

Assessing AI-Powered Translation Quality: Insights from the Translation of the Farewell Sermon

Amal Abdelsattar Metwally

King Khalid University, Saudi Arabia
Email: aamotwly@kku.edu.sa

Wagdi Rashad Ali Bin-Hady

Hadhramout University, Yemen
Email: wagdyrashad@hu.edu.ye

Eisa Asiri

King Khalid University, Saudi Arabia
Email: ealeisa@kku.edu.sa

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Abstract

Artificial Intelligence (AI) powered translation influxes in the translation industry. Yet, questions have arisen about the quality of AI-powered translation systems (AIPTSs). Therefore, this study aims to evaluate the translation quality generated by ChatGPT for the Farewell Sermon. Using House's (2015) model of translation quality assessment (TQA), the study analyzed the Farewell Sermon focusing on text, register analysis of field, tenor mode, and genre. The language/text analysis revealed that AIPTSs produced lexical and syntactic inaccuracies that hindered capturing the sermon's intended religious voice. In register, Field, the analysis pointed out that the AIPTSs captured the broad themes of the Farewell Sermon, but often missed subtleties in religious terminology. AIPTSs also adopted superficial literal translation of the sentence structures. In Tenor, the analysis revealed that the Prophet's role as a moral and spiritual guide was somewhat diluted in the translation. Likewise, AIPTSs struggled to maintain the Prophet's authoritative and compassionate stance. The AIPTSs maintained general coherence but faced challenges with cohesive devices such as conjunctions, pronouns, and references. Furthermore, the microanalysis revealed an amount of 81 overt translation errors that the AIPTSs committed while translating the Farewell Sermon into English, the most frequent were "creative translation" with 24 errors, "not translated" with 15 errors, "distortion of meaning" with 9 errors, "slight change in meaning" with 8 errors and "breach of the SL system" with 7 errors. "Significant change in meaning" and "cultural filtering" were less noticeable with 6 and 4 errors, respectively. Additionally, the analysis revealed that House's (2015) model is to some extent suitable for assessing the quality of AIPTSs, one type of error was technical and beyond the model focus though. The researchers called it "software intervention". Software interventions can either positively or negatively affect the translation depending on whether the error improves readability without distorting

meaning or inaccuracies. The study recommends the importance of tuning the AIPTSs applications to prevent the inducing of technical systems.

Keywords: Early AIPTSs; cultural and religious terms; Farewell Sermon; translation quality assessment

Introduction

AIPTSs have approached the translation industry by processing huge content (Valente, 2024). As the AIPTSs are not error-free, researchers are motivated to focus on the challenges that resulted and related to imprecision, biases, and translation ethics (Valente, 2024; Zaki & Ahmed, 2024). Many models are used for assessing the translation quality, the most comprehensive is House's (2015) which is based on Halliday's systematic functional theory (Alghamdi, 2016; Hakami, 2024; Youssef, 2024). Previous studies applied House's (1997, 2015) model to evaluate the translation quality of political texts (Hakami, 2024), literary texts (Al-Aizari, 2023) even religious texts between Arabic and English (Alghamdi, 2016; Khoshafah, 2024). Using House's model for evaluating AIPTSs has not yet been examined.

Translating Islamic teachings to the many Muslims worldwide is necessary (Ahmed, 2016). We in this study orient the translations between Arabic and English language pairs. It is widely accepted that Arabic and English are rooted in different grammatical and stylistic features, yet this variation makes the process of conveying meaning between the two languages complex (Al-Kenai, 1985). The complexity becomes more vital when a machine does the task of translation. In response to this complexity, scholars like Halahla (2010), and Zabadi (2007) recommended translators employ strategies and footnotes to explain unfamiliar terms. Previous studies focusing on translating the Prophet's (PBUH) teachings are extremely uncommon.

A study analyzed the translation of deixis in Shahih Al-Bukhari (Pratiwi, 2018). AlGhamdi (2016) examined the translation quality of "The Sealed Nectar" focusing on religious and cultural terms. The researchers highlighted evaluating one of the prophetic teachings, i.e., Khutbatul-Wadā, "The Farewell Sermon" from Arabic into English due to its fundamental principle for Muslims and for being not analyzed yet.

The Arabic concept, Khutbatul-Wadā, has been rendered into the "Farewell Sermon" (Farooq, 2018), and "Farewell Oration" (Ahmed, 2018). The Farewell Sermon has been the topic of many studies. Farooq (2018) probed the significance of the Farewell sermon on Islamic teaching. Syed et al. (2021) examined the Farewell Sermon from a critical discourse analysis perspective showing the ideology and the textuality of the Prophet PBHU. Nevertheless, minimal studies assessed the translation quality of the Farewell Sermon. Ahmed (2016) compared three translations of the Farewell Sermon to check the variation among them. This shortage encourages the researchers to examine the quality of AIPTSs to translate cultural and religious terms of the Farewell Sermon from Arabic into English in the Farewell Sermon. This study is designed to examine the quality and accuracy of AIPTSs, focusing on their ability to convey the core message of culturally and religiously significant texts. By using the Farewell Sermon as a case study, this analysis seeks to uncover specific challenges in AI translations, particularly where misinterpretations could distort the meaning or impact of the original message. This study seeks to address the following questions:

1. To what extent do AIPTSs handle cultural and religious elements within the Farewell Sermon?
2. What overt translation errors are more prevalent while translating the Farewell Sermon into English using AIPTSs?
3. Is House's (2015) model suitable for assessing AIPTSs?

Literature review

The translation of Classical Arabic presents numerous challenges due to the language's unique structure, rich vocabulary, and deep cultural and historical significance (Akan et al., 2019). This review of literature explores the complexities involved in translating Classical Arabic texts into English, highlighting the linguistic and cultural obstacles faced by translators. Additionally, the review refers to Islamic religious texts and discourse, examining the specific challenges inherent in translating these religion and culture-rich materials. Furthermore, it discusses the development of AI technology and its application in this domain, focusing on both its evolution and the difficulties it encounters when translating sacred Islamic Arabic texts, which require a deep understanding of context and cultural nuances to maintain their integrity and meaning. Moreover, House's (1995) model is examined in the conceptual framework, highlighting its significance in assessing translation quality in sensitive texts, particularly Islamic religious discourse.

Translating classical Arabic into English

Classical Arabic, with its intricate grammar, stylistic features, and use of metaphor, often resists direct equivalence in English, making it difficult to preserve the original meaning and aesthetic value (Awad, 2005). Furthermore, the cultural and historical context embedded within Classical Arabic texts requires translators to have not only linguistic proficiency but also a deep understanding of the historical and cultural nuances (Al-Amer et al., 2016) to provide accurate and contextually appropriate translations. Due to the inherent linguistic and cultural differences between Arabic (a source language) and target languages like English, translating Arabic discourse, especially Classical Arabic, presents several difficulties (Abdul-Raof, 2001; Akan et al., 2019). These challenges highlight the need for translators to employ strategies and adopt a culturally sensitive approach to maintain the authenticity and depth of the original text (Abdul-Raof, 2001). Moreover, Arabic stylistics is characterized by syndetic coordination, inflectional endings, ellipsis, flexible word order, repetition, preposing, and postposing, which other languages cannot replicate (Al-Jurjani, 2007).

Additionally, beyond rhetoric, translators face obstacles with cultural references, including ecological elements, material culture (e.g., food and clothing), social practices, and religious terminology. Abdul-Raof (2005) and other scholars (Akmadhan, 2002/2014; Gazalah, 2002/2014) highlighted how early translators, lacking familiarity with Arabic culture, misinterpreted the names of religious groups mentioned in the Qur'an, such as translating "Sabeans" /الصابئين/ inaccurately as those who worship angels or change their religion, and "Magians" /المجوس/ as pagans or gentiles. Translators inevitably face the complex challenge of navigating between two distinct discourse worlds when translating Islamic religious texts into Western languages. The task is complicated by the need to bridge ideological, social, political, economic, and cultural differences, all deeply embedded within Islamic teachings (Al-Mohannadi, 2008). Translators must therefore adopt culturally sensitive and contextually informed strategies to convey the multifaceted nature of Islamic discourse accurately.

Translating Islamic religious discourse

Translating Islamic religious discourse involves unique challenges due to the complex interplay of cultural, linguistic, and religious elements embedded within the texts. Moreover, specific features of Islamic discourse, such as emotively charged language, cultural references, and religious terminology (e.g., terms like "صلاة" for prayer or "جهاد" for jihad), add further complexity (AlGhamdi, 2016). These terms often carry connotations and implications that do not

directly translate into English, making it difficult to convey their meaning without additional explanation or context (pp.82-83).

Additionally, Islamic discourse heavily employs aesthetic elements, including metaphors, figures of speech, and phonetic and semantic devices, which are often rooted in the Quran and Hadith (i.e. Prophetic Tradition). These elements are difficult to translate while preserving their original impact and meaning (AlGhamdi, 2016). Highlighting the challenges faced by translators when translating Islamic discourse, Holt (2004) studied Islamic religious discourse and its translation. He compared the translated book 'Milestones' to its Arabic source text, "معالم في الطريق", and found that the translation is overwhelmed by Arabicness (i.e. using Arabic words and expressions) indicating that this foreignising strategy is the dominant approach for this text. Likewise, Zabadi (2007) examined the translation of 17 Friday Sermons, revealing that translating religious texts is a challenging task. The study showed that Islamic discourse is filled with emotive expressions, culture-specific religious features, structural and semantic repetition, aesthetic aspects, and linguistic and semantic voids due to differences between the two languages in phonetics, morphology, and syntax. Similarly, Halahla (2010) explored the challenges of translating religious discourse from Arabic into English and identified several factors that often lead to translation loss, including Arabic stylistics, the 'emphatic negation' produced by restricted expression, and the difficulty in interpreting rhetorical features like proverbs, metaphors, and alliteration. These factors can lead to a loss of stylistic effect, as seen in the translation of a sentence like "لا إله إلا الله" into "There is no God except Allah." Furthermore, Khoshafah (2024) assessed the quality of the translation by Pickthall of Surat Yunus into English. The study applied House's (2015) model comparing the two texts' register levels (field, tenor, and mode). The study revealed that despite the great efforts of the translation to safeguard the poetic quality of the original text, lexical and syntactic differences were noticeable between the two texts. The study concluded by stating that the richness and depth of the Holy Quran could not be captured by any translation.

AI-powered tools in Islamic texts translation

AI offers promising tools for translating Islamic texts by addressing the challenges of classical Arabic complex structure. Atwell et al. (2011) discussed the potential of AI and Natural Language Processing (NLP) for the translation and analysis of religious texts. In this research, the Quranic Arabic Corpus, a comprehensive annotated resource of the Quran that includes morphological tagging, syntactic parsing, and efforts to build a deep semantic understanding of the text was introduced. This project aimed to enhance the understanding of the Quran's linguistic and grammatical structures to serve as a foundational step toward AI-assisted translation efforts. These resources could facilitate accurate and nuanced translation of the Quran and other religious texts by capturing complex linguistic features and subtle meanings encoded in classical Arabic. Likewise, Zaid and Bennoudi (2023) explored the growing impact of AI tools, such as ChatGPT, in handling complex religious texts, and compared their performance against human translators. Through qualitative and comparative analysis of seven religious texts, they assessed translation quality in terms of structure, word choice, readability, and accuracy. The study found that while AI tools provided efficient translations, they failed to match the depth and cultural sensitivity of human translation.

Translating farewell sermon into English

The Farewell Sermon has been the topic of dozens of studies. These studies investigated this topic from different perspectives. Khān et al. (2021) studied the Farewell Sermon from a

critical discourse analysis perspective. The study revealed that Farewell Sermon composes the fundamental principle of Islamic teaching which criminalized racism, racial discrimination and inequality among people. Furthermore, Ullah (2021) investigated the historical impact of the Farewell Sermon on societies. The study affirmed that Farewell Sermon is incomparable in its ruling for human welfare and liberating human beings. The study also confirmed the immortal implications of the Sermon for contemporary societies. When it comes to translation, the Farewell Sermon has been studied by very few studies. Ahmed (2016) in a comparative study analysed the translation of the Farewell Sermon by three translations focusing on the complexities stemming from old and new challenges which affected the translators to perform the translation task. The findings indicated that two translators succeeded in conveying the translation by using scholarly techniques while the third was not due to the influence of her ideology, which prioritized adapting the texts for a global audience over preserving their original meaning. No single study to the researchers' knowledge evaluates the AIPTS of the Farewell Sermon. This makes the study at hand worth investigating.

Conceptual framework

Translating religious texts requires some theories and models that set the necessity of including both linguistic and cultural contexts. Zabadi (2007) and Halahla (2010) emphasized the need for translators to be thoroughly acquainted with both Islamic and Western cultural contexts to bridge these gaps effectively. Alghamdi (2016) adopted House's model for assessing the quality of cultural-specific terms in the 'Sealed Nuctara'. Alqefari (2016) reported that 'text-type theory' is more suitable for analyzing the rendering of religious texts. On the contrary, studies also focused on assessing the quality of AIPTSs. Early research focused on the accuracy of AIPTSs by identifying the semantic mismatching between the two language pairs (Koponen, 2010).

House's (2015) model of TQA is widely used in translation studies. The model compared the original text and the translated text under three categories, i.e., (field, tenor, and mode). It analyzed the translation at three levels: words, syntactic relations, and textual meanings of the text (House, 2015). House proposed two terminologies for evaluating the translation quality. The first is "overt translation" which refers to the strangeness of the translation and the domination of SL. The second term is "covert translation" where the translation focuses on the communication message of the SL to convey to the target language (Hakami, 2024).

This model has been applied by various researchers who assessed the Arabic-English translation (Al-Aizari, 2023; Alghamdi, 2016; Hakami; 2024; Youssef, 2024). Al-Aizari (2023) and Algamadi (2016) applied the model to assess the translation quality of literary texts. Algamadi (2016) is among the few studies we came across which applied House's (2016) model in assessing the translation quality of prophetic religious texts. Hakami (2024) used it for assessing political texts. Despite the comprehensiveness of House's (2015) model for assessing translation (Hakami, 2024; Youssef, 2024), it is not free from faults (Al-Aizari, 2023; Algamadi, 2016). For instance, Al-Aizari (2023) found that some overt errors could not be classified according to the seven criteria suggested by House's model.

Research method

Research design

A corpus design was used to study the AIPTSs register accuracy of the Farewell Sermon due to its profound religious, and cultural significance in Islamic history. The sermon, as such, its universal message serves as a criterion for Islamic moral values and legal tenets, making it a critical

text for assessing the precision and accuracy of translation towards detecting errors in translation and providing possible recommendations.

Sample and data collection

The Farewell Sermon has been chosen as a significant text to test the capabilities of AIPTs. This compilation of sermons was delivered by the Prophet Muhammad PBUH during his pilgrimage in 10 AH across various locations including Mina, Muzdalifa, and Arafat, addressing over 100,000 believers observing the Hajj. Furthermore, the Farewell Sermon is characterized by its Classical Arabic source language and dense religious vocabulary (Farooq, 2017, p. 323), which presents intrinsic translation challenges. The sermon's entangled language structure and culturally specific expressions, such as references to concepts like *taqwa* (i.e. God-consciousness), *riba* (i.e. usury), and *Jahiliyyah* (i.e. the pre-Islamic era), require precise and culturally informed translation for proper interpretation for non-Arabic speakers. Thus, this text offers a rich and intricate corpus to evaluate whether AIPTs can handle such nuanced, sacred religious content while preserving its original meaning (Farooq, 2017, p. 32). The corpus is composed of 1335 words. The source text is Arabic comprising 498 words and extracted from <http://hrlibrary.umn.edu/arab/IS-4.html> (Bassiouni, 2003); while the English corpus includes 837 words built by translating the ST using ChatGPT 4 to study the translation of cultural and religious terms.

Data analysis

In evaluating the quality of AIPTs, particularly in the context of the specified religious text, namely The Farewell Sermon, House's (2015) TQA paradigm is employed. This paradigm incorporates its emphasis on functional equivalence and cultural sensitivity between the source and target texts, ensuring that the meaning, tone, and purpose of the original text are preserved in translation Figure 1:

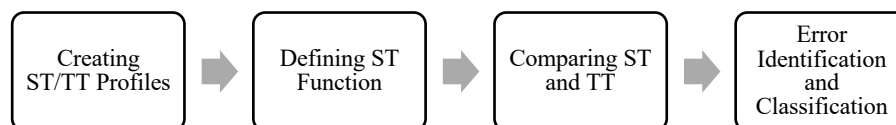


Figure 1. The systematic four-step evaluation process developed and adopted in this study

The analysis involves creating detailed profiles of both ST and TT to determine their respective textual functions. This includes defining the intended function of the original Arabic sermon and then comparing it to the profile of the AI-powered English translation. Additionally, the researchers systematically identify, categorize, and evaluate errors within the translation to assess its quality and accuracy. This model involves the analysis and comparison of an original text and its translation on three distinct levels, i.e., Language/text, register including (field, tenor, and mode), and genre. House's (2015) model utilizes the concepts of field, tenor, and mode to analyze the interplay between text and context, thereby providing a comprehensive framework for assessing translation quality.

Results and discussion

This section examines the AIPTs of the Farewell Sermon through House's (2015) TQA model. This analysis follows a systematic four-step evaluation process.

RQ1: To what extent do AIPTSs handle cultural and religious elements within the Farewell Sermon?

Table 1 offers a comparison of the TT produced by AI and the ST, examining the key components of the register (field, tenor, and mode) and genre as outlined in House's model. It highlights how certain aspects in the translation may diverge from the original text.

Table 1. Texts' register analysis of the Farewell Sermon in terms of cultural and contextual depth.

Register	Field	Criteria	Source text	Target text
		Subject Matter	Sermon (tradition and spirituality versus modernism)	Sermon Modernism
		Social Action	General and Popular	General and Popular
	Tenor	Author's Provenance and Stance	Farewell Sermon by Prophet Mohammed (PBUH)	AIPTSs (ChatGPT)
		Social Role Relationship	Asymmetrical	Asymmetrical
		Social Attitude	Formal and intimate	Intimate
		Mode	Medium	Complex
	Mode	Participation	Complex	Monologic
Genre	Sermon			

Table 1 provides a structured comparison of the ST and TT profiles based on House's TQA model, examining key elements including text/language, register and genre. Within the register dimension, the field shows both texts as "General and Popular," with the subject matter being a sermon; however, the source text integrates elements of "tradition and spirituality" versus "modernism," which the AIPTSs may not fully reflect due to its reliance on contemporary language structures. For tenor, the AIPTSs maintain an "asymmetrical" social role relationship, aligning with the authoritative tone of a sermon. Nevertheless, there is a shift in social attitude, as the target text's tone becomes more "intimate" rather than the "formal and intimate" stance of the source text. Mode is described as "Complex" for the source text and "Monologic" for the target text, highlighting the significant linguistic and contextual complexity, especially given the religious text's cultural and spiritual importance.

Lastly, in genre, while both maintain the sermonic form, the TT's modern interpretation may impact its spiritual resonance, and the cultural fidelity required to convey the sermon's original depth and purpose. As indicated in Table 1, the analysis follows a systematic evaluation across three dimensions: text/language, register, and genre. Each dimension contributes a specific lens to assessing the AIPTSs' accuracy and cultural sensitivity.

Text/language

The text/language dimension focuses on analyzing the original and translated texts at the linguistic level, including vocabulary, syntax and grammatical structures. This analysis focuses on how the AIPTSs capture subtle meanings, particularly when translating culturally bound expressions and religious terminologies. For instance, a term like "موضوعة" was inaccurately translated as "annulled," which lacks the intended force of "abolished" in English, impacting the text's overall meaning. Another issue in the syntactic structure is represented in the failure to convey conditional forms. This is clear in the translation of the ST "فإن فعلن فإن الله قد أذن لكم أن تعضلوهن" into "وتهجوهم في المضاجع" into "If they do, then Allah has given you permission to isolate them in their

rooms". The TT translates "أذن" (has permitted) as "has given you permission," making the structure verbose and indirect. Furthermore, the TT lacks the specific conditional tone that defines the original phrase. A more concise and accurate rendering would be "If they do so, Allah permits you to confine them to their rooms," which preserves the conditional structure and succinctness of the original. The language/text dimension analysis shows that literal and syntactic inaccuracies hinder the AIPTSS' ability to capture the sermon's intended religious voice, clarity, and cultural weight of the text. To sum up, the AIPTSS often failed to capture subtle meanings, particularly when translating culturally bound expressions and religious terminologies. These findings align with Zaid and Bennoudi (2023) who pointed out that despite the AIPTSS' efficiency in translations, they lack the capability of humans to capture the depth of cultural sensitivity.

Register

The register dimension, incorporating field, tenor, and mode, examines the relationship between the text and its social and communicative context. More precisely, this dimension investigates the relationship between the Sermon text and context, specifically how the AI translation preserves the text's social functions, relational tone, and intended communication form.

Field

The field dimension explores the text's subject matter, content, and the main social actions conveyed in the sermon. The main themes of the Farewell sermon are presented. The main themes of the Farewell Sermon include advising people to obey Allah, the sanctity of blood, property, and honour, the annulment of pre-Islamic usury and revenge, the rights and duties of women, brotherhood among believers, holding fast to the Quran and Sunnah, the unity of humanity and equality, and matters of inheritance. The analysis reveals that the AIPTSS captured the broad themes of the Farewell Sermon, including obedience to Allah and adherence to Islam values, social justice and equality, and moral conduct, but often missed subtleties in religious terminology. For example, the culturally specific term "taqwa" (God-consciousness) was translated as "piety," which lacks the full depth intended in the sermon. The AIPTSS also adopted superficial literal translation of the sentence structures which produce ill-formed sentences for the target audience.

Lexical differences

The AIPTSS have committed some violations while translating some lexical items without paying attention to context. The Arabic word "موضوعة" in the original text indicates a little different connotation. In the example below, "وإن ربا الجاهلية موضوع" has been translated into "And verily, the usury of the pre-Islamic era is annulled" where the word in question "موضوع" is rendered into "annulled". This rendering does not convey the intended meaning. The word "annulled" connotes "to reduce", while the intended meaning is to "uproot or stop", therefore, the most suitable is "abolished" as mentioned by some translations of the Farewell Sermon by Ismail K. Poonawala (1990). The same word "موضوعة" as mentioned in "وإن دماء الجاهلية موضوعة" has been translated by ChatGPT as "annulled". The context in the sermon referred to stopping avenge on bloodshed in the pre-Islamic days. Therefore, the best accurate translation is "unavenged" as suggested by Poonawala (1990). This inconsistency in lexical representation affects the translation's quality, as the English version does not fully communicate the sermon's religious and moral depth.

Table 2. Lexical differences

Source text	Translation	Gross
وإن ربا الجاهلية موضوع	And verily, the usury of the pre-Islamic era is <u>annulled</u> .	The usury of the pre-Islamic period is abolished.
وإن دماء الجاهلية موضوعة.	The blood <u>feuds</u> of the pre-Islamic era are <u>annulled</u> .	All bloodshed in the pre-Islamic days is to be left unavenged.

Syntactic differences

Similarly, the syntax of the source text and the AIPTSs is compared to identify whether there is mismatching in the rendering. An example is as follows:

Table 3. Syntactic differences

Source text	Translation	Gross
وإن دماء الجاهلية موضوعة، وإن أول دم نبدأ به دم عامر بن ربيعة بن الحارث بن عبد المطلب	The first blood we start with is the blood of Amir ibn Rabia ibn Harith ibn Abdul-Muttalib.	All bloodshed in the pre-Islamic days is to be left unavenged. The first such <u>claim I revoke</u> is that of Ibn Rabiah.
أما بعد أيها الناس إن الشيطان قد ينس أن يعبد في أرضكم هذه،	O people, indeed Satan has despaired that <u>he will be worshipped</u> in this land of yours.	O people, indeed Satan despairs of <u>ever being worshipped</u> in this land of yours.

In the above examples (Table 3), the AIPTSs could not convey the message; it blindly depended on the superficial literal translation of the sentence “وإن أول دم نبدأ به دم عامر بن ربيعة”، the translation is as follow “*the first blood we start with is the blood of Amir ibn Rabia*”. It is not clear what is meant by “start with”, this results in misunderstanding to the readers. The suitable translation is the one which conveys the message to the readers. A suggestion may be that “the first such claim I revoke” could be understood by the readers as it referred to what is meant by the first blood in the sermon. Another instance of mismatching between the source and the AIPTSs is the rendering of “إن الشيطان قد ينس أن يعبد في أرضكم هذه” where the AI added that close to the sentence as in “Satan has despaired that he will be worshipped in this land of yours”. This style brings redundancy to the readers. A suggestion is to use “of ever being worshipped” which is an acceptable style and widely used in the English language.

Tenor

In examining the tenor, the researchers assessed whether the AIPTSs effectively communicated the tone of the sermon and the Prophet's authoritative and compassionate stance. As such, this category considers the speaker's social role and emotional tone, examining the relationship between Prophet Muhammad PBUH as the speaker and his followers as the audience. Tenor focuses on two dimensions: the author's provenance and stance and the social relationship. In the ST, the author's provenance and stance is a Prophet. In contrast, the provenance stance of the TT is ChatGPT, a generative artificial intelligence (AI) chatbot, released in 2022 by OpenAI company.

The Prophet's tone in the original sermon is formal yet compassionate, aimed at instilling reverence and moral discipline. However, the AI translation occasionally produced a neutral tone

that diluted the emotional resonance. For example, "أيها الناس" (O people), used to establish an intimate connection, was translated in ways that lacked the full force of a spiritual leader addressing his followers. Additionally, the emotional weight of phrases like "أوصيكم عباد الله بتقوى الله" (I advise you, O servants of Allah, to fear Allah) was softened, affecting the intended emotional impact.

Social relationship

In assessing the AIPTSs of the sermon, it seems that the Prophet's role as a moral and spiritual guide was somewhat diluted in the translation, where certain terms lost their emphatic and connotative impact. For instance, phrases denoting commands or moral obligations in the original text were rendered more neutrally, potentially reducing the emotional engagement intended for the TT audience. The tenor explores the relationship between the participants. In the Farewell Sermon, the tenor displays the relationship between the prophet Mohammed PBUH addressing over 100,000 believers observing the Hajj. However, the Prophet PBUH is a leader, in the Farewell Sermon, the social relationship seems to be "asymmetrical" showing the believers what is for their benefit in this life and the hereafter. These were shown through the use of illocutionary forces as in, "أوصيكم عباد الله بتقوى الله", "I advise you, O servants of Allah, to fear Allah", "أيها الناس اسمعوا مني أباين لكم", "O people, listen to me attentively". This translation emphasizes the importance of listening but loses the emotional depth embedded in "أباين لكم" which is not translated. This phrase which was ignored in the AI translation conveys the Prophet's PBUH earnest concern and his profound commitment to guiding humanity toward the Straight Path. However, a violation of the role and rights between husbands and wives violates the organization. In the ST, the Prophet PBUH started pointing out the rights of wives upon their husbands, while the TT initiated the rights of husbands over their wives as in "O people, indeed you have rights over your women, and they have rights over you," "أيها الناس إن لئنسانكم عليكم حقاً ولكم عليهن حق".

Table 4. Social relationship

Level	Function	ST	GLOSS	TT
Speaker -listeners relationship Asymmetric	Illocutionary force Asserting	أيها الناس إن لئنسانكم عليكم حقاً ولكم عليهن حق	O people, indeed <u>your wives have rights on you and you have rights over them.</u>	O people, indeed <u>you have rights over your women, and they have rights over you.</u>

Social attitudes

The last component of Tenor, a register component, is the social attitude. The language of the SL is formal, classical, and idiomatic. The Prophet PBUH delivered the farewell Sermon to more than one hundred thousand believers to be a social guide for them and whosoever come after them in this life. The language used is characterized by intimacy which arouses the emotion of the listeners. Similarly, the language adopted by the AI-powered system is formal. As such, the analysis of the AIPTSs of the Farewell Sermon revealed several discrepancies in conveying the tenor, tone, and emotional impact of the original text. It was found that the AIPTSs struggled to maintain the Prophet's authoritative and compassionate stance. Furthermore, specific connotations were softened, as seen in the translation of "فاحشة" (a grave moral breach) as a "lewd act," which diminished the term's severity in the Islamic context. Additionally, key phrases such as "نحمده" (we praise Him) and "لكن" (but) were left untranslated which indicates the AIPTSs inability to

accurately represent or stay fully true to the original text. To sum up, the analysis shows that the Prophet's role as a moral and spiritual guide was somewhat diluted in the translation. Likewise, AIPTs struggled to maintain the Prophet's authoritative and compassionate stance.

Mode (medium & connectivity)

Mode evaluates the medium and textual connectivity, focusing on cohesion and coherence. The Farewell Sermon is a speech delivered in spoken mode by the Prophet Mohammed PBHU as farewell guidance and provisions for Muslims. The ST has been well-structured and shows high connectivity. The transition from one sentence to another goes smoothly. Moreover, the punctuation system in the written version of this sermon is crucial for accurately reflecting the original spoken form, especially given that it was originally delivered orally by the Prophet Muhammad PBUH. Since oral speech relies on pauses, intonation, and emphasis to convey meaning and emotional weight, written punctuation in the translation serves as a vital tool to approximate these spoken features. The AIPTs maintained general coherence but faced challenges with cohesive devices such as conjunctions, pronouns, and references. In the phrase "ألا هل بلغت ... اللهم فاشهد", punctuation, such as the ellipsis ("..."), conveys a pause that reflects the Prophet's appeal for reflection and the weight of his words. This phrase, being translated as "Have I conveyed the message? O Allah, bear witness," would lose much of its impact without the pause indicated by the ellipsis. In the original Arabic, this pause invites listeners to consider the significance of the message, creating a moment of formal spiritual observation before invoking Allah as a witness.

Genre dimension: religious sermon characteristics

While the register categories (field, tenor, and mode) capture the relationship between text and micro-context, genre helps in understanding the text's macro-context within its linguistic and cultural community. The genre dimension considers the Farewell Sermon as a religious text, demanding faithfulness to both its spiritual tone and culturally embedded messages. As a genre, religious sermons require precise handling of metaphorical language, cultural references, and an understanding of connotations unique to the text's community. The AIPTs, however, struggled to maintain these genre-specific attributes.

وإن مآثر الجاهلية موضوعة غير السدانة والسقاية والعمد قود وشبه العمدة ما قتل بالعصا والحجر وفيه مائة بعير. (ST)

The deeds of ignorance (jahiliyyah) are fabricated, except for the protection of the Kaaba, providing water, and acts of intentional murder punishable by retaliation equivalent to killing one hundred camels. (AIPT)

For instance, the translation of "سدانة وسقاية" as "protection of the Kaaba, providing water" fails to capture the culturally and religiously significant connotations of these terms. In Arabic, "سدانة" signifies a sacred custodianship of the Kaaba, rooted in honour, piety, and ancestral duty, while "سقاية" refers to the ceremonial responsibility of ensuring pilgrims are provided with sustenance during their rites. These terms embody themes of collective duty and reverence for sacred traditions. The simplified AI translation reduces them to functional tasks, losing their symbolic depth and communal significance. This example highlights AI's difficulty in maintaining genre fidelity in religious texts, where cultural context and deeper meanings are essential.

Furthermore, the poetic quality of the Arabic text, marked by rhythmic repetition, emphatic expressions, and a natural flow that reinforces key messages, is diminished in the AI translation. In Arabic, repetition is more than a stylistic device; it emphasizes core teachings, reinforces the message's urgency, and facilitates memorization and reflection. For instance, the repetitive structure in phrases like "ألا هل بلغت... اللهم فاشهد" translated into 'Have I conveyed the message? O Allah, bear witness' creates a rhythmic resonance that intensifies the Prophet's appeal.

The language/text analysis revealed that AIPTSs produced lexical and syntactic inaccuracies which hindered to capture of the sermon's intended religious voice. These findings revealed that AIPTSs are still in need of development and it is not wise to depend on them entirely for performing translations. These findings echoed with Zaid and Bennoudi (2023) who confirmed that AI tools struggle in rendering cultural sensitivities. This result ensures translators to discard the worry that AI will replace them. This idea is confirmed by Zaid and Bennoudi (2023) who showed that human translation still dominates translating complex ideas and nuances.

In register, the analysis pointed out that the AIPTSs captured the broad themes of the Farewell Sermon, but often missed subtleties in religious terminology. This finding echoes Albalawi and Ghafour (2024) who pointed out that AI-based translation sufficiently interprets the basis of the Qur'anic texts, yet it could not capture the depth of meaning with the text layers. Furthermore, in Tenor, the analysis revealed that the Prophet's role as a moral and spiritual guide does not maintain the Prophet's authoritative and compassionate stance. This contradicts House (2015) who reported the necessity of safeguarding the source texts' purpose while rendering. To sum up, the AI translation did not consistently maintain these genre-specific attributes, reducing the nature of the text's religious and cultural fidelity.

RQ2: What overt translation errors are more prevalent while translating the Farewell Sermon into English using AIPTSs?

The error frequency as shown in Table 5 highlights the varied types of errors encountered in the AIPTSs, illustrating the complexity and challenges inherent in translating a culturally significant text.

Table 5. Frequency of overt errors produced by the AIPTSs

Error Type	Frequency
Not translated	15
Creative translation	24
Distortion of meaning	9
Slight change in meaning	8
Significant change in meaning	6
Cultural filtering	4
Breach of the SL system	7
Software intervention (Positive)	4
Software intervention (Negative)	4
Total	81

The analysis highlights that 81 overt errors were detected, categorized as shown in Table 4. The most frequent error type was "Creative translation," with 24 occurrences, indicating a tendency for the AIPTSs system to take liberties with the original text, often resulting in translations that deviate from a strictly literal interpretation. This error type suggests that the AI

occasionally prioritizes fluency or readability over precise equivalence, which may lead to altered meanings that impact the text's cultural or functional integrity. The following most frequent error type is "Not translated," with 15 occurrences which indicates the AI system's limitations in fully translating complex phrases and religious concepts. Other prominent issues included distortion of meaning (9 instances). Moreover, 7 errors were found due to not adhering to the syntactic, grammatical, or linguistic rules unique to the source language (i.e. breach of the SL system). Furthermore, instances of change in meaning ranged from slight change of meaning (8 occurrences) to significant change of meaning (6 detected cases). Lacking the ability to recognize and preserve culturally specific meanings, expressions, or references, the AIPTs have committed 4 cultural filtering errors. The overt errors identified in the AI following House's TQA model (2015) along with the technical errors detected by the researchers and called 'software intervention' either positive or negative are identified below:

'Not translated' error occurs when portions of the original text are completely omitted in the translation, resulting in an incomplete rendition of the source message. For instance, the sentence *أما بعد أيها الناس اسمعوا مني أبين لكم فإني لا أدري لعل لا ألقاكم بعد عامي هذا في موقعي هذا* was translated into "Now then, O people, listen to me attentively, for I do not know if I will meet you again after this year in this place of mine," lacks an equivalent in the translated Arabic text. With 15 instances of omitted segments, this recurring error significantly reduces the completeness and flow of the translation, especially problematic in speeches or messages where each line may convey important instructions or sentiments.

Creative translations occur when the translator translates the ST somehow freely by adding some extra words/ information which did not exist in the original ST. Creative translations, occurring 24 times, employ stylistic choices to enhance readability or resonate better with the target audience. For example, "The Arabic phrase *وإن الزمان قد استدار كهيئته يوم خلق الله السماوات والأرض*, to imply that "time has returned to its original form," is translated into "Indeed, time has completed its cycle like the day Allah created the heavens and the earth". This AI translation creatively conveys the cyclical notion in a way that resonates with English-speaking audiences, capturing the undertone of the original. However, this creative approach may slightly shift the tone by adding a sense of finality that isn't explicitly present in Arabic.

Distortion of Meaning refers to those mistakes which result in complete distortion of the meaning of the ST. It further involves a significant misrepresentation of the original intent, often causing misunderstanding. For instance, translating *وإن مآثر الجاهلية موضوعة غير وفيه مائة بعير* into *equivalent to killing one hundred camels*. This translation distorts the meaning by inaccurately interpreting the cultural and legal context of "مائة بعير" (literally "one hundred camels"). In the original context, "one hundred camels" refers to the traditional compensation or "blood money" for certain offenses, not an equivalence in severity to "killing one hundred camels." Occurring 9 times, such distortions can alter the meaning, especially problematic in religious or legal contexts where precise language is necessary to avoid misinterpretation.

As for the 'slight change in meaning' error, the translation keeps most of the original message intact but alters nuances that subtly shift the intended meaning. This means that there is a little distortion of meaning, partial transference of meaning or not complete faithfulness to ST; but this change in meaning is not so severe as to impair communication. An example is the phrase *أوصيكم عباد الله* translated into 'I advise you, O servants of Allah'. While the translation retains the general sense of guidance, the Arabic phrase *أوصيكم* carries a tone closer to "I counsel you" or "I enjoin upon you," which implies a stronger, more formal encouragement rather than mere advice.

Occurring 8 times, these subtle shifts may influence the reader's interpretation of moral implications, affecting their understanding of the original concepts.

Significant change in meaning materializes when there is a big difference between the ST and the TT. Significant change in meaning involves a substantial shift from the original intent, often altering the core message. For example, "فإن فعلن فإن الله قد أذن لكم أن وتتهجروهن في المضاجع وتضربوهن ضرباً غير مبرح" is translated into isolate them in their rooms. This translation deviated from the intended meaning adds an element of physical separation beyond the original context and implies confinement, which isn't present in the Arabic text. With 6 occurrences, these shifts affect the impact of the text, particularly in legal or moral statements where precise interpretation is essential.

Cultural Filtering is committed when there are some cultural phrases, words or local names and titles, which are untranslatable. In such cases, usually, the translator tries to find some alternative equivalents according to target culture and intended readers. It also involves omitting or modifying concepts that could be misinterpreted by the target audience. In the example "فلا ترجعن بعدى كافرأ يضرب بعضكم رقاب بعض", which is translated literally as "So do not turn back as disbelievers, striking the necks of one another," the phrase "striking the necks of one another" is an idiomatic expression in Arabic, symbolizing severe conflict or even violence. While this adjustment appears 4 times, which can aid readability, it risks obscuring cultural context or altering the intended moral weight of the message.

Breach of the SL system: this category is recognized when the TT has deviated from the norms, syntax or grammatical rules of the ST. It involves failing to maintain the structural integrity of the source language, often leading to changes in syntax or parts of speech and sometimes leading to distortion of meaning. For example, "أما بعد أيها الناس إن لنسائكم عليكم حقاً ولكم عليهن حق" translated into 'O people, indeed you have rights over your women, and they have rights over you' resulted in a different structure. This translation alters the original sentence structure, where the Arabic construction emphasizes mutual rights with a specific sequence. This error occurred in 7 instances throughout the translation, causing sometimes shift from action-oriented verbs to static nouns (i.e. translating the verb "نحمده" (we praise), into a noun) which disrupts the dynamism of the original, affecting the tone and possibly altering the reader's perception of the original intent or sentiment. In the analysis of the translation, another type of fault, termed a "software intervention," was identified, with two subcategories: positive and negative which will be discussed under RQ3.

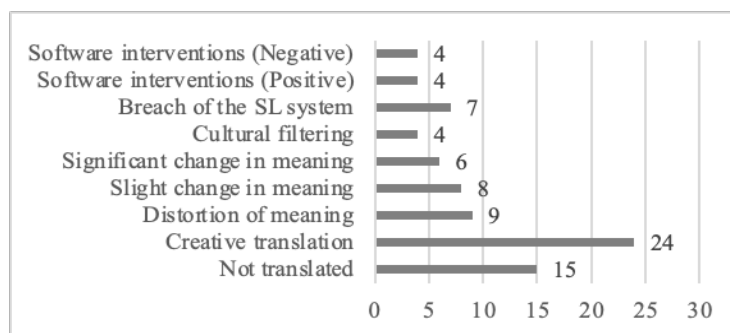


Figure 2. Frequency of errors

Accordingly, it is apparent that the most prevalent overt translation errors in the Farewell Sermon when translated via AIPTSs include creative translations, not translated (omissions), and distortion of meaning. Omissions occur when culturally dense phrases are left out entirely while distortions happen when religious or cultural meanings are misinterpreted, such as in the example

where "one hundred camels" is mistranslated as a severe consequence rather than a legal compensation. The findings of this study reported that AIPTSs can handle some cultural and religious elements within the Farewell Sermon with reasonable accuracy but often struggle with nuances, especially when dealing with culturally specific terms and religious expressions. These findings are supported by some studies, (i.e., Al-Kaabi et al., 2024; Taghian, 2024; Zaid & Bennoudi, 2023). Taghian (2024) for example found that AI-based tools fail to capture the pragmatic, contextual, and cultural dimensions in translating two words succession in the Prophet's hadiths. Zaid and Bennoudi (2023) pointed out that AI provided unprecedented accuracy in translation, but some challenges hinder the system in translating cultural and ideological language elements. To them, such challenges should be characterized to enhance the AIPTSs' performance. Similarly, Al-Kaabi et al. (2024) reported that AI translation suffered in translating cultural, idiomatic, and rhetorical language elements while translating literary work. Their findings recommend the necessity of training translators on techniques for developing AI-powered translation.

RQ3: Is House's (2015) model suitable for assessing AIPTSs?

House's (2015) TQA model is found to be to some extent suitable for assessing AIPTSs of culturally and religiously significant texts. Many previous studies reported the capability of House's (2015) model in assessing the translation. This is evident by the many studies which applied this model; they described it as a comprehensive model (Al-Aizari, 2023; Alghamdi, 2016; Hakami, 2024; Youssef, 2024). However, previous studies focused on the suitability of House's model in assessing human translation, this study applies the model for assessing AIPTSs. The model's emphasis on situational and cultural adequacy aligns well with the shortcomings identified in AI translations, such as the breach of the SL system, cultural filtering and the varying degrees of misinterpretation (i.e. slight change in meaning, significant change in meaning, distortion of meaning), creative translation and instances where no translation is provided. By assessing both the communicative function and the linguistic form, House's model provides a comprehensive framework to evaluate how effectively AI systems meet the complex demands of translating religious and cultural texts. Nevertheless, a modification to the model could improve its ability to handle all errors by adding a "software intervention" category to assess technical issues that may positively or negatively impact translation quality. The positive software intervention, occurring 4 times in the corpus, refers to instances where additions are made. This is frequent in adding 'verily' to enhance emphasis. On the contrary, negative software interventions, also occurring 4 times, involve alterations that inadvertently distort the accuracy of the translated text. Examples include inserting "That is the correct religion" in the translation of " وإن عدة الشهور عند الله اثنا عشر شهراً في كتاب" which is not present in the original, and misusing punctuation, as in placing a question mark after "O Allah, bear witness" ("ألا هل بلغت اللهم فاشهد"). These findings were found to agree with previous studies (Khoshafah, 2024; AlGhamdi, 2016) which support the view that House's model can be applied to the translation of religious texts, however; AIPTSs failed to match the depth and cultural impact of human translation (Zaid & Bennoudi, 2023). Altogether, these results emphasize the need for enhanced AIPTSs to better address cultural and contextual nuances, particularly for texts rich in cultural or religious significance.

Statement of quality

The total word count for the text is 1,335 words, with the original Arabic version comprising 498 words and the English translation expanding to 837 words. This increase in word

count in the English version reflects the challenges of translating from Arabic, where additional words are often required to capture the full meaning and nuances of the original. The AIPs have some violations in translating religious-based texts. In this study, some violations were noticeable in rendering lexical terms where the AIPs did not pay any attention to the TT contexts. This finding indicated the AIPs are still not fully prepared to select the most suitable equivalent of lexical items at various contexts. Moreover, the findings agree with Al-Aizari's (2023) findings regarding the limitations of House's (2015) model when applied to AIPTs. While the model provides a comprehensive framework for evaluating human translations, it lacks the flexibility to fully capture certain types of errors specific to AI translations, particularly in handling overt errors and nuances that AI systems struggle with. Similar to Al-Aizari's observations, we found that some AI-specific errors, identified by the researchers as "software interventions," which could not be effectively classified within the model's established criteria, highlighting the need for an adapted framework that better accounts for the unique characteristics of AI translation outputs.

Conclusion

AIPTs fall short in capturing the sermon's full cultural and emotional depth, diminishing its aesthetic richness and spiritual influence in the TT. While AI provides a foundational translation, human post-translation and refinement are necessary for achieving a nuanced, cultural awareness, and contextually faithful rendering of the significant religious text, the Farewell Sermon. The analysis indicated that House's (2015) model is effective for assessing the quality of AI-driven translation systems, providing a framework to identify various translation errors, however, the model was found to have a deficiency in handling 'software interventions'. These software interventions refer to technical errors introduced by the AI system itself, often due to limitations in algorithmic processing, the impact of stored data, or specific technical constraints within the software. Recognizing such faults as separate from linguistic or contextual errors underscores the need for TQA model refinement. As such, the study strongly recommends the continual tuning and upgrading of AI translation applications to mitigate these technical issues. Addressing these technical faults not only improves translation accuracy but also enhances user trust and the reliability of AIPTs across diverse applications. Furthermore, these findings demonstrate the need for humanized intervention against AIPTs to ensure faithful and culturally sensitive translation of complex religious texts.

Declaration of conflicting interest

The authors declare that there is no conflict of interest in this work.

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