

RESEARCH ARTICLE

Assessing Machine Translation of Emotional Depth, Metaphorical Complexity, and Cultural Nuances in Literary Texts — A Case Study of *Dream of the Red Chamber*

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Abstract:

Machine translation (MT) has significantly evolved, shifting from rule-based methods through statistical approaches to contemporary neural machine translation (NMT). Despite these advancements, translating literary texts—especially poetry and prose rich in emotional depth, metaphorical complexity, and cultural nuances—remains challenging. This qualitative comparative textual analysis investigates MT's effectiveness in translating emotional expressions, metaphors, imagery, and culturally specific references from Chinese to English of selected excerpts of the classical Chinese novel *Dream of the Red Chamber*. Three popular AI translation systems—DeepL and Google Translate (specialized neural machine translation platforms) and DeepSeek (a generative large language model with translation capabilities)—were evaluated on their capability in translating texts of emotional depth, metaphorical complexity, and cultural nuances. The findings indicate substantial differences among the evaluated systems. DeepSeek consistently demonstrates superior performance across all dimensions, effectively capturing emotional subtlety, metaphorical depth, and cultural nuances. Google Translate provides translations of moderate quality, accurately conveying core meanings yet lacking nuanced literary and cultural resonance. DeepL, conversely, is faced with significant challenges, frequently resulting in awkward phrasing, distorted metaphors, and diminished emotional quality. These results align with the existing literature highlighting persistent limitations of MT in literary contexts. Future research should explore enhanced literary training datasets and emotion-aware MT techniques to bridge these identified gaps.

Keywords: machine translation, literary translation, emotional depth, metaphorical complexity, cultural nuances, *Dream of the Red Chamber*



1. Introduction

Machine translation has evolved significantly over the past few decades, transitioning from rule-based methods to statistical and, more recently, neural machine translation (NMT) methods (Matusov, 2019). Despite these advances, translating literature, especially poetry and prose rich in emotions and cultural imagery, continues to pose substantial difficulties. Literary translation demands that the translator not only maintain semantic accuracy but also effectively convey the original work's aesthetic, emotional, and cultural dimensions (Bassnett, 2013). The intrinsic difficulty of translating literary texts arises from their heavy reliance on metaphors, emotional subtleties, culturally embedded meanings, and stylistic intricacies that transcend literal meanings (Toral & Way, 2015).

Previous research has identified persistent limitations in MT's ability to effectively handle the emotional depth, metaphorical expressions, and cultural nuances intrinsic to literary texts (Guerberof-Arenas & Toral, 2022). These studies highlight that while MT systems often produce grammatically correct and fluent translations, they frequently fail to capture the original's emotional intensity or metaphorical richness. As a result, such translations, though understandable, tend to lack emotional depth and cultural resonance. However, with the advent of neural networks, MT systems now promise greater contextual awareness and sensitivity to linguistic nuances, offering potential improvements in translating literature (Guerberof-Arenas & Toral, 2022).

In light of these challenges and advancements, the current study employs a qualitative comparative textual analysis approach to assess MT performance across multiple platforms—namely, DeepL, Google Translate, and DeepSeek—in translating selected excerpts from the classical Chinese literary work *Dream of the Red Chamber*. The novel was specifically chosen due to its emotional intensity, cultural complexity, metaphorical richness, and distinct literary style. This literary work provides a robust test case to systematically evaluate MT's capabilities and shortcomings regarding literary translation.

Specifically, the study addresses two key research questions:

1. What are the distinct challenges machine translation systems face in preserving three core dimensions of literary texts—emotional depth, metaphorical complexity, and cultural nuances—and how do these challenges differ across dimensions?
2. What specific translation errors (e.g., syntactic infelicity, metaphorical distortion, cultural misrepresentation) emerge in each dimension when machine translation processes emotionally and culturally loaded literary texts, and how do these errors vary across different AI translation systems?

To address these questions, the research methodology presented in this study outlines the criteria for selecting specific literary excerpts, the rationale for choosing particular MT platforms, and the analytical procedures used to qualitatively evaluate translations. Furthermore, the methodology integrates theoretical insights from translation studies, particularly those of Bassnett (2013) and Toral & Way (2015), framing literary translation as inherently interpretative and culturally sensitive. This theoretical perspective informs the evaluative dimensions chosen for the comparative analysis: emotional depth, metaphorical complexity, and cultural nuances.

To ensure terminological clarity, key terms used throughout the study are defined as follows:



Literary complexity: Refers to the multi-layered intricacy of literary texts, encompassing emotional depth, metaphorical complexity, cultural nuances, and stylistic elements. This term emphasizes the interconnectedness of these dimensions, which collectively distinguish literary texts from non-literary ones (Bassnett, 2013; Toral & Way, 2015).

Aesthetic fidelity: Denotes the extent to which a translation preserves the original text's aesthetic qualities, including stylistic consistency (e.g., the lyrical tone of "Burying Flowers"), formal features (e.g., parallel structure in "枉凝眉"), and imagery impact (e.g., the evocative power of "水中月, 镜中花"). It differs from emotional fidelity and cultural fidelity by centering on literary craftsmanship and sensory/aesthetic experience (Williams & Chesterman, 2014).

In the subsequent sections, this study clearly details the research design, including text selection criteria, the translation processes conducted, and the qualitative comparative methods applied. Ethical considerations and methodological limitations are also discussed to ensure research rigor and validity. Ethical considerations were guided by principles of academic integrity and copyright compliance. Given that *Dream of the Red Chamber* is a classical literary work in the public domain (first published in the 18th century, with no active copyright restrictions), the use of excerpts for research purposes falls under "fair use" as defined by international copyright conventions (Berne Convention, 1971) and academic norms for literary analysis.

To ensure ethical rigor: (1) All selected excerpts were limited to short passages to avoid reproducing substantial portions of derivative translations; (2) Excerpts were explicitly contextualized as illustrative examples for comparative analysis, not for commercial or distributive purposes.

Additionally, the study acknowledges the ethical responsibility of preserving the original work's integrity: analyses focused on evaluating MT performance rather than critiquing the literary merit of *Dream of the Red Chamber* itself, respecting its cultural significance as a canonical text. These measures align with the guidelines for ethical research in literary translation studies (Chesterman, 2018), ensuring that academic inquiry does not compromise the work's cultural or artistic value.

By systematically evaluating MT outputs through these dimensions, this study aims to provide insights into MT's current capabilities, identify persistent translation challenges, and highlight potential future directions for improving MT's application in literary contexts.

2. Literature Review

MT has made significant strides in recent years, yet its application to literary texts—rich with emotions, metaphors, and imagery—presents unique challenges. This literature review explores the evolution of MT, the intricacies of literary translation, and the intersection of the two, focusing on MT's ability to convey the emotional depth of literary works.

2.1 Evolution of machine translation

Machine translation systems are broadly categorized based on underlying architectures: (1) rule-based machine translation (RBMT), which relies on predefined linguistic rules and dictionaries (Arnold et al., 1994); (2) statistical machine translation (SMT), which uses probabilistic models trained on bilingual corpora to predict translations (Koehn, 2009); (3) NMT, which employs deep



learning models (e.g., transformers) to capture contextual dependencies (Vaswani et al., 2017); and (4) large language models (LLMs) with translation capabilities, which are trained on vast multilingual datasets to generate contextually coherent text through generative tasks (Brown et al., 2020). This study focuses on NMT platforms (DeepL, Google Translate) and LLMs (DeepSeek), as they represent the current state-of-the-art in AI-driven translation. Machine translation involves the automatic conversion of text from one language to another using computational methods. Early MT systems relied on rule-based approaches, which utilized linguistic rules to parse and translate text. However, these systems struggled with ambiguity and context sensitivity. The advent of SMT marked a shift, leveraging large bilingual corpora to predict translations based on probability. Despite improvements, SMT faced limitations in handling idiomatic expressions and maintaining fluency.

The introduction of NMT has been transformative. NMT models, particularly those based on transformer architectures, have demonstrated enhanced fluency and accuracy by capturing contextual nuances better than their predecessors. However, challenges persist, especially in translating complex literary constructs. For instance, studies have shown that NMT systems often struggle with metaphors and idiomatic expressions, leading to literal translations that miss the intended meaning (Matusov, 2019).

While NMT has shown advancements in contextual handling, its performance in literary translation—especially for classical texts like *Dream of the Red Chamber*—remains underexplored. This study builds on these evolutionary insights by examining how modern NMT platforms (DeepL, Google Translate, DeepSeek) navigate the unique challenges of classical Chinese literary devices, addressing a critical gap in evaluating NMT's applicability to culturally rich, emotionally nuanced texts.

2.2 The art of literary translation

Literary translation extends beyond mere linguistic conversion; it involves interpreting and conveying the aesthetic, cultural, and emotional essence of the source text. Translators must navigate cultural nuances, stylistic elements, and the author's voice to produce a text that resonates with the target audience. This process requires a deep understanding of both source and target cultures, as well as the ability to recreate literary devices such as metaphors and imagery in a way that evokes similar emotions.

One of the primary challenges in literary translation is preserving the author's unique style and the emotional impact of the original work. Translators often face dilemmas when encountering culturally specific references or wordplay that lack direct equivalents in the target language. The goal is to strike a balance between fidelity to the source text and readability for the target audience, ensuring that the translation captures the original's spirit and emotional depth (Toral & Way, 2015).

2.3 Machine translation in literary contexts

Applying MT to literary texts introduces a host of challenges. Literary works are characterized by creative language use, including metaphors, idioms, and cultural references that are often deeply rooted in the source language and culture. MT systems, particularly those not specifically trained on



literary corpora, may produce translations that are literal and devoid of the original's emotional and aesthetic qualities.

2.3.1 Handling metaphors

Metaphors and imagery are central to literary expression, conveying emotions and abstract concepts through vivid language. Imagery refers to language that evokes sensory experiences (visual, auditory, tactile) to create vivid mental representations (Perrine, 1977). In classical Chinese poetry, imagery is often “multivalent”—e.g., “落絮” in “Burying Flowers” evokes both visual and emotional imagery (Xu, 2020). Translating imagery requires balancing sensory fidelity and emotional resonance, a task that demands contextual awareness (Larson, 1984). MT systems frequently reduce imagery to literal descriptions, as they struggle to map sensory details to their emotional or cultural connotations (Baker, 2018). MT systems often struggle with these elements due to their reliance on context and cultural knowledge. For example, a metaphor like “a heart of stone” conveys emotional coldness, but a literal translation might misinterpret or fail to convey the intended meaning. Multiple studies (Leuski et al., 2018; Sullivan, 2013; Baker, 2018) indicate that while NMT systems have improved in fluency, they still lack the ability to interpret and translate metaphors accurately, often reducing them to literal meanings that miss the metaphorical tenor—consistent with our finding that DeepL's translation of “花谢花飞” flattened its symbolic meaning of impermanence.

2.3.2 Emotional complexity

Emotional depth in literary texts refers to the layers of affective meaning, including explicit emotions, implicit emotional cues, and emotional resonance (Hunston, 2007). From a translation studies perspective, preserving emotional depth requires replicating the “affective stance” of the original—i.e., the author's intended emotional positioning toward the text (White, 2018). This involves not only translating emotional lexicon but also maintaining prosodic features and pragmatic cues that signal emotional intensity (House, 2015). MT systems often prioritize semantic accuracy over affective stance, leading to emotionally shallow translations (Toral & Way, 2015; Guerberof-Arenas, 2018).

Capturing the emotional tone of a literary work is crucial for an effective translation. MT systems, however, often struggle with this aspect due to the subtlety and context-dependence of emotional expression. Studies have shown that MT outputs can be grammatically correct yet emotionally flat, failing to evoke the same feelings as the original text. For instance, an analysis of MT translations of literary texts revealed that while the translations were fluent, they lacked the emotional depth and stylistic nuances of the source material (Toral & Way, 2015).

2.3.3 Cultural nuances

Literary works are deeply embedded in their cultural contexts, with references, idioms, and expressions that may not have direct equivalents in other languages. MT systems often fail to recognize and appropriately translate these cultural nuances, leading to translations that are either inaccurate or lack the cultural resonance of the original. For example, an idiom like “kick the bucket,” meaning to die, might be translated literally by an MT system, resulting in a nonsensical phrase in the



target language. This highlights the need for cultural competence in translation, which current MT systems lack (Toral & Way, 2015).

2.3.4 Stylistic elements

The style of a literary work, including its rhythm, tone, and use of literary devices, contributes significantly to its overall impact. MT systems often struggle to preserve these stylistic elements, resulting in translations that may convey the basic meaning but lack the stylistic flair of the original. For instance, poetry, with its specific meter and rhyme schemes, poses a significant challenge for MT, as these elements are often lost in translation (Toral & Way, 2015).

Notably, existing research on classical Chinese literary translation has predominantly focused on human translation practices, with limited attention to machine translation. Studies on *Dream of the Red Chamber* translations, for instance, have centered on comparative analyses of human translators' strategies in handling cultural elements—such as Yang Xianyi & Gladys Yang's emphasis on literal fidelity versus David Hawkes' cultural adaptation in rendering metaphors like “阆苑仙葩” (Wang, 2019; Li, 2021). These works highlight the critical role of human judgment in balancing emotional resonance and cultural authenticity, yet they rarely address how modern MT systems navigate such complexities.

Meanwhile, MT research on classical Chinese texts remains scarce. Early studies (Chen & Liu, 2020) examined MT performance in historical prose translation, focusing primarily on semantic accuracy rather than literary dimensions like emotional depth or metaphorical richness. Recent studies on literary MT (Zhang & Smith, 2023) have explored modern Chinese fiction but excluded classical works, which involve archaic syntax and allusive language unique to texts like *Dream of the Red Chamber*.

This study fills these gaps by being the first to systematically compare leading NMT platforms' handling of *Red Chamber's* emotional, metaphorical, and cultural layers—dimensions largely overlooked in existing MT-literary translation scholarship. Unlike prior research, it evaluates not only semantic accuracy but also the preservation of literary essence, offering a nuanced analysis of how MT systems perform in translating classical Chinese literary texts.

2.4 Research gaps and rationale for the current study

While advancements in NMT and LLMs have improved general translation fluency, critical gaps remain in their application to classical literary texts, particularly in evaluating how well they preserve emotional depth, metaphorical complexity, and cultural nuances.

First, existing research on literary MT has predominantly focused on modern texts (Zhang & Smith, 2023) or non-Chinese classical literature (e.g., Shakespearean translations; Guerberof-Arenas & Toral, 2022), with limited attention to classical Chinese works like *Dream of the Red Chamber*. This oversight is significant, as classical Chinese employs archaic syntax, allusive language, and culturally specific metaphors that differ fundamentally from modern linguistic norms, posing unique translation challenges (Chen & Liu, 2020).



Second, evaluations of MT performance in literary contexts have often prioritized semantic accuracy over multi-dimensional literary qualities. For instance, studies on metaphor translation (Leuski et al., 2018) or emotional fidelity (Toral & Way, 2015) rarely integrate cultural nuance as a distinct evaluative dimension despite its centrality in texts like *Dream of the Red Chamber*, where “*闺中女儿*” carries layered meanings of gender, tradition, and emotional constraint (Wang, 2019).

Third, comparative analyses of AI translation systems remain limited in scope. While specialized NMT platforms (DeepL, Google Translate) and generative LLMs (DeepSeek) are both used for literary translation, few studies systematically contrast their performance across emotional, metaphorical, and cultural dimensions (Way et al., 2023). This gap hinders understanding of how architectural differences (e.g., NMT’s focus on bilingual alignment vs. LLM’s generative flexibility) impact literary translation outcomes.

Against this backdrop, the current study addresses these gaps by: (1) focusing on a culturally and linguistically complex classical Chinese text; (2) employing a multi-dimensional evaluative framework (emotional depth, metaphorical complexity, cultural nuances); and (3) comparing specialized NMT platforms with a generative LLM. By doing so, it aims to provide a nuanced understanding of AI translation capabilities in literary contexts, where preserving the original’s aesthetic and cultural essence is paramount.

2.5 Theoretical framework

The analysis is guided by the theoretical insights of literary translation studies, particularly the views of Bassnett (2013) and Williams and Chesterman (2014), emphasizing literary translation as an interpretative and creative act rather than mere linguistic conversion. Additionally, research from Toral and Way (2015), highlighting limitations of MT in literary contexts, provides essential theoretical grounding, informing the study’s evaluative criteria and analytical approach.

To strengthen the analysis of emotional depth, this study also draws on insights from cognitive translation studies and affect theory. Cognitive translation studies (Bell, 1991; Halverson, 2010) frame translation as a cognitive process involving “mental models” of the source text’s emotional and cultural layers—models that human translators construct through expertise in both languages and cultures. For MT systems, which lack such mental models, translating emotional depth requires approximating this cognitive process via contextual embedding.

From affect theory (Ahmed, 2004), emotions are conceptualized as “sticky” (i.e., bound to cultural meanings and bodily experiences). This theory illuminates why translating emotional depth in *Dream of the Red Chamber* is challenging: emotions like Daiyu’s sorrow are not universal but culturally specific. MT systems, which often treat affect as universal, risk diluting these culturally sticky emotions into generic equivalents.

Together, these frameworks enrich our evaluative criteria: cognitive translation studies highlight MT’s limitations in replicating human-like contextual processing, while affect theory underscores the cultural embeddedness of emotions—both critical to understanding why platforms like DeepSeek outperform others in preserving emotional nuance.



3. Research Methodology

To address the research questions, this methodology section outlines the criteria for selecting literary excerpts, the rationale for choosing specific MT platforms, and the analytical procedures used to qualitatively evaluate translations. It also integrates theoretical insights from translation studies—particularly those of Bassnett (2013) and Toral & Way (2015), which frame literary translation as inherently interpretative and culturally sensitive—thereby informing the evaluative dimensions (emotional depth, metaphorical complexity, and cultural nuances) for comparative analysis.

3.1 Research design

Given the exploratory nature of this research, a qualitative comparative textual analysis was chosen as the methodological framework. Comparative textual analysis is especially useful for examining the nuanced linguistic, cultural, and emotional layers within literary texts—particularly when those texts are translated via different technological tools (Williams & Chesterman, 2014). By comparing translations from different MT systems, this study uncovers how well (or poorly) machine translation preserves the emotional subtleties unique to literary works (Toral & Way, 2015).

3.2 Selection of literary texts

The selection of *Dream of the Red Chamber* (hereafter *Red Chamber*) as the target literary text is justified by its unique status as a canonical work of classical Chinese literature, characterized by three key features that make it an ideal test case for evaluating AI translation systems:

Linguistic and stylistic complexity

As one of the Four Great Classical Novels, *Red Chamber* integrates archaic classical Chinese, poetic verse, and colloquial dialogue, presenting a spectrum of linguistic registers (Hu, 2016). Its prose is marked by parallelism (e.g., “假作真时真亦假”), allusive language (drawing on Confucian, Taoist, and Buddhist thought), and metaphorical density—qualities that directly challenge MT systems’ ability to preserve stylistic nuances (Li, 2021).

Cultural and emotional depth

The novel encapsulates core aspects of traditional Chinese culture, including family structures, gender norms, and metaphysical concepts (e.g., “太虚幻境” as a Taoist-influenced realm of illusion). Simultaneously, it explores universal yet culturally inflected emotions: Lin Daiyu’s melancholia, Jia Baoyu’s existential longing, and the tragedy of unfulfilled love (Wang, 2019). This duality—specific cultural references intertwined with complex emotions—tests MT’s capacity to balance cultural fidelity and emotional resonance, a central concern of literary translation studies (Bassnett, 2013).

Canonical status and translation history: *Red Chamber* has been translated into English multiple times by renowned translators (e.g., Yang Xianyi & Gladys Yang, David Hawkes), with each version debating strategies for handling its cultural and linguistic complexities (Chen, 2020). This rich translation history provides a benchmark for evaluating AI outputs: by comparing MT results with



these authoritative human translations, we can assess whether machine systems capture nuances that even expert translators have debated for decades.

In sum, *Red Chamber*'s combination of linguistic complexity, cultural specificity, and emotional depth makes it uniquely suited to test the limits of AI translation across the three evaluative dimensions of this study (emotional depth, metaphorical complexity, and cultural nuances).

The selected texts include representative excerpts from poetry and song lyrics, known for their emotional complexity, metaphorical depth, and cultural specificity. According to Bassnett (2013), poetry and literary lyrics present considerable challenges to translators due to their condensed emotional expression, metaphoric density, and cultural embeddedness, making them ideal candidates to test the capabilities and limitations of MT systems.

3.3 Machine translation tools and process

Three AI-driven translation systems were selected for their prominence in cross-lingual text conversion: Google Translate and DeepL (specialized NMT platforms) and DeepSeek (a LLM with generative translation capabilities). All three tools were chosen based on their popularity, accessibility, and documented performance in Chinese-English translation, though they differ in underlying architecture: the former two are optimized for dedicated translation tasks via NMT frameworks, while DeepSeek operates as a generative AI model trained on broader linguistic data with translation as one of its multi-modal capabilities. Each literary text was translated from Chinese into English independently by one translation system, ensuring consistency and comparability across translations. To ensure reproducibility of DeepSeek's translations (given its reliance on prompt engineering as a generative LLM), the exact prompt used for all excerpts is provided below:

“Translate the following classical Chinese literary excerpt from Dream of the Red Chamber into English. Prioritize preserving: (1) emotional depth and subtle tones; (2) metaphorical meanings and symbolic imagery; (3) cultural nuances and context-specific references. Maintain the original literary style (e.g., poetic rhythm where applicable) and avoid overly literal translations that lose aesthetic or emotional resonance.”

This prompt was consistently applied to all excerpts without modifications, ensuring uniformity when DeepSeek processed the translation tasks. The design of the prompt aligns with best practices for LLM translation evaluation (Way et al., 2023), which emphasize explicit instruction on preserving literary dimensions to elicit high-quality outputs. Following established practices in MT research (Way, 2018; Guerberof-Arenas & Toral, 2022), no manual post-editing was applied to translations to retain objectivity and authenticity in evaluation.

3.4 Analysis procedure

Translated outputs were analyzed qualitatively using comparative textual analysis, drawing on translation studies principles—specifically, how well emotional elements, metaphors, imagery, and cultural nuances were preserved (Bassnett, 2013; Toral & Way, 2015). The analysis focused on the following dimensions. The evaluative criteria for each dimension were adapted from established MT assessment frameworks (Toral & Way, 2015; Guerberof-Arenas & Toral, 2022) and tailored to classical literary translation:



Emotional depth

Criteria: (a) Preservation of emotional tone (e.g., melancholy, affection); (b) Naturalness of phrasing to evoke equivalent emotional resonance; (c) Avoidance of emotional dilution or distortion.

Source: Derived from Toral & Way (2015)'s framework for assessing emotional fidelity in literary MT, expanded to include classical Chinese's reliance on implicit emotional cues.

Metaphorical complexity

Criteria: (a) Accuracy in retaining symbolic meaning (not mere literal translation); (b) Preservation of metaphorical layers (e.g., “花谢花飞” as both literal 落花 and metaphor for transience); (c) Avoidance of metaphorical loss or misinterpretation.

Source: Adapted from Leuski et al. (2018)'s rubrics for metaphor translation, modified to account for classical Chinese's culturally specific symbolic systems.

Cultural nuances

Criteria: (a) Accuracy in translating culturally specific references (e.g., “太虚幻境” as a metaphysical concept); (b) Appropriateness to target cultural context (e.g., “闺中女儿” as a gendered space); (c) Preservation of cultural resonance (not just denotation).

Source: Based on Bassnett (2013)'s principles of cultural translation, integrated with MT-specific cultural competence metrics from Guerberof-Arenas & Toral (2022).

4. Case Analysis**4.1 Lin Daiyu's “Burying Flowers”**

In the twenty-seventh episode, Lin Daiyu composes the poem “Burying Flowers” to express her mourning for the fallen flowers and to express her feelings about her own life. The following is part of the poem:

花谢花飞花满天，红消香断有谁怜？
游丝软系飘春榭，落絮轻沾扑绣帘。
闺中女儿惜春暮，愁绪满怀无释处。
手把花锄出绣帘，忍踏落花来复去。

(周汝昌, 2008, p.42, line 1)

Translated text by DeepL:

The flowers are flying all over the sky, and who has pity for them when they are broken?
The silk is softly tied to the spring pavilion, and the falling flakes are lightly stained on the embroidered curtains.



The daughter of a girl in her bosom cherishes the twilight of spring and has no place to release her sorrows.

I have to take the flower hoe out of the embroidered curtain, and I can't bear to step on the fallen flowers.

Translated text by Google Translate:

Flowers fade and fly all over the sky, who will pity them when their redness and fragrance fade?

The floating silk is softly tied to the spring pavilion, and the falling catkins lightly touch the embroidered curtain.

The girls in the boudoir cherish the end of spring, and their hearts are full of sorrow and have no place to release.

Holding the flower hoe, they go out of the embroidered curtain and can't bear to step on the fallen flowers again and again.

Translated text by DeepSeek:

The flowers wither, the petals fly, filling the sky, their red fading, their fragrance broken—who pities them?

The gossamer threads softly cling to the spring pavilion, the falling catkins lightly touch the embroidered curtains.

The maiden in her chamber grieves for the passing of spring, her heart full of sorrow with no place to vent.

With a flower hoe in hand, she steps out from behind the embroidered curtain, reluctant to tread on the fallen blossoms, coming and going.

Emotional depth

DeepL Translation conveys emotional fidelity somewhat effectively but slightly loses coherence with “daughter of a girl,” which obscures the intended emotional meaning.

Google Translate Translation partially captures emotional fidelity by expressing the sadness in “their hearts are full of sorrow.” However, phrases like “can’t bear to step on the fallen flowers again and again” lack subtlety and depth, losing some emotional nuance.

DeepSeek Translation captures emotional fidelity most accurately, explicitly preserving the sorrowful, reflective mood of the original, particularly with the translation “their fragrance broken—who pities them?” and “reluctant to tread on the fallen blossoms,” closely mirroring Daiyu’s melancholic sentiment.

Metaphorical complexity

Metaphors like “花谢花飞” symbolize life’s impermanence, fragility, and transient beauty.



DeepL Translation tends to flatten metaphorical language (“flowers flying all over the sky”) into overly literal descriptions, somewhat diminishing emotional depth.

Google Translate Translation and DeepSeek Translation are comparatively stronger at preserving metaphor. DeepSeek’s “The flowers wither, the petals fly, filling the sky,” adeptly conveys the metaphor’s emotional implications—evoking sadness, impermanence, and delicate beauty simultaneously.

Cultural nuances

DeepL Translation significantly struggles with cultural appropriateness, using awkward expressions (“daughter of a girl in her bosom”), reflecting a lack of cultural awareness in translating “闺中女儿.”

Google Translate Translation does better by correctly using “girls in the boudoir,” culturally appropriate but somewhat stiffly expressed.

DeepSeek Translation handles cultural context sensitively, choosing “maiden in her chamber,” which accurately reflects cultural nuances and retains natural fluency and cultural appropriateness.

4.2 Jia Baoyu and Lin Daiyu's first meeting

In the third episode, Jia Baoyu and Lin Daiyu meet for the first time, and the conversation between them is full of subtle emotions:

宝玉看罢，因笑道：“这个妹妹我曾见过的。”众人笑道：“你又胡说了。你又何曾见过？”宝玉笑道：“虽然未曾见过她，然我看着面善，心里就算是旧相识，今日只作远别重逢，自然不比别个。”

(周汝昌, 2008, p.28, lines 10-11)

Translated text by DeepL:

Bao Yu looked at it, for he laughed and said, “This sister I have seen before.” The crowd laughed and said, “You’re talking nonsense again. How have you seen her before?” Baoyu laughed: “Although I have never seen her, but I look at the face of good, even if the heart is an old acquaintance, today only as a far away reunion, naturally not compared to others.”

Translated text by Google Translate:

After Baoyu saw her, he smiled and said, "I have seen this sister before." Everyone laughed and said, "You are talking nonsense again. When have you seen her before?" Baoyu smiled and said, "Although I have never seen her before, I think she looks familiar to me. In my heart, I regard her as an old acquaintance. Today is just a reunion after a long separation, so naturally I am not comparing her to others."

Translated text by DeepSeek:

Baoyu, after looking her over, smiled and said, "I've seen this sister before." The others laughed and replied, "You're talking nonsense again. How could you have seen her before?" Baoyu responded with a smile, "Though I may not have met her in person, her face seems



so familiar to me, as if we were old acquaintances. Today feels like a reunion after a long separation, and naturally, she stands apart from the rest."

Emotional depth

DeepL Translation exhibits syntactic infelicity due to redundant conjunctions ("Although... but") and semantic discontinuity ("look at the face of good" lacks the logical connection to "old acquaintance"), disrupting the conversational flow, significantly diminishing the emotional warmth and familiarity Baoyu intends to convey. As a result, the emotional fidelity is compromised because readers might misunderstand or fail to grasp Baoyu's genuine sense of familiarity and emotional closeness.

Google Translate Translation ("Although I have never seen her before, I think she looks familiar to me. In my heart, I regard her as an old acquaintance...") captures the emotional fidelity more effectively than DeepL. The emotional nuance, Baoyu's affectionate sentiment of familiarity ("an old acquaintance") and the emotional closeness ("a reunion after a long separation") is clear, though slightly formal.

DeepSeek Translation offers the most emotionally faithful version, capturing naturally Baoyu's affectionate and sincere emotional tone ("feels like a reunion after a long separation"). It communicates genuine emotional intimacy clearly, effectively conveying Baoyu's subtle affection and unique emotional recognition toward Daiyu.

Metaphorical complexity

In this excerpt, the metaphorical idea of "旧相识" (old acquaintance) and "远别重逢" (reunion after long separation) conveys a deep sense of immediate emotional connection despite never having actually met.

DeepL Translation's metaphorical meaning is distorted by awkward phrasing ("the face of good, even if the heart is an old acquaintance"). The core metaphor is obscured, hindering the translation's emotional impact and accuracy.

Google Translate Translation more effectively preserves the metaphor ("regard her as an old acquaintance"), clearly expressing the intended emotional and metaphorical connection. However, the sentence structure is still somewhat stiff and formal.

DeepSeek Translation successfully maintains the emotional metaphors, clearly translating "old acquaintance" and "reunion after a long separation." Its translation is the most accurate and naturally flowing, effectively conveying Baoyu's intended emotional nuance and the metaphorical implications.

Cultural nuances

The scene requires subtle handling of Chinese cultural context, especially regarding interpersonal relationships and emotional expression.



DeepL Translation fails culturally with awkward translations (“face of good” instead of “familiar face”). It lacks cultural sensitivity and does not appropriately reflect the subtleties of Chinese social-emotional interaction.

Google Translate Translation adequately maintains cultural appropriateness, translating cultural concepts effectively (“old acquaintance” and “reunion”). Yet it remains somewhat mechanical and does not fully capture the gentle affection characteristic of traditional Chinese cultural interactions.

DeepSeek Translation provides the best cultural appropriateness, successfully conveying cultural nuances of affection, politeness, and emotional subtlety that characterize traditional Chinese literary interactions. It translates expressions smoothly and appropriately, maintaining cultural resonance without distortion.

4.3 Jia Baoyu’s dream of traveling to the realm of the Taixu (太虚幻境)

In the fifth episode, Jia Baoyu sleepwalks through the realm of Taixu, meets and goes through a series of symbolic episodes:

宝玉道：“适闻仙乐，未审是何曲调？”仙姑道：“此乃《红楼梦》曲也。”宝玉道：“可得闻乎？”仙姑使命取《红楼梦》十二支曲谱来，递与宝玉。

(周汝昌, 2008, p.82, line 12)

Translated text by DeepL:

Bao Yu said: “I heard the immortal music, I do not know what tune?” Immortal nun said: “This is ‘Dream of the Red Chamber’ song.” Baoyu said: “Can I hear it?” Immortal nun then ordered to take the “Dream of Red Mansions” twelve pieces of music to, handed with the treasure jade.

Translated text by Google Translate:

Baoyu said, “I just heard fairy music, I wonder what tune it is?” The fairy said, “This is a song from A Dream of Red Mansions.” Baoyu said, “Can I hear it?” The fairy then ordered the twelve music scores of A Dream of Red Mansions to be brought and handed to Baoyu.

Translated text by DeepSeek:

Baoyu inquired, “I just heard a celestial melody; may I ask what tune it was?” The fairy maiden replied, “That was the ‘Dream of the Red Chamber’ song.” Baoyu then asked, “Might I have the pleasure of hearing it?” The fairy maiden thereupon ordered the twelve pieces of the “Dream of the Red Chamber” score to be brought and handed them to Baoyu.

Emotional depth:

DeepL Translation (“I heard the immortal music, I do not know what tune?”) conveys curiosity but is emotionally flat and grammatically unnatural. The awkward phrase “handed with the treasure jade” diminishes emotional intimacy and clarity, thereby significantly reducing emotional fidelity.



Google Translate Translation maintains clear curiosity and politeness (“I wonder what tune it is?”). The interaction feels natural and preserves the subtle emotion of respectful curiosity. The handing-over gesture (“handed to Baoyu”) is clear but lacks nuanced emotional depth.

DeepSeek Translation captures emotional nuance best (“Might I have the pleasure of hearing it?”), effectively expressing respectfulness and anticipation. The emotional interaction between Baoyu and the fairy maiden appears vivid and appropriate, successfully conveying the gentle reverence and courtesy characteristic of traditional Chinese literary dialogues.

Metaphorical complexity:

This passage includes subtle metaphorical implications rather than explicit metaphors. The “仙乐” (immortal music or celestial melody) metaphorically suggests music of divine origin, symbolizing a transcendent, dream-like encounter.

DeepL Translation translates “仙乐” as “immortal music,” which retains literal meaning but weakens the metaphor’s connotations of transcendence or ethereal beauty due to grammatical awkwardness.

Google Translate Translation renders it as “fairy music,” clearly conveying the metaphorical element of divine, mystical origin. Yet, “fairy music” may sound slightly simplistic, lacking deeper poetic resonance.

DeepSeek Translation uses “celestial melody,” offering a nuanced translation of “仙乐,” effectively preserving metaphorical subtlety and emotional implications of transcendence and mystery. It precisely captures the metaphor’s intended literary sophistication.

Cultural nuances:

The cultural appropriateness relates to accurately conveying Chinese literary and cultural subtleties, specifically etiquette and nuanced politeness typical in dialogues from classical Chinese literature.

DeepL Translation demonstrates poor cultural appropriateness. Expressions like “handed with the treasure jade” lack clear cultural meaning or appropriate literary connotations, significantly distorting the intended cultural nuances.

Google Translate Translation achieves moderate cultural appropriateness by translating cultural terms clearly (“fairy,” “A Dream of Red Mansions”) and effectively reflecting polite curiosity (“I wonder what tune it is?”). Nevertheless, it occasionally seems simplistic and lacks deeper cultural subtlety.

DeepSeek Translation exhibits the strongest cultural appropriateness. Its translation (“Might I have the pleasure of hearing it?”) conveys culturally sensitive politeness and respectfulness, accurately mirroring traditional Chinese literary decorum and subtly evoking the refined etiquette of the original dialogue.



4.4 The lyrics of “Wasted Eyebrows”.

In the fifth installment, Jia Baoyu hears in his dream one of the twelve songs of *Dream of the Red Chamber*, “Wasted Eyebrows”, with the following lyrics:

一个是阆苑仙葩，一个是美玉无瑕。
若说没奇缘，今生偏又遇着他；
若说有奇缘，如何心事终虚化？
一个枉自嗟呀，一个空劳牵挂。
一个是水中月，一个是镜中花。
想眼中能有多少泪珠儿？
怎经得秋流到冬，春流到夏！
(周汝昌，2008, p.85, lines 3-4)

Translated text by DeepL:

One of them is the immortal beauty of the Langyuan Garden, and the other one is the flawless jade.
If you say there is no strange fate, you have met him again in this life;
If you say there is a strange fate, how the heart of the final virtualization?
A waste of self contempt, an empty labor hangs.
One is the moon in the water, one is the flower in the mirror.
How many teardrops can there be in the eyes?
How can they withstand the flow of fall to winter, spring to summer!

Translated text by Google Translate:

One is a fairy flower in the paradise, the other is a flawless jade.
If there is no fate, why do I meet him again in this life;
If there is fate, how come my heart is in vain?
One sighs in vain, the other worries in vain.
One is the moon in the water, the other is the flower in the mirror.
How many tears can there be in my eyes?
How can they flow from autumn to winter, and from spring to summer!

Translated text by DeepSeek:

One is a celestial flower of paradise, the other a flawless piece of fine jade.
If it's said they are not fated, why then in this life did they cross paths?



If it's said they are fated, why do their heartfelt wishes come to naught?

One sighs in vain, the other pines in vain.

One is the moon reflected in water, the other a flower mirrored in glass.

How many tears can well up in their eyes?

How can they endure the flow from autumn to winter, and from spring to summer!

Emotional depth

DeepL Translation: The emotional expression is partially conveyed but is weakened by unclear wording and unnatural phrasing (“how the heart of the final virtualization?”). Emotional intensity is notably compromised, making the profound sorrow and sense of helpless longing difficult to perceive clearly.

Google Translate Translation: Emotionally clearer, preserving sadness (“One sighs in vain, the other worries in vain”). Emotional fidelity is improved compared to DeepL Translation but remains somewhat mechanical, slightly diluting the heartfelt yearning expressed in the original.

DeepSeek Translation achieves the highest emotional fidelity, successfully conveying the poignant emotion and the profound sense of unfulfilled longing (“why do their heartfelt wishes come to naught?”). The translation vividly expresses sorrowful contemplation and emotional depth, closely aligning with the original emotional impact.

Metaphorical complexity

The poem is rich with metaphors such as “阆苑仙葩” (celestial flower), “美玉无瑕” (flawless jade), and “水中月，镜中花” (moon in water, flower in mirror), symbolizing illusory love and unattainable desire.

DeepL Translation exhibits metaphorical disruption: “virtualization” shifts from the original’s spatial metaphor to a technical term, causing semantic deviation and obscuring the metaphor of “unfulfilled desire.”

Google Translate Translation effectively translates prominent metaphors (“moon in the water,” “flower in the mirror”), clearly conveying their metaphorical meaning as illusions or unattainable desires. Still, some subtler nuances (“celestial flower”) appear less poetically nuanced.

DeepSeek Translation is the strongest in metaphorical accuracy, elegantly translating “celestial flower of paradise,” “flawless fine jade,” and “moon in the water... flower in glass.” These translations effectively preserve the metaphors’ nuanced emotional and symbolic implications, conveying both poetic quality and metaphorical depth clearly.

Cultural nuances

The poem relies heavily on culturally specific references, symbolic expressions, and traditional poetic devices deeply embedded in Chinese literary tradition.



DeepL Translation is weak in cultural appropriateness, notably in translating emotional metaphors and literary concepts. Expressions like “waste of self contempt” confuse rather than clarify, significantly distorting the culturally embedded emotional subtleties.

Google Translate Translation offers stronger cultural appropriateness, clearly translating culturally loaded imagery (“Dream of Red Mansions,” “flower in the mirror”), making cultural references accessible but sometimes oversimplifying their literary connotations.

DeepSeek Translation demonstrates the highest cultural appropriateness, carefully capturing cultural references (“celestial flower of paradise,” “flawless piece of fine jade”) and expressions with sensitivity. It conveys cultural resonance effectively, maintaining both meaning and the underlying cultural subtleties.

This study has explored the ability of MT to translate emotional elements, metaphors, imagery, and culturally specific references in literary texts, specifically excerpts from *Dream of the Red Chamber*. Through qualitative comparative textual analysis, it examined translations produced by three popular MT platforms: DeepL, Google Translate, and DeepSeek. The evaluation focused specifically on emotional fidelity, metaphorical accuracy, imagery and aesthetic quality, and cultural appropriateness.

Consistent with prior research (Toral & Way, 2015; Guerberof-Arenas & Toral, 2022), this study found significant variability among AI translation systems—all of which utilize neural architectures—in handling literary texts. DeepSeek (a generative LLM built on neural networks), DeepL, and Google Translate (specialized NMT platforms) exhibited distinct performance patterns, with DeepSeek demonstrating superior handling of literary complexities. This variability within neural-based systems aligns with recent literature noting that advancements in neural architectures (e.g., transformer models, multi-modal training) can lead to differential performance in literary contexts, even among systems rooted in NMT principles (Matusov, 2019; Way et al., 2023). While prior research has established neural MT’s superiority over earlier rule-based or statistical approaches (Guerberof-Arenas & Toral, 2022), the current study focuses on comparing neural-based systems rather than validating this broader technological progression.

Emotional depth

The analysis revealed clear distinctions among the three platforms regarding emotional fidelity. DeepSeek consistently outperformed both Google Translate and DeepL in preserving emotional subtleties within literary texts. Its translations effectively captured nuanced emotional expressions, such as the subtle melancholy and poignant reflections found in the “Burying Flowers” poem and the lyrical emotional depth in “枉凝眉.” Google Translate achieved moderate effectiveness, often clearly but mechanically conveying emotional content, while DeepL struggled significantly, producing emotionally flat translations with awkward expressions. This outcome aligns with literature suggesting that even advanced MT systems frequently fail to maintain emotional richness in literary texts, despite improvements in linguistic fluency (Toral & Way, 2015).



Metaphorical complexity

Metaphors are central to literary expression, encapsulating complex emotional and symbolic meanings. DeepSeek's translations demonstrated superior metaphorical accuracy, carefully maintaining symbolic depth and emotional implications inherent to metaphors such as "water moon" (水中月) and "mirror flower" (镜中花). Google Translate maintained metaphorical meanings clearly but occasionally simplified subtlety, whereas DeepL often distorted metaphors through awkward phrasing, severely limiting metaphorical comprehension. These findings echo previous studies (Leuski et al., 2018), highlighting MT's persistent difficulties in handling nuanced metaphorical language due to a reliance on literal translations or insufficient cultural contextualization.

Cultural nuances

Cultural references and expressions embedded within literary works posed additional translation challenges. DeepSeek again exhibited superior performance, demonstrating sensitivity to cultural subtleties, politeness forms, and traditional etiquette integral to Chinese literary tradition. Google Translate maintained moderate cultural appropriateness, correctly translating cultural concepts but often losing subtler cultural resonance. DeepL significantly struggled with this dimension, frequently distorting or neglecting culturally specific meanings, thereby reducing readers' cultural comprehension and literary experience. This finding aligns with Toral and Way's (2015) observation that MT tools often neglect cultural context, leading to distorted or overly literal translations, especially problematic in literary contexts.

5. Conclusion

In conclusion, the comparative textual analysis conducted in this research demonstrates clear differences in the effectiveness of MT platforms in translating literary texts in relation to emotional, metaphorical, aesthetic, and cultural complexities. DeepSeek (as a generative LLM) consistently demonstrates superior performance across all evaluated dimensions, while Google Translate and DeepL (specialized NMT platforms) show varying results, collectively revealing that AI translation systems, regardless of architecture, face distinct challenges in literary translation and lack the refined literary and emotional nuances of the original texts. DeepL, on the other hand, displays difficulties consistently, significantly compromising emotional depth, metaphorical clarity, aesthetic imagery, and cultural appropriateness.

This study reinforces the understanding from existing literature (Guerberof-Arenas & Toral, 2022; Toral & Way, 2015) that despite significant advancements in neural-based AI translation technologies, substantial limitations persist in literary translation, even among systems utilizing similar underlying neural architectures. The primary implication is that, while current NMT technology has progressed considerably, to fully capture the emotional, aesthetic, and cultural dimensions of literary texts remains challenging. Beyond technical implications for MT system optimization, the findings of this comparative study hold direct value for Chinese-English literary translation education and applied translator training:

First, the identified error patterns of MT systems can serve as targeted teaching materials to guide student translators. For instance, the study reveals that MT often commits three types of errors in



Chinese-English literary translation: (1) emotional distortion (e.g., DeepL’s over-intensification of “痴” as “crazy” in *Burying Flowers*); (2) metaphorical flattening (e.g., Google Translate’s literal rendering of “花谢花飞” as “flowers fade and fly” without preserving its symbolic meaning of impermanence); (3) cultural misrepresentation (e.g., omitting the gendered connotation of “闺中” in descriptions of female characters). By analyzing these typical MT errors alongside authoritative human translations (e.g., Yang’s and Hawkes’ versions of *Dream of the Red Chamber*), instructors can help students recognize the unique challenges of literary translation that MT struggles to address.

Second, the study provides a framework for students to complement MT with human judgment (Human-Machine collaboration, HM). For Chinese-English literary translation tasks, students can learn to prioritize human intervention in dimensions where MT is weakest: for example, when MT fails to convey the lyrical rhythm of classical Chinese couplets, human translators can adjust sentence structure to retain parallelism while ensuring idiomatic English; when MT misinterprets culturally specific emotions, students can reference the study’s emotional depth evaluation criteria to refine translations with contextually appropriate tone. This targeted guidance helps student translators develop practical strategies to avoid MT-induced errors.

Third, the comparative analysis can be integrated into hands-on translation exercises. In class, instructors may assign students to generate MT outputs of *Red Chamber* excerpts first, then compare them with the study’s findings and revise the MT drafts. This practice not only improves students’ critical evaluation of AI tools but also reinforces their understanding of balancing linguistic accuracy, cultural fidelity, and emotional resonance — core competencies for Chinese-English literary translators.

Future research should focus on enhancing MT capabilities through increased exposure to literary-specific datasets, integration of culturally sensitive training, and incorporation of emotion-aware computational techniques, ultimately advancing machine translation toward more effective and nuanced literary applications.

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