเป็นโท** [pà:k pen ʔè:k lê:k pen tʰo:] (The mouth is first, the numbers are second.), **พูดดีเป็นศรีแก่ตัว** [pʰû:t di: pen sǐ: kɛ̀: tua] (Speaking well is an honor to oneself.)	Eloquent can solve problems, choose your words wisely.
3	하늘의 별 따기 [ha ni re pyəl tʻa gi] (Reaching for the stars in the sky.)	**งมเข็มในมหาสมุทร** [ŋom kʰěm nai má hǎ: sà mùt] (Searching a Needle in the Ocean.)	Things that are very difficult to do.
4	금강산도 식후경 [kim kaŋ san do si kʰu kʻyəŋ] (Even the Geumgang Mountain is better after a meal.)	**กองทัพเดินด้วยท้อง** [kɔ:ŋ tʰáp dɯ̀:n dûaj tʰɔ́:ŋ] (An army marches on its stomach.)	No matter what you do, eat first.
5	발 없는 말이 천 리 간다. [pal əm nin ma ri ʧʰəl li kan da] (A horse without legs can travel a thousand miles.)	**ปากคนยาวกว่าปากกา** [pà:k kʰon ja:w kwà: pà:k ka:] (A person's mouth is longer than a pen.)	Words spread fast; one should always be careful of things they say.
6	우물 안의 개구리 [u mu la ne kɛ gu ri] (Frog in the well.)	**กบในกะลาครอบ** [kòp naj ka la: kʰrɔ̂:p] (Frog in a coconut shell.)	People who are narrow-minded and don't know the outside world
7	원숭이도 나무에서 떨어질 때가 있다. [wən su ŋi do na mu e sə tʻə rə ʤil tʻɛ ga it tʻa] (Even monkeys fall from trees sometimes.)	**สี่ตีนยังรู้พลาดนักปราชญ์ยังรู้พลั้ง** [sì: ti:n jaŋ rú: pʰlâ:t nák prà:t jaŋ rú: pʰláŋ] (Even a four-legged animal can make mistakes, and a wise person can also make mistakes.)	Even smart people make mistakes.
8	윗물이 맑아야 아랫물이 맑다. [win mu ri mal ga ya a rɛn mu ri mak tʻa] (If the upper water is clear, the lower water will be clear.)	**เจ้าวัดไม่ดี หลวงขีก็สกปรก** [tɕâw wát mâj di: lŭaŋ tɕʰi: kɔ̂ sòk kà pròk] (The abbot is bad and nuns are dirty.)	If supervisors are good, then subordinates are good.
9	천리 길도 한걸음부터 [ʧʰəl li gil do han gə rim bu tʰə] (A journey of a thousand miles begins with a single step.)	**เริ่มต้นดีมีชัยไปกว่าครึ่ง** [rɤ̂:m tôn di: mi: tɕʰaj paj kwà: kʰrûŋ] (A good start is half way to win.)	Big things start from small things.
10	세살 적 버릇 여든까지 간다. [se sal ʧʻək pʻə rit yə din kʻa ʧʻi kan da] (Habits formed at the age of three last until the age of eighty.)	**สอนเด็ก สอนง่ายสอนผู้ใหญ่ สอนยาก** [sɔ̌:n dèk sɔ̌:n ŋâ:j sɔ̌:n pʰû: jàj sɔ̌:n jâ:k] (Teaching children is easy, teaching adults is difficult.)	Habits that start from childhood will continue into adulthood.
11	소 잃은 후에 외양간 고친다. [so i rin hu e we yang gan ko ʧʰin da] (After the horse is gone, the barn door is fixed.)	**วัวหายล้อมคอก** [wua hăːj lɔ́:m kʰɔ̂:k] (The cow is lost, then build stalls.)	Fix something after it has already been damaged.
12	호랑이도 제 말하면 온다. [ho ra ŋi do ʧe mal ha myən on da] (Even a tiger comes when I call it.)	**พูดถึงก็มา** [pʰû:t tʰŭŋ kɔ̂: ma:] (Saying about it, it comes.)	When you talk about someone and that person appears.
13	누워서 떡 먹기 [nu wə sə tʻək mək kʻi] (Eating rice cake while lying down.)	**ปอกกล้วยเข้าปาก** [pɔ̀:k klûaj kʰâw pà:k] (Peel a banana and put it into a mouth.)	A very simple matter.
14	등잔 밑이 어둡다. [tiŋ ʤan mi tʰi ə dup tʻa] (It's dark under the lamp.)	**เส้นผมบังภูเขา** [sên pʰŏm baŋ pʰu: kʰăw] (Hair covers the mountain.)	Difficult to know well about something that is close to oneself.
15	고생 끝에 낙이 온다. [ko sɛŋ kʻi tʰe na gi on da] (After hardship happiness comes.)	**ฟ้าหลังฝน** [fá: lăŋ fŏn] (Sky after the rain.)	After going through hardship, good things will come.
16	꿩 먹고 알 먹고 [kʻwəŋ mək kʻo al mək kʻo] (Eat the pheasant and the eggs too.)	**กระสุนนัดเดียวได้นกสองตัว** [krà sŭn nát di:aw dâj nók sɔ̌:ŋ tua] (One bullet, get two birds.)	Do one thing but get multiple results.
17	떡 본 김에 제사 지낸다. [tʻək pʻon gi me ʧe sa ʤi nɛn da] (Since I've seen the rice cake, I'll hold a memorial service.)	**น้ำขึ้นให้รีบตัก** [náːm kʰûn hâj rîːp tàk] (When the water rises, scoop it up quickly.)	Take advantage of a good opportunity to do what you intend to do.
18	백 번 듣는 것이 한번 보는 것만 못하다. [pɛk pʻən din nin gə si han bən bo nin gən man mo tʰa da] (Hearing something hundred times is not as good as seeing it once.)	**สิบปากว่าไม่เท่าตาเห็น** [sìp pà:k wâ: mâj tʰâw ta: hěn] (Ten mouths saying is not as good as seeing with your own eyes.)	Seeing it yourself is more reliable than hearing about it.

Orders	Korean Idioms	Matching Thai Idioms	Meanings
19	사공이 많으면 배가 산으로 간다. [sa go ŋi ma ni myən pɛ ga sa ni ro kan da] (If there are many paddlers, the boat will go to the mountain.)	**มากหมอมากความ** [mâ:k mɔ̌: mâ:k kʰwa:m] (Too many doctors, too many opinions.)	If there are too many people with many opinions, the work can't be finished.
20	시작이 반이다. [si ʤa gi pa ni da] (Well begun is half done.)	**เริ่มต้นดีมีชัยไปกว่าครึ่ง** [rɤ̂:m tôn di: mi: tɕʰaj paj kwà: kʰrûŋ] (A good start is half way to win.)	Getting started is important, and once you start, you are halfway there.
21	식은 죽 먹기 [si gin ʤuk mək k'i] sigeun juk meokgi (Eating cold porridge.)	**ปอกกล้วยเข้าปาก** [pɔ̀:k klûaj kʰâ:w pà:k] (Peel a banana and put it into a mouth.)	Very easy to do.
22	싼 게 비지떡 [s'an ge pi ʤi t'ək] (Cheap things is bijitteok.)	**ของถูกไม่มีดี ของดีไม่มีถูก** [kʰɔ̌:ŋ tʰùk mâj mi: di: kʰɔ̌:ŋ di: mâj mi: tʰùk] (Cheap things are not good. Good things are not cheap.)	Cheap things are usually not good.
23	콩 심은데 콩 나고 팥 심은데 팥 난다. [kʰoŋ si min de kʰoŋ na go pʰat si min de pʰan nan da] (If you plant beans, beans will grow. If you plant red beans, red beans will grow.)	**ลูกไม้หล่นไม่ไกลต้น** [lûːk máj lòn mâj klaj tôn] (The fruit doesn't fall far from the tree.), **หว่านพืชเช่นใด ย่อมได้ผลเช่นนั้น** [wǎ:n pʰû:t tɕʰên daj jɔ̂:m dâj pʰɔ̌n tɕʰên nán] (Growing one type of plant, so you get that plant.)	You will get what you do.
24	티끌 모아 태산 [tʰi k'il mo a tʰɛ san] (Gathering dust to form Mountains)	**เก็บเล็กผสมน้อย** [kèp lék pʰà sǒm nɔ́:j] (Collect a little, mix a little.)	Even a small thing, if you accumulate it, it can become something big.
25	하룻강아지 범 무서운 줄 모른다. [ha rut k'a ŋa ʤi pəm mu sə un ʤul mo rin da] (A puppy doesn't know how scary a tiger is.)	**เด็กอมมือ** [dèk ʔo:m mɯ:] (child sucks hand), **เด็กเมื่อวานซืน** [dèk mɯ̂:a wa:n sɯ:n] (The day before yesterday's child.)	Inexperienced people do things without thinking.
26	개구리 올챙이 적 생각 못한다. [kɛ gu ri ol ʧʰɛ ŋi ʧək sɛŋ gak mo tʰan da] (A frog can't think of a tadpole.)	**วัวลืมตีน** [wua lɯ:m ti:n] (The cow forgot its paws.)	A person who forgets their roots after achieving success.
27	고래 싸움에 새우등 터진다. [ko rɛ s'a u me sɛ u diŋ tʰə ʤin da] (In a fight between whales, the shrimp's back gets broken.)	**ช้างสารชนกัน หญ้าแพรกก็แหลกลาญ** [tɕʰá:ŋ sǎ:n tɕʰon kan jâ: prɛ̂:k kɔ̂: lɛ̀:k la:n] (Elephants fight and the grass is destroyed.)	Commoners suffer from the fighting of those powerful people.
28	꿀 먹은 벙어리 [k'ul mə gin pə ŋə ri] (The mute man who ate honey.)	**เงียบเป็นเป่าสาก** [ŋîap pen pàw sà:k] (As quiet as blowing a mortar.)	A person who says nothing or cannot speak.
29	남의 떡이 더 커 보인다. [na me t'ə gi tə kʰə bo in da] (See other people's rice cake is bigger than one's own.)	**คนในอยากออก คนนอกอยากเข้า** [kʰon naj jà:k ʔɔ̀:k kʰon nɔ̂:k jà:k kʰâo] (People inside want to get out, people outside want to get in.)	Other people's things always look better than one's own things.
30	누워서 침 뱉기 [nu wə sə ʧʰim bɛt k'i] (Spitting while lying down.)	**ถ่มน้ำลายรดฟ้า** [tʰòm ná:m la:j rót fá:] (Spit at the sky.)	Hurting others and it ultimately hurts oneself instead.
31	되로 주고 말로 받는다. [twe ro ʤu go mal ro ban nin da] (Give a little, get a lot.)	**เสียกำไดักอบ** [sǐa kam daĭ kɔ̀:p] (lose bundle get scoop up), **เอากุ้งฝอยไปตกปลากะพง** [ʔaw kûŋ fɔ̌j paj tɔ̀k pla: kà pʰoŋ] (Use small shrimps to catch sea bass.)	Giving a little thing but receiving something much more amount in return.
32	땅 짚고 헤엄치기 [t'aŋ ʤip k'o he əm ʧʰi gi] (Swimming with your feet on the ground.)	**ปอกกล้วยเข้าปาก** [pɔ̀:k klûaj kʰâw pà:k] (Peel a banana and put it into a mouth.)	A very easy thing.
33	뛰는 놈 위에 나는 놈 있다. [t'wi nin nom wi e na nin nom it t'a] (There is someone flying above the one running.)	**เหนือฟ้ายังมีฟ้า** [nɯ̌:a fá: jaŋ mi: fá:] (There is always the sky above the sky.)	Above a talented person, there is someone even more talented.
34	발등에 불이 떨어지다. [pal t'ɨ ŋe pu ri t'ə rə ʤi da] (Fire falls on one's feet.)	**ไฟจุดตูด** [faj tɕut tùt] (Fire on ass.),	Problems or urgent that need to be solved quickly.

Orders	Korean Idioms	Matching Thai Idioms	Meanings
		ไฟรนก้น [faj ron kôn] (Fire on butt.)	
35	아니 땐 굴뚝에 연기 날까? [a ni t'ɛn kul t'u ge yən gi nal k'a] (If there's nothing, will there be smoke in the chimney?)	ไม่มีมูลฝอยหมาไม่ขี้ [mâj mi: mu:n fǒj mǎ: mâj khî:] (No Garbage, dog won't poop.), มีควันย่อมมีไฟ [mi: kʰwan jɔ̂:m mi: faj] (Where there is smoke, there is fire.)	Rumours always have a source.
36	엎친 데 덮친 격 [əp ʧʰin de təp ʧʰin gyək] (An object that has been turned over, but something else has been placed on top of it again.)	ความวัวยังไม่หายความควายแทรก [kʰwa:m wua jaŋ mâj hǎ:j kʰwa:m kʰwa:j sɛ̂:k] (The problem of the cow is not solved yet, the problem of the buffalo is coming.), เคราะห์ซ้ำกรรมซัด [kʰrɔ́: sám kam sát] (Misfortune upon misfortune)	When one problem arises, another follows.
37	열 번 찍어 안 넘어가는 나무 없다. [yəl p'ən ʧ'i gə an nə mə ga nin na mu əp t'a] (There is no tree that will not fall after ten strikes.)	ความพยายามอยู่ที่ไหนความสำเร็จอยู่ที่นั่น [kʰwa:m pʰá ja: jam jù: tʰî: nǎj kʰwa:m sǎm rèt jù: tʰî: nân] (Where there is an effort, there is success.)	Work can be accomplished through effort.
38	제 눈의 안경 [ʧe nu ne an gyəŋ] (The glasses only for my eyes.)	ลางเนื้อชอบลางยาง [la:ŋ nɯ́:a tɕʰɔ̂:p la:ŋ ja:ŋ] (Some people like one type of medicine, others like another type.)	The same thing may be liked by one person and disliked by another due to personal preference.
39	범을 잡자면 범의 굴에 들어가야 한다. [pə mil ʤap ʤa myən pə me gu re di rə ga ya han da] (If you want to catch a tiger, you have to go into the tiger's cave.)	อยากได้ลูกเสือ ต้องเข้าถ้ำเสือ [jà:k dâj lû:k sɯ̌:a tɔ̂ŋ khâw tʰâm sɯ̌a] (If you want a tiger cub, you must enter the tiger's cave.)	To accomplish something difficult or challenging, you must be willing to face risks and struggles.

6.5. Criteria for Evaluating Translation Accuracy.

This research adopts evaluation criteria for assessing the accuracy of Korean idiom translations into Thai, based on the framework developed by Kanchanakas and Rungruangthum (2024, 80). Their criteria for evaluating the accuracy of English idiom translations into Thai comprise four components: 1) the main meaning corresponds to that of the source language (in this case, Korean), 2) supporting details are complete and consistent with the source language, 3) the translation is clear in the target language (Thai), and 4) the translation sounds natural in the target language. In other words, a "correctly translated idiom" refers to an AI-generated translation that accurately conveys the source language meaning into the target language, with complete details, clarity, and a level of naturalness appropriate to the cultural context of the target language.

An example of a correctly translated Korean idiom into Thai is presented in Table 2.

Table 2. Example of Accurate Idiom Translations from Korean to Thai.

Korean Idioms	Accurate Translation into Thai Idioms	meaning
누워서 떡 먹기 [nu wə sə t'ək mək k'i] (Eating rice cake while lying down.)	ปอกกล้วยเข้าปาก [pɔ̀:k klûaj kʰâw pà:k] (Peel a banana and put it in mouth.)	A very simple matter.
금강산도 식후경 [kɨm kaŋ san do si kʰu k'yəŋ] (Even the Geumgang Mountain are better after a meal.)	กองทัพเดินด้วยท้อง [kɔ:ŋ tʰáp dɤ:n dûaj tʰɔ́:ŋ] (An army marches on its stomach.)	No matter what you do, eat first.

Referring to the table above presents examples of correctly translated Korean idiom into Thai by AI as follows. In the case where AI translates the Korean idiom '누워서 떡 먹기 [nu wə sə t'ək mək k'i] (Eating rice cake while lying down.)' into the Thai idiom 'ปอกกล้วยเข้าปาก [pɔ̀:k klûaj kʰâw pà:k] (Peel a banana and put it in mouth.), it is considered an accurate translation. This is because the AI successfully conveys the meaning of the source language into the target language, with the core meaning being "a very simple matter." The translation is complete in detail, applicable in similar contexts, culturally appropriate for both countries, and naturally expressed.

Similarly, if AI translates the Korean idiom '금강산도 식후경 [kɨm kaŋ san do si khu k'yəŋ] (Even the Geumgang Mountain are better after a meal.)'

into the Thai idiom 'กองทัพเดินด้วยท้อง [kɔ:ŋ tʰáp dɤ:n dûaj tʰɔ́:ŋ] (An army marches on its stomach.)', it is also considered a correct translation. This is because the AI accurately conveys the meaning from source language to target language, which is "No matter what you do, eat first." The translation is complete in detail, contextually equivalent, culturally appropriate for both countries, and naturally expressed.

6.6. Criteria for Identifying Translation error patterns.

After conducting the initial analysis of the accuracy of Korean idiom translations into Thai, the researcher excluded the idioms that were inaccurately translated, based on the criteria outlined in the framework by Kanchanakas and Rungruangthum (2024, 80). These inaccurate translations were then further analyzed to identify recurring patterns of translation errors, using the error typology proposed by Kanchanakas and Rungruangthum (2024, 81). This typology classifies errors in translating English idioms into four categories

1) Literal translation: This occurs when idioms are translated directly, word-for-word, into Thai without interpreting their figurative meaning, resulting in a loss of the intended message.
2) Incomplete translation or under-translation: This type of error arises when the Thai translation fails to fully capture the main idea of the English idiom, leading to a partial or insufficient interpretation.
3) Misinterpretation: This refers to translations that are not literal but still fail to convey the correct meaning, producing a version in Thai that diverges from the original intent.
4) Grammatical error: These are cases in which the translated Thai text contains grammatical mistakes that impact the readability and accuracy of the translation.

7. RESULTS

7.1. The Accuracy of Translating Korean Idioms into Thai

This study collected data on the accuracy of translating 39 Korean idioms into Thai using both LLMs and MT tools. Only the initial translation outputs rendering Korean idioms into Thai idioms produced by various AI systems were used for analysis. Translation data was gathered from ChatGPT, Gemini, Claude, Perplexity, Google Translate, and Papago between November 16 and December 1, 2024. Data from DeepSeek was collected separately on January 28, 2025. The researcher then analyzed the translation accuracy using SPSS, with the details outlined below. The following information is the translation accuracy for Korean idioms into Thai divided by LLMs and MT. The translation accuracy is presented in Table 3 categorized by Model and Type.

Table 3. Summary Table of Translation Accuracy for Korean Idioms into Thai.

AI		Accurately Translated Sentence (sentence)	Average Accuracy (%)		
			Categorized by Model	Categorized by Type	Overall
LLMs	ChatGPT	24	61.54	36.92	27.11
	Gemini	18	46.15		
	Claude	2	5.13		
	Perplexity	12	30.77		
	DeepSeek	16	41.03		
MT	Google Translate	0	0.00	2.56	
	Papago	2	5.13		

The table shows that AI achieved an average translation accuracy of 27.11%. When analyzed by type, LLMs had an average accuracy of 36.92%, while MT had a significantly lower average accuracy of 2.56%.

When further categorized by individual AI models, the average translation accuracies were as follows: ChatGPT at 61.54%, Gemini at 46.15%, Claude at 5.13%, Perplexity at 30.77%, DeepSeek at 41.03%, Google Translate at 0%, and Papago at 5.13%. The following section presents a comparison of the average translation accuracy of Korean idioms into Thai idioms between LLMs and MT. For the comparison in translation accuracy between LLMs and MT. The Paired Sample T-Test statistical analysis comparing the average accuracy is presented in Table 4.

Table 4: Paired Sample T-Test Statistical Analysis Comparing the Average Accuracy of LLMs and MT.

AI	$\bar{X}$	SD	Xc	SD	T-Score	p-Value
LLMs	36.92	20.96	19.74	24.30	5.10870	0.002
MT	2.56	3.62				

Referring to the table above, a comparison of average translation accuracy between LLMs and MT shows that LLMs achieved a significantly higher accuracy of 36.92%, compared to only 2.56% for MT ($t=5.11$, $p = 0.002$, $p < 0.05$). The effect size, as measured by Cohen's d, was 1.17, indicating a large effect. This finding suggests that although LLMs is primarily designed to process instructions and

generate content in various formats based on user intent, their translation quality is markedly superior to that of MT. In addition to its ability to translate Korean idioms into Thai, LLMs also provided explanation of the meanings of Korean idioms. For example, the Korean idiom '낮말은 새가 듣고 밤 말은 쥐가 듣는다 [nan ma ɾɯn sɛ ga dɯt k'o bam ma ɾɯn ʧwi ga dɯn nɯn da] (Birds hear what is said during the day, and mice hear what is said at night.),' DeepSeek provided the meaning: 'No matter what you say in secret or public, there is always someone who might hear or know about it.'

Similarly, for the Korean idiom '누워서 떡 먹기 [nu wə sə t'ək mək k'i] (Eating rice cake while lying down.),' ChatGPT explained its meaning as 'Something that is very easy.'

The analysis results of the accuracy of AI's explanation of Korean idiom meanings are presented in Table 5.

Table 5: Average Accuracy of LLMs in Explaining Korean Idiom Meanings.

AI	Accurate Explanations (idiom)	Average Accuracy of Explanations (%)	Overall Average Accuracy of Explanations (%)
ChatGPT	39	100.00	95.90
Gemini	38	97.44	
Claude	35	89.74	
Perplexity	38	97.44	
DeepSeek	37	94.87	

According to the table above, which presents the average accuracy of LLMs in explaining the meanings of Korean idioms, 187 out of 195 idioms (5 AI models × 39 idioms) were correctly explained, resulting in an overall accuracy rate of 95.90%. When broken down by AI model, the number of correct explanations was as follows: ChatGPT with 39 (100%), Gemini with 38 (97.44%), Claude with 35 (89.74%), Perplexity with 38 (97.44%), and DeepSeek with 37 (94.87%). This study finds that LLMs not only outperformed MT in translating Korean idioms into Thai idioms but also demonstrated a high level of accuracy in explaining the meanings of those idioms an ability unique to LLMs. However, issues related to output stability were observed during usage. For instance, in the case of Gemini, after extended use, it began displaying translations and explanations entirely in Korean. The expected output should have included Thai translations of the idioms along with their meaning explanations in Thai. In the case of Claude, the translations of Korean idioms into Thai were inconsistent across different attempts. For example, the Korean idiom '식은 죽 먹기 [si gin ʤuk mək k'i],' was initially mistranslated literally as 'have cold boiled rice.' On a subsequent attempt, rather than providing a proper Thai idiomatic translation, the output included an explanation of the idiom's meaning, rendering it as 'เป็นเรื่องง่ายดาย [pen rûːaŋ ŋâːj daːj]' (It's easy to do).

7.2. Translation Error Patterns

After collecting data on the accuracy of Korean idiom translations into Thai, the researcher analyzed the translation errors and categorized them using error pattern criteria adapted from the study by Kanchanakas and Rungruangthum (2024). **This study identified the following translation error patterns** 1) Misinterpretation–when the meaning of the idiom is misunderstood, and 2) Literal translation–where the idiom is translated word for word, resulting in a direct and often inaccurate meaning. Further analysis of literal translations revealed additional error types: 3) Incomplete translation–where some elements of the idiom's meaning are omitted and 4) Grammatical error–where the translation lacks fluency or contains sentence-level grammatical mistakes. In addition to these, the study uncovered an error pattern not noted in the research of Kanchanakas and Rungruangthum (2024): 5) Explanation–where the AI provides a meaning-based explanation of the Korean idiom instead of translating it into a corresponding Thai idiom. The results of the analysis of these translation error patterns are presented in Table 6.

Table 6: The Analysis Results of AI Translation Error Patterns.

Translation Error Patterns	LLMs Errors (sentence)	MT Errors (sentence)	Sentences with Errors (sentence)	Average (%)
Literal Translation	67	65	132	66.33
Misinterpretation	32	9	41	20.60
Grammatical Error	6	2	8	4.02
Incomplete Translation	2		2	1.01

Explanation	16		16	8.04

As shown in the table above, the error pattern of literal translation occurred in 132 sentences (66.33%), misinterpretation in 41 sentences (20.60%), grammatical error in 8 sentences (4.02%), incomplete translation in 2 sentences (1.01%), and explanation in 16 sentences (8.04%).

Table 7: Examples of Literal Translation.

Korean Idioms	Examples of Translation Errors	Accurate Thai Idioms
낮말은 새가 듣고 밤 말은 쥐가 듣는다. [nan ma rɯn sɛ ga dɯt k'o bam ma rɯn ʧwi ga dɯn nɯn da] (Birds hear what is said during the day, and mice hear what is said at night.)	**นกฟังคำพูดของวัน และหนูฟังคำพูดของเวลากลางคืน** [nók faŋ kʰam pʰûːt kʰɔ̌ːŋ wan lɛ́ː nŭː faŋ kʰam pʰûːt kʰɔ̌ːŋ weːlaː klaːŋ kʰûːn] (The birds hear the words spoken by day, and the mice hear the words spoken by night.) (Google Translate)	**หน้าต่างมีหูประตูมีช่อง** [nâː tàːŋ miː hŭː prà tuː miː tɕʰɔ̂ŋ] (Windows have ears, doors have holes.)
하늘의 별 따기 [ha ni re pyəl t'a gi] (Reaching for the stars in the sky.)	**คว้าดาวบนฟ้า** [kʰwáː daːw bon fáː] (Reach for the stars in the sky.) (ChatGPT)	**งมเข็มในมหาสมุทร** [ŋom kʰěm nai má hăː sà mùt] (Searching a Needle in the Ocean.)
발 없는 말이 천 리 간다. [pal əm nin ma ri ʧʰəl li kan da] (A horse without legs can travel a thousand miles.)	**ม้าไม่มีเท้าวิ่งได้ 1,000 ลี้** [máː mâːj miː tʰáːw wîŋ dâːj pʰăn líː] (A horse without legs can travel a thousand miles.) (Papago)	**ปากคนยาวกกว่าปากกา** [pàːk kʰon jaːw kwàː pàːk kaː] (A person's mouth is longer than a pen.)

In addition, when examining the error pattern of literal translation, it was found that MT produced 65 literal translation errors out of 76 sentences, accounting for 85.53%. In contrast, LLMs produced 67 literal translation errors out of 123 sentences, or 57.47%. Examples of Korean idioms translated into Thai, along with their corresponding translation error patterns, are presented in Table 7. Referring to the table above presents examples of literal translation by AI as follows.

The Korean idiom '낮말은 새가 듣고 밤 말은 쥐가 듣는다 [nan ma rɯn sɛ ga dɯt k'o bam ma rɯn ʧwi ga dɯn nɯn da] (Birds hear what is said during the day, and mice hear what is said at night.),' which means 'words spread easily, be careful with your word,' was translated by Google Translate literally as '**นกฟังคำพูดของวัน และหนูฟังคำพูดของเวลากลางคืน**. [nók faŋ kʰam pʰûːt kʰɔ̌ːŋ wan lɛ́ː nŭː faŋ kʰam pʰûːt kʰɔ̌ːŋ weːlaː klaːŋ kʰûːn] (The birds hear the words spoken by day,' and the mice hear the words spoken by night.) However, the accurate Thai idioms conveying the same meaning should be '**หน้าต่างมีหูประตูมีช่อง** [nâː tàːŋ miː hŭː prà tuː miː tɕʰɔ̂ŋ] (Windows have ears, doors have holes.).'

The idiom '하늘의 별 따기 [ha ni re pyəl t'a gi] (Reach stars from the sky.),' which means 'something that is very hard to do,' was translated by ChatGPT literally as '**คว้าดาวบนฟ้า**. [kʰwáː daːw bon fáː] (Reaching for the stars in the sky.)' However, the accurate Thai idioms conveying the same meaning is '**งมเข็มในมหาสมุทร** [ŋom kʰěm nai má hăː sà mùt] (Searching a Needle in the Ocean).' The idiom '발 없는 말이 천 리 간다 [pal əm nin ma ri ʧʰəl li kan da] (A horse without legs can travel a thousand miles.),' which means 'words spread fast, one should always be careful of things they say,' was translated by Papago literally as '**ม้าไม่มีเท้าวิ่งได้ 1,000 ลี้** [máː mâːj miː tʰáːw wîŋ dâːj phăn líː] (A horse without feet can run 1,000 li.).' However, the accurate Thai idioms conveying the same meaning is '**ปากคนยาวกว่าปากกา** [pàːk kʰon jaːw kwàː pàːk kaː] (A person's mouth is longer than a pen.).'

Examples of translation errors in the type of misinterpretation divided in examples of Translation errors and accurate Thai idioms are presented in Table 8.

Table 8: Examples of Misinterpretation.

Korean Idioms	Examples of Translation Errors	Accurate Thai idioms
윗물이 맑아야 아랫물이 맑다. [win mu ri mal ga ya a rɛn mu ri mak t'a] (If the upper water is clear, the lower water will be clear.)	**ปลาใหญ่กินปลาเล็ก** [plaː jàj kin plaː lék] (Big fish eats small fish.) (Perplexity)	**เจ้าวัดไม่ดี หลวงชีก็สกปรก** [tɕâw wát mâj diː lŭaŋ tɕʰiː kɔ̂ sòk kà pròk] (The abbot is bad and nuns are dirty.)
등잔 밑이 어둡다.	**ใกล้เกลือกินด่าง** [krâj klɯːa kin dàːŋ]	**เส้นผมบังภูเขา**

[tiŋ ʤan mi tʰi ə dup tʻa] (It's dark under the lamp.)	(Near the salt, eat alkali.) (Perplexity)	[sên pʰǒm baŋ pʰu: kʰăw] (Hair covers the mountain.)
누워서 침 뱉기 [nu wə sə ʧʰim bɛt kʻi] (Spitting while lying down.)	**สีซอให้ควายฟัง** [sĭ: sɔ: hâj kʰwa:j faŋ] (Playing the fiddle for the buffalo.) (Perplexity)	**ถ่มน้ำลายรดฟ้า** [tʰòm ná:m la:j rót fá:] (Spit at the sky.)

Referring to the table above shows examples of misinterpretation by AI as follows.

The idiom ‘윗물이 맑아야 아랫물이 맑다. [win mu ri mal ga ya a rɛn mu ri mak tʻa] (If the upper water is clear, the lower water will be clear.)’ means ‘if the leaders do not set a good example, their subordinates will follow their bad example.’ However, Gemini translated this idiom into the Thai idiom ‘ปลาใหญ่กินปลาเล็ก [pla: jàj kin pla: lék] (Big fish eats small fish.)’, which means ‘leaders or commanders with power oppressing their subordinates.’ The idiom ‘등잔 밑이 어둡다. [tiŋ ʤan mi thi ə dup tʻa] (It's dark under the lamp.)’ means ‘Difficult to know well about something that is close to oneself.’ However, Perplexity translated this idiom into the Thai idiom ‘ใกล้เกลือกินด่าง [krâj kluːa kin dàːŋ] (Near the salt, eat alkali.),’ which means ‘overlooking nearby benefits while chasing after worse ones.’ The idiom ‘누워서 침 뱉기 [nu wə sə ʧhim bɛt kʻi]’ means ‘Hurting others and it ultimately hurts oneself instead.’ However, Perplexity translated this idiom into the Thai idiom ‘สีซอให้ควายฟัง [sĭ: sɔ: hâj kʰwa:j faŋ] (Playing the fiddle for the buffalo.),’ which means ‘teaching a fool is futile and waste of time.’ Examples of translation errors in the type of Grammatical error are presented in Table 9.

Table 9: Examples of Grammatical Error.

Korean Idioms	**Examples of Translation Errors**	**Literal Translation**
고래 싸움에 새우등 터진다. [ko rɛ sʻa u me sɛ u diŋ tʰə ʤin da] (In a fight between whales, the shrimp's back gets broken.)	**ปลาตัวเล็กต้องรับเคราะห์จากการต่อสู้ของปลาตัวใหญ่** [pla: tŭa lék tôŋ ráp kʰrɔ́: càːk kaːn tɔ̀: sûː kʰɔ̌ŋ pla: tŭa jàj] (small fish suffer misfortune from big fish’s fight.) (Perplexity)	**วาฬสู้กัน กุ้งหลังแตก** [waːn sûː kan kûŋ lăŋ tɛ̀ːk] (when whales fight, the shrimps’ backs get broken.)
발등에 불이 떨어지다. [pal tʻɨ ŋe pu ri tʻə rə ʤi da] (Fire falls on the instep.)	**ไฟไหม้ที่เท้า** [fai mâj tʰîː tʰáːw] (Fire at the feet.) (Google Translate)	**ไฟตกลงที่หลังเท้า** [fai tòk loŋ tʰîː lăŋ tʰáːw] (Fire falls on the instep.)
Korean Idioms	**Examples of Translation Errors**	**Accurate Thai Idioms**
하늘의 별 따기 [ha nɨ re pyəl tʻa gi] (Reach stars from the sky.)	**เหมือนจะหาเข็มในมหาสมุทร** [mŭːan càː hăː kʰĕm naj máː hăː sàː mùt] (Looks like finding a needle in the ocean.) (Gemini)	**งมเข็มในมหาสมุทร** [ŋom kʰĕm naj máː hăː sàː mùt] (Searching a needle in the ocean.)

Referring to the table above shows examples of grammatical error by AI as follows.

The idiom ‘고래 싸움에 새우등 터진다. [ko rɛ sʻa u me sɛ u diŋ thə ʤin da] (In a fight between whales, the shrimp's back gets broken.),’ if translated literally would be ‘วาฬสู้กัน กุ้งหลังแตก [waːn sûː kan kûŋ lăŋ tɛ̀ːk] (When whales fight, the shrimps’ backs get broken.).’ However, Perplexity translated it as ‘ปลาตัวเล็กต้องรับเคราะห์จากการต่อสู้ของปลาตัวใหญ่ [pla: tŭa lék tôŋ ráp kʰrɔ́: càːk kaːn tɔ̀: sûː kʰɔ̌ŋ pla: tŭa jàj] (Small fish suffer misfortune from big fish’s fight.),’ which contains incorrect word translation. Specifically, ‘วาฬ [waːn] (whale)’ was translated as ‘ปลาตัวใหญ่ [pla: tŭa jàj] (big fish),’ ‘กุ้ง [kûŋ] (shrimps)’ as ‘ปลาตัวเล็ก [pla: tŭa lék] (small fish),’ and ‘หลังแตก [lăŋ tɛ̀ːk] (backs get broken)’ as ‘รับเคราะห์ [ráp kʰrɔ́ː] (suffer misfortune).’ The idiom ‘발등에 불이 떨어지다. [pal tʻɨ ŋe pu ri tʻə rə ʤi da] (Fire falls on the instep.),’ if translated literally would be ‘ไฟตกลงที่หลังเท้า [fai tòk loŋ tʰîː lăŋ tʰáːw] (Fire falls on the instep.).’ However, Google Translate rendered it as ‘ไฟไหม้ที่เท้า [fai mâj tʰîː tʰáːw] (Fire at the feet.),’ which contains an incorrect word translation, as it translated ‘ตกลง tok long (falls)’ as ‘ไหม้ mai (fire).’ The idiom ‘하늘의 별 따기 [ha nɨ re pyəl tʻa gi] (Reach stars from the sky.)’, if translated into Thai idioms that has the same meaning would be ‘งมเข็มในมหาสมุทร [ŋom kʰĕm naj máː hăː sàː mùt] (Searching a needle in the ocean.).’ However, Gemini translated it as ‘เหมือนจะหาเข็มในมหาสมุทร [mŭːan càː hăː kʰĕm naj máː hăː sàː mùt] (Looks like finding a needle in the ocean.),’ which contains an incorrect word

translation, as it translated ‘งม [ŋom] (searching)’ as ‘เหมือนจะหา [mŭ:an cà hă:] (looks like finding).’

Examples of translation errors in the type of Incomplete Translation are presented in Table 10.

Table 10: Examples of Incomplete Translation.

Korean Idioms	Examples of Translation Errors	Incomplete Translation
윗물이 맑아야 아랫물이 맑다. [win mu ri mal ga ya a rɛn mu ri mak t’a] (If the upper water is clear, the lower water will be clear.)	น้ำด้านบนใส [ná:m dâ:n bon săj] (The water above is clear.) (Claude)	น้ำด้านบนใส ***น้ำด้านล่างก็จะใส*** [ná:m dâ:n bon săj ***ná:m dâ:n lâ:ŋ kô tɕà săj***] (The water above is clear the water below is clear.)
사공이 많으면 배가 산으로 간다. [sa go ŋi ma ni myən pɛ ga sa ni ro kan da] (If there are many paddlers, the boat will go to the mountain.)	มากมายก็ไปเขา [mâ:k maj kô paj k^{h}ăw] (many…will go to the mountain.) (Claude)	***ถ้าฝีพาย***มากมาย***เรือ***ก็ไปเขา **[*t^{h}â: fĭ: p^{h}a:j* mâ:k maj ***rɯ:a*** kô paj k^{h}ăw]** (If there are many paddlers, the boat will go to the mountain.)

Referring to the table above shows examples of incomplete translation by AI as follows.

The idiom ‘윗물이 맑아야 아랫물이 맑다. [win mu ri mal ga ya a rɛn mu ri mak t’a] (If the upper water is clear, the lower water will be clear.)’ means ‘if supervisors are good, then subordinates are good.’ A literal translation would be ‘น้ำด้านบนใส น้ำด้านล่างก็จะใส [ná:m dâ:n bon săj ná:m dâ:n lâ:ŋ kô tɕà săj] (If the water above is clear, the water below is clear.).’ However, Claude translated only ‘윗물이 맑아야 [win mu ri mal ga ya] (If the upper water is clear.)’ = ‘น้ำด้านบนใส [ná:m dâ:n bon săj] (The water above is clear.),’ and omitted ‘아랫물이 맑다 [a rɛn mu ri mak t’a]’ = ‘น้ำด้านล่างก็จะใส [ná:m dâ:n lâ:ŋ kô tɕà săj] (The water below is clear.).’

The idiom ‘사공이 많으면 배가 산으로 간다. [sa go ŋi ma ni myən pɛ ga sa ni ro kan da] (If there are many paddlers, the boat will go to the mountain.)’ means ‘If there are many people with many opinions, the work can’t be finished.’ A literal translation would be ‘ถ้าฝีพายมากมายเรือกี่ไปเขา [t^{h}â: fĭ: p^{h}a:j mâ:k maj rɯ:a kô paj k^{h}ăw] (If there are many paddlers, the boat will go to the mountain.).’ However, Claude translated only ‘많으면 배가 산으로 간다. [ma ni myən pɛ ga sa ni ro kan da] (many … boat will go to the mountain.)’ = ‘มากมายก็ไปเขา [mâ:k maj kô paj k^{h}ăw]’ (many…will go to the mountain.), which omitted the main subject of the first clause that is ‘사공이 [sa go ŋi] (paddlers)’ = ‘ฝีพาย [fĭ: p^{h}a:j] (paddlers),’ the conditional grammar structure, and the subject of the second clause that is ‘…으면 배 …[i myən pɛ] (if…the boat…)’ = ‘ถ้า⋯ เรือ⋯ [t^{h}â:… rɯ:a…] (if…the boat…).’

Examples of translation errors in the type of Explanation are presented in Table 11.

Table 11: Examples of Explanation.

Korean Idioms	Examples of Translation Errors	Korean Idioms’ Meanings
되로 주고 말로 받는다. [twe ro ʤu go mal ro ban nin da] (Give a little, get a lot.)	**ให้น้อยได้มาก** [hâj nɔ́:j dâj mâ:k] (Giving a little, receiving much more.) (ChatGPT)	Giving a little thing but receiving something much more.
발 없는 말이 천 리 간다. [pal əm nin ma ri ʧ^{h}əl li kan da] (A horse without legs can travel a thousand miles.)	**ข่าวลือแพร่กระจายเร็ว** [k^{h}à:w lɯ: prê: krà ca:j rew] (rumours spread fast.) (Perplexity)	Words spread fast, one should always be careful of things they say.
남의 떡이 더 커 보인다. [na me t’ə gi tə k^{h}ə bo in da] (See other people's rice cake is bigger than one’s own.)	**เห็นของคนอื่นดีกว่าของตน** [hĕn k^{h}ɔ̆:ŋ k^{h}on ʔɯ̀:n di: kwà: k^{h}ɔ̆:ŋ ton] (Seeing other people’s things better than ours.) (Gemini)	Other people’s things always look better than our things.

Referring to the table above shows examples of explanation by AI as follows.

The idiom ‘되로 주고 말로 받는다 [twe ro ʤu go mal ro ban nin da]’ means ‘giving a little but receiving something much greater in return’. ChatGPT did not provide a Thai idiom but instead explained it as ‘ให้น้อยได้มาก [hâj nɔ́:j dâj mâ:k] (Giving a little, receiving much more.),’ which accurately conveys the meaning of the Korean idiom.

The idiom ‘발 없는 말이 천 리 간다 [pal əm nin ma ri ʧ^{h}əl li kan da] (A horse without legs can travel a thousand miles.)’ means ‘words spread fast, one

should always be careful of things they say.' Perplexity did not provide a Thai idiom but instead explained it as 'ข่าวลือแพร่กระจายเร็ว [kʰàːw lɯː prêː krà caːj rew] (Rumors spread fast.),' which accurately conveys the meaning of the Korean idiom.

The idiom '남의 떡이 더 커 보인다. [na me tʼə gi tə khə bo in da] (See that other people's rice cake are bigger than mine.)' means 'other people's things always look better than ours.' Gemini did not provide a Thai idiom but instead explained it as 'เห็นของคนอื่นดีกว่าของตน [hěn kʰɔ̌ːŋ kʰon ʔɯ̀ːn diː kwàː kʰɔ̌ːŋ ton] (See other people's rice cake is bigger than one's own.),' which is consistent with the meaning of the Korean idiom.

8. DISCUSSION

This study advances the discourse on AI in idiomatic translation by examining the performance of LLMs and MT systems in rendering Korean idioms into Thai a linguistically and culturally distant target language. The results demonstrated significant variation in performance, with LLMs, particularly ChatGPT, substantially outperforming traditional MT systems in both accuracy and interpretive capacity. ChatGPT achieved the highest idiomatic translation accuracy (61.54%), while conventional MT systems like Google Translate registered a complete failure (0%).

Although this study specifically examined Korean-to-Thai idiom translation, its findings align with previous research (Yoon, 2023; Kanchanakas & Rungruangthum, 2024; Mi et al., 2024; Donthi et al., 2024), which investigated idiomatic translation across various language pairs, including English, Korean, Chinese, Japanese, Urdu, and Hindi. These studies consistently report suboptimal performance by AI in idiomatic translation. Two key observations emerge: first, idioms are inherently difficult to translate due to their fixed and non-compositional nature, as previously proposed by Cho (2007), Park (2023a), and Yoon (2024); second, a primary cause of AI translation errors lies in the system's inability to effectively distinguish between literal and figurative meanings (Mi et al., 2024, p. 6).

To categorize the types of translation errors observed, this study adopted the error classification framework proposed by Kanchanakas and Rungruangthum (2024). The most prevalent error type identified was literal translation, accounting for 66.33% of all errors, and observed consistently across both LLMs and MT systems. This was followed by misinterpretation (20.60%), explanation (8.04%), grammatical errors (4.02%), and the least frequent type, incomplete translation (1.01%). The dominance of literal translation errors in both LLMs and MT systems corroborates findings from Li (2024). These studies suggest that although AI models exhibit high grammatical and lexical accuracy, they tend to prioritize syntactic structure over contextual and cultural nuances an approach that often leads to inaccurate idiom translations (Li, 2024, 721; Pinmanee, 2021, 29–32).

Despite this superiority, the overall average accuracy across all systems remained relatively low (27.11%), indicating that current AI technologies are not yet reliable for autonomous idiom translation in educational or communicative contexts. The predominance of literal translation errors (66.33%) aligns with Newmark (1988) notion of source-oriented translation strategies. However, a more granular interpretation of these error patterns is facilitated by Corder (1967) Error Analysis framework, which conceptualizes errors not merely as failures but as reflections of internal processing mechanisms.

Applying Corder's five-stage framework error identification, description, explanation, classification, and evaluation this study uncovered a systematic tendency among AI systems to default to literal mappings when confronted with idiomatic expressions. These literal renderings indicate a structural deficiency in AI's capacity to differentiate between surface-level lexical content and underlying figurative meaning. Additionally, omissions and additions observed in several outputs further support Corder's claim that errors may originate from both developmental limitations and misapplied generalizations, which in the case of AI, may be traced to training data biases and overfitting to source-language structures.

A particularly error category identified in this study termed "explanatory substitution" was found exclusively in LLM outputs. Rather than attempting to provide an equivalent idiom in Thai, these systems often opted to explain the idiom's meaning. While this behavior constitutes a deviation from traditional translation norms, it reflects an emergent reasoning capability within LLMs. Interestingly, LLMs achieved a remarkably high explanation accuracy (95.90%), suggesting pedagogical utility in contexts where understanding idiomatic meaning supersedes direct equivalence. Within Corder's framework, such instances could be interpreted as "developmental approximations," wherein the system approximates target-language functionality through contextual reasoning.

Nevertheless, these promising affordances are counterbalanced by operational inconsistencies.

LLMs occasionally failed to produce idiomatic equivalents in Thai or introduced Korean lexical items in their explanations, which may hinder learning, particularly among novice users. Moreover, variations in output across identical prompts raise concerns about reproducibility an essential criterion for educational deployment. These findings echo Toury (1995) notion of system-internal regularities, suggesting that AI behavior is shaped more by algorithmic constraints than by contextually adaptive reasoning.

Further theoretical alignment is observed with Relevance Theory (Sperber & Wilson, 1995), as AI's inferential mechanisms often fall short of deriving intended figurative meanings in ambiguous contexts, despite high surface-level fluency. Similarly, Cultural Linguistics (Sharifian, 2017) illuminates the sociocultural barriers that AI systems encounter when processing idioms embedded with culturally specific schemas. The failure to activate such schemas results in contextual misalignment and semantic shallowness limitations that literal translation alone cannot resolve.

By integrating Error Analysis with these broader frameworks, this study not only maps the typology of AI-generated translation errors but also situates them within the cognitive, structural, and cultural dynamics that define idiomatic equivalence. Such an integrated lens is crucial for understanding the dual role of AI as both a translational tool and an evolving language-processing system.

9. CONCLUSION

This study investigated the capabilities and limitations of AI systems both LLMs and traditional MT in translating Korean idioms into Thai, with particular attention to translation accuracy and error typology. Drawing on Corder (1967) Error Analysis framework, the study systematically identified and classified translation errors, revealing a high prevalence of literal renderings, omissions, and explanation-based substitutions. These findings underscore the systemic nature of AI-generated errors, which reflect internal processing tendencies rather than random inaccuracies.

While LLMs outperformed traditional MT systems, their overall translation accuracy remains inadequate for independent educational use. However, their strong performance in explaining idiomatic meanings, as observed through consistently accurate contextual paraphrasing, points to valuable pedagogical applications. Within the framework of Error Analysis, these explanation-based outputs may be seen as productive approximations partial but meaningful attempts to convey functionally relevant interpretations in the absence of direct equivalents.

The ethical implications of integrating AI into language education must not be overlooked. Without educator mediation, learners may misinterpret AI outputs, especially when confronted with literal translations or culturally opaque explanations. To ensure that AI technologies serve as supportive rather than substitutive tools, language instructors must provide corrective feedback and cultural scaffolding. This pedagogical guidance is essential for preventing the fossilization of misinterpretations and for cultivating learners' critical engagement with language and culture.

Limitations of this study include the restricted idiom set (n=39), reliance on single-instance outputs, and the inherent difficulty of evaluating idiomatic equivalence across languages with distinct cultural logics. Future research should expand the idiom corpus, test multiple AI systems, and integrate longitudinal tracking to assess changes in AI performance over time.

Beyond identifying limitations, this study recommends concrete classroom applications of LLMs. For instance, LLMs may be integrated as supplementary tools for generating multiple idiom explanations, which teachers can subsequently evaluate with students to foster critical discussion. Teachers may also design activities where learners compare their own translations with LLM outputs, encouraging metalinguistic awareness and reflective learning. Additionally, LLMs can be tasked with producing practice sentences containing idioms, enabling students to apply and contextualize meanings in authentic discourse. Importantly, such integration requires teacher mediation to mitigate inconsistencies and ensure cultural accuracy. By framing LLMs as collaborative aids rather than substitutes for instruction, educators can harness their explanatory strengths while preventing misinterpretation and overreliance.

Ultimately, this study highlights the importance of combining traditional translation theories with error-based analytical frameworks to holistically assess AI performance. The integration of Corder's Error Analysis with Newmark (1988) translation strategies, Toury (1995) descriptive approach, Relevance Theory, and Cultural Linguistics provides a multi-layered lens for understanding how AI interprets, misinterprets, and explains idioms. Such insight is essential for refining AI models toward greater cultural sensitivity and pedagogical relevance in cross-linguistic contexts.

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