

ARTICLE

Exploring the Feasibility of Post-Editing AI English Translations of Cantonese Opera Scripts

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ABSTRACT

With the recent emergence of Generative Artificial Intelligence (Gen-AI) tools in the translation field, the longstanding notion that machines are limited to translating generic content has been overturned. There is considerable potential to explore the use of Gen-AI tools to translate literary and poetic texts, such as Cantonese opera libretti, which exhibit nuanced expression, rich poetic resonance, and cultural references rooted in traditional Chinese history and folk traditions, into English, with particular attention to satisfactorily translate linguistic intricacies and cultural depth. The successful translation of such texts typically demands bilingual fluency, bicultural awareness, and a high degree of sensitivity to cultural subtleties. The key task in this context is to investigate how human translators could be trained to navigate and post-edit AI-translated texts. It is recommended that translators learn to harness AI's capabilities while maintaining a critical distance to ensure that the translated output is not overly dominated by certain stylistic tendencies. A partnership between AI and professional human translators could help preserve artistic integrity, deepen cultural insights, and enhance professional accuracy in the translation process. Such a partnership would not only yield more refined and cohesive translations but also increase the engagement of target audiences with the cultural allusions and subtexts embedded in the original scripts.

Keywords: Generative-AI Tools; Cantonese Opera; Literary Translation; Post-Editing

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1. Introduction

Cantonese opera, a significant form of Chinese opera, is a regional performing art that originated in South China. It gained widespread popularity in Hong Kong between the 1930s and 1980s and has since evolved into a treasured cultural heritage. Despite several initiatives implemented to translate Cantonese opera scripts into English to promote global appreciation of the genre, its influence gradually waned toward the end of the 20th century. Younger audiences often feel alienated by the traditional Chinese language used in Cantonese opera performances, which is further complicated by rigid rhetorical structures and niche cultural allusions in the scripts. However, many Hong Kong people feel that there is an urgent need to preserve the heritage of Cantonese opera, not only for practitioners and enthusiasts but also for those unfamiliar with its refined literary architecture and cultural richness.

Research into Cantonese opera needs to extend beyond practical concerns to encompass academic inquiry. Although Cantonese opera should be preserved in its original regional language (Cantonese), there also needs to be a shift toward translating the art form into English to broaden its accessibility and appreciation. Preservation efforts should target not only industry professionals but also younger generations and students, as pedagogical engagement plays a vital role in both sustaining art forms and developing new artistic expression. The translation of Cantonese opera into English would give audiences insight into the unique literary features of Cantonese opera and contribute to its preservation and dissemination, not only within local communities but also across Western cultural landscapes. This endeavor would foster a meaningful convergence of Chinese and Western traditions, enriching both traditions through cross-cultural dialogue.

With the recent emergence of Generative Artificial Intelligence (Gen-AI) tools in the translation field, the longstanding notion that machines are limited to translating generic content has been overturned. There is considerable potential to explore the use of Gen-AI tools to translate literary and poetic texts such as Cantonese opera libretti, which are often rich in nuanced expression, poetic resonance, and cultural references rooted in traditional Chinese history and folk traditions, into English, with particular attention to linguistic intricacies and cultural depth. The successful

translation of such texts typically demands bilingual fluency, bicultural awareness, and a high degree of sensitivity to cultural subtleties. Given these premises, it becomes plausible to explore the potential application of Gen-AI technologies in transposing the literary characteristics of Cantonese opera into other linguistic domains. Historically, efforts to translate Cantonese opera scripts have encountered limited success. This can be attributed to the fact that audiences traditionally approached the genre primarily as a form of entertainment, with most spectators engaging with performances exclusively in the original Cantonese language. Consequently, there was minimal impetus to internationalize or preserve the cultural essence through translation. This reluctance was further compounded by the limited bilingual proficiency among the general populace at the time, which hindered broader accessibility and appreciation of translated works. As a result, scholarly inquiry into the translation of Cantonese opera remains sparse, and even fewer studies have examined the intersection of this traditional art form with emerging technologies of Gen-AI. Among the limited body of recent literature—excluding the author’s own contributions—existing research has primarily focused on cultural considerations^[1], theoretical frameworks in translation studies^[2], constraints related to audiovisual media^[3], and multimodal corpora^[4]. Accordingly, there exists a promising opportunity to address this research gap by integrating advanced Gen-AI methodologies with the study and translation of Cantonese opera texts, thereby fostering new pathways for cultural preservation and cross-linguistic engagements. As this textual method has not been covered widely in the academic realm, this research is particularly pertinent given the rapid proliferation and integration of Gen-AI technologies within contemporary translation practices. Being underscored by the transformative impact of emergent new technologies, the relevance of this study also creates an upsurging emphasis on the paradigms and methodologies of translation-related research.

One of the key issues in the use of Gen-AI to translate Cantonese opera is to investigate how human translators could be trained to navigate and post-edit the translated texts, and how they could learn to harness capabilities of Gen-AI tools while maintaining a critical distance to ensure that the translated output is not overly dominated by certain stylistic

tendencies. The creation of a partnership between AI and professional human translators could help preserve artistic integrity, deepen cultural insights, and enhance professional accuracy in the translation process. Such a partnership would not only yield more refined and cohesive translated versions but also increase the engagement of audiences with the cultural allusions and subtexts embedded in the original scripts. This study analyzes how a human translator/ editor could embrace AI technology, and at the same time contributing to an exploration of the feasibility of how human post-editing might work alongside these translations to preserve the cultural gems hidden in the texts.

2. Materials and Methods

Given the interplay between performance and read-only forms of opera texts, it is essential to consider what adaptive strategies are required when translating Cantonese opera scripts into English. These strategies must be thoughtfully adjusted to accommodate various dimensions, including a) the fundamental semantic content of the lyrics; b) structural features such as line length in Chinese and syllable count in English, along with other literary and stylistic elements present in the original; and c) the performability of the text in relation to musical composition and staging. Due to space limitations, this article analyzes translations made for read-only purposes (translation on the “page” rather than the “stage”): the many other factors to consider in translating text for performance must be left to future research. “[T]ranslations for the ‘page’ [...] are based on philological exactness, as the translator approaches drama exclusively as literature and not as part of the sign-system of theatre, positioning him- or herself as a *fidus interpres* [faithful translator]”^[5].

Read-only translations of scripts require a complex negotiation between different textual modalities and an alertness to translation choices. To effectively convey the cultural nuances embedded in Cantonese opera, for example, translators must possess bilingual proficiency, bicultural sensitivity, and a thorough understanding of both linguistic and cultural contexts. Another significant challenge lies in the ability of AI to distinguish between literal translation and creative re-creation, because the latter demands focusing on rhetorical devices, rhyme, meter and poetic structure, elements that

are vital to preserving the artistic and emotional integrity of the original opera, which Gen-AI tools may not be able to identify or convey. As Maher remarks, “a translation can reveal potentialities that had previously remained hidden within the confines of the source language, bringing to our attention aspects of the text that we might otherwise never have noticed”^[6].

The materials analyzed for this article are based on existing Cantonese opera libretti [*juben* 劇本] and excerpts [*zhezixi* 折子戲] selected and evaluated with reference to existing English translations of Cantonese opera libretti. Currently, fewer than 20 Cantonese opera libretti and excerpts have been officially translated into English and are available to the public from the Leisure and Cultural Services Department (abbr. LCSD; 康樂及文化事務署) of the Hong Kong SAR Government, and most of these translations appear only in the English target text, without the accompanying original Chinese lyrics as reference^[7]. This situation means that target readers (if they are proficient in both the source and target languages) may be deprived of an effective channel to compare a translation with a prepared bilingual version, not to mention the cultural contexts and underlying significance of the scenes, which could contain many cultural allusions and rhetorical features that enrich the lyrics. A “post-editing” (“post-translation”) method is applied in the analysis, which includes scrutiny of the specific translation techniques, embedded cultural allusions, and relevant cultural and literary references.

To address both public outreach and the acceptability of translated Cantonese opera excerpts, “Translation Typology Theory” is applied as an analytical framework. Bühler remarks that “classifications [of typology] are strongly influenced by text linguistics and stylistics, and they are based on traditional classifications of language functions”^[8]. Typology in translation traditionally categorizes texts based on their linguistic function and is strongly influenced by both textual linguistics and stylistics. Among the key elements of translation typology proposed by the renowned translation scholar Anthony Pym, the concepts of “Cultural Correspondence” and “Text Tailoring”^[9] are particularly well suited to this analysis and are included in the scope of interpretation. “Cultural Correspondence” refers to “[d]ifferent elements in different cultures [that] are presented as carrying out similar functions, as in the case of correspond-

ing idioms, such as ‘You are the apple of my eye’ becomes 掌上明珠 (‘You are the pearl in my palm’)^[10]. “Text Tailoring” means that “[s]emantic or performative material in the start text is deleted, updated, or added to on the levels of both form and content [which are] updated by the translator. Text tailoring thus applies to major additions or deletions of actual content, not to the minor linguistic adjustments that are part and parcel of cruise-mode translating”^[10]. In the context of this analysis, text tailoring can also be used to describe how operatic features from the original text are re-created in the target language. Three crucial components of translation, namely text, context, and subtext, must be considered when applying Translation Typology Theory, especially from the viewpoint of the target audience. These three components warrant in-depth exploration to ensure culturally sensitive and audience-appropriate translation outcomes.

The study involved a close textual analysis of the original Chinese scripts as a pre-translation process (such as the literary features and cultural subtexts embedded), and an initial translation of the excerpts through the popular AI tools, including ChatGPT (developed by OpenAI, good for “conversational ability” and “versatility [...] across industries”); Copilot, “embedded within Microsoft 365 applications,” which “seamlessly integrates with tools like Word and Excel”^[11]; and DeepSeek, that “offers a solid framework for understanding practical applications through varied textual and visual interactions and is suitable for technical and scientific tasks”^[12]. After the preliminary translation by Gen-AI, human post-editing was applied to achieve more appropriate renderings. The results were put to detailed comparison in terms of the choice of words, the accuracy of the translations, and the level of relevance toward cultural allusions and rhetorical representations. With these in mind, both preliminary translations by AI tools and human post-editing of the translated text should consider the factors that enrich the operatic “aura” which is rooted in classical poetic structures. Certainly, the prompts used to train Gen-AI tools must be made specific and be oriented toward literary translation so that the effectiveness and sophistication of the translations can be scrutinized. Cantonese opera lyrics are heavily influenced by and linked to classical Chinese poetry, and the two literary styles need to be considered simultaneously in any translation.

3. Examples and Discussion

Examples of two English translations of Cantonese operatic plays are presented in this section for discussion, namely *Fourteen Years of Love–Hate Entanglements Ended in Buddha’s Palace* (火網梵宮十四年) and *The Phoenix Hair-pin* (釵頭鳳) [a.k.a. *Forty Years of Cherished Love* (夢斷香銷四十年)]. The prompt used to instruct the Gen-AI tools to translate the scripts was as follows:

Act as an expert in literary translation, especially in Chinese culture and Cantonese opera, and translate the following source text into English from the perspective of a culture specialist. The text to be translated is an operatic libretto with a literary tone, which must be rendered as a readable script. Please consider the desired tone of the translated text to be classical and the intended reader of the translation to be general readers who possess an interest in Cantonese opera.

The AI tools were asked to perform a multi-tasking translation job: not only changing the source text into another language but also paying attention to culturally specific terms, literary undertones, and the intended reader while maintaining a classical tone. In the translation process, there is a discrepancy between human intervention and task performance by Gen-AI that makes the mediation of translation challenging. Human translators have to be able to demonstrate their qualities and capabilities in deciding whether cultural features in particular lyrics should be rendered and whether the lyrics should be kept concise to grasp readers’ attention. The examples below show different strategies applied to change the content from one language into the other, such as the shortening of lyrics for better comprehensibility, which might be especially useful in the case of on-stage surtitles. However, shortening might also adversely affect the exposition of the embedded cultural elements of the script. It could be argued that getting the message across to the target audience is enough, but as “[t]he translator has the difficult task of transferring the whole network of allusive signs[,] he or she [...] could, of course, choose to produce a reading edition in the target language with comprehensive notes explaining the meaning and ambiguity of a verbal or non-verbal sign in the original[...].”^[13] When space is limited,

such as with surtitles, it is especially important to reveal cultural elements in translated operatic lyrics, especially when the method of cultural correspondence serves as a “solution type,” which “includes corresponding idioms, relocation of culture-specific referents”. “Text Tailoring,” meaning flexibility for the translator to “reasonably modify, delete, or add large portions of content to suit the translation purpose”^[14], is perhaps only applicable to the large-scale adaptation of plays for completely different cultural settings. However, it may sometimes be also feasible to apply these methods to lyrics that cannot be simply transplanted into English but whose original intentions and nuances are too difficult for target readers to digest.

3.1. AI Translation of *Fourteen Years of Love-Hate Entanglements Ended in Buddha’s Palace* and Post-Editing Results

The Cantonese opera *Fourteen Years of Love-hate Entanglements Ended in Buddha’s Palace* (hereafter *Fourteen Years*) is briefly synopsized as follows:

Yu Xuanji [魚玄機], imprisoned after a scandal involving her lover Wen Zhang [溫璋], attempts to sell Dim Snow Tower to redeem his misdeeds. The scholar Li Yi [李憶], who se-

cretly loves her, buys the tower using money meant for his arranged marriage. Wen Zhang’s destructive behavior leads to repeated imprisonment. Out of gratitude, Xuanji feigns marrying Li Yi and secretly gives birth to Wen Zhang’s child. After Wen’s release, he enters an illicit affair with the maid Lüqiao [綠翹], ending in her tragic death. Fourteen years later, Xuanji, now a repentant nun, reunites with Wen Zhang, entrusts him with their daughter, and, consumed by grief, takes her own life^[15].

Conveying the culturally embedded message of this opera might pose a special challenge for a translator. The examples in **Table 1** below display initial translations of an excerpt from *Fourteen Years* by three Gen-AI tools (ChatGPT, Copilot, and DeepSeek) and some solution paths that could be adopted by a post-editor to fulfill the functions of cultural correspondence not covered in the AI translations:

Source-language text (from *Fourteen Years*, Act II)

【花下句】

雪遠樓，一自落紅成雨，
誰料暗結夭桃。
想玄機一向沉默寡言，
怕看檐前鸚鵡^[16]。

Table 1. Versions of the operatic text translated by various AI tools.

Translation (ChatGPT)	Translation (Copilot)	Translation (DeepSeek)
<p>[Under the Blossoms] In the distant pavilion, where snow falls far and wide, Since the crimson petals scattered, turning to rain, Who could have foreseen a secret bond with the fleeting peach? Reflecting on the mysteries, ever silent and reserved, I dread the sight of the parrot perched beneath the eaves.</p>	<p>[Beneath the Blossoms] Snow drifts afar from the Tower of Petals, Ever since crimson blooms fell like rain. Who would have foreseen a secret bond With a peach so fair, yet fleeting? The Mystic remains silent, withdrawn, Fearing the gaze of the parrot by the eaves.</p>	<p>[Flower-Patterned Verse] The Snow-Dappled Tower—where fallen petals once drifted like rain— Who could foresee the secret budding of peach blossoms fair? Ever reticent, Xuanji dwells in silent thought, Shunning the chatter of eaveside parrots she cannot bear.</p>

For the first version translated by **ChatGPT**, there was a brief commentary given by the Gen-AI tool under its translated version in relation to the prompt: “This translation preserves the literary tone and cultural resonance of the original text, evoking the melancholic beauty and introspective mood characteristic of Cantonese opera. The imagery of falling petals, fleeting connections, and the parrot—a

symbol of speech and memory—are rendered with care to maintain their poetic significance”^[17]. The second version, translated by **Copilot**, was returned with the following commentary in response to the prompt: “This version aims to preserve the metaphorical richness and classical elegance embedded in the original while maintaining fidelity to its cultural subtext. The translation draws from idiomatic Chi-

nese poetic conventions—such as seasonal imagery and symbolic references—to evoke mood and meaning for readers familiar with either Western or Chinese literary traditions^[18].” For the third version, translated by **DeepSeek**, the Gen-AI tool provided several notes and annotations, such as that the line “落紅成雨”: “‘落紅’ (lit. ‘fallen red’) is a classical trope for fading beauty; ‘like rain’ amplifies the ephemeral visual. The past tense (‘once drifted’) frames it as a memory^[19].”

First, in terms of rhetorical and linguistic concerns, all three AI-generated translations pay dual attention to the literal implications of commonly used Chinese proverbs and idioms (such as “落紅成雨” [literally “fallen red (flowers) like rain] and “沉默寡言” [literally “silent and reserved”]); however, the DeepSeek translation seems to emphasize more the cultural relevance and historical background of the story, as demonstrated by its recognition of the appearance of Tang poetess Yu Xuanji (844–868) in the story, whose name appears only partially in the original text (i.e., Xuanji 玄機). As the “Xuanji” part of the name can also mean “mystery” or “mystic encounters” in Chinese, the other two translated versions adopt this translation, without noticing that it refers to the poetess.

Second, with reference to culturally embedded imagery, the DeepSeek version even notes the “cultural subtext,” stating in additional remarks that “the entire verse hinges on Yu Xuanji’s historical persona—a courtesan-poet whose life was marked by longing and societal judgment. The ‘parrots’ critique the gossip that constrained women like her, while ‘peach blossoms’ subtly counter with natural, inevitable desire. The translation preserves this duality through layered diction (e.g., ‘secret’ vs. ‘fair’)”^[19]. The phrases “暗結夭桃” and “檐前鸚鵡” have additional allusive implications. According to the context of the play, “暗結夭桃” is believed to be a combination of “暗結珠胎” (pregnancy due to fornication) and “桃之夭夭” (luxuriant peach blossoms) to implicitly indicate Yu Xuanji’s illegitimate pregnancy. The phrase comes from the ancient poem “Heavy Hanging is the Peach Tree” [*Tao yao* 桃夭]^[20] from the *Book of Songs* [*Shijing* 詩經, 11th–6th centuries B.C.], which is “a short poem congratulating a marrying bride. The poet likens the bride to the bright and brilliant peach blossom, praising her unusual beauty, and ardently wishes her a nuptial life with much bliss”^[21]. The image of the peach is logically associ-

ated in traditional China with female fertility^[22], which lines up naturally with Xuanji’s joy at having a new-born baby, but in secrecy. Both the ChatGPT and Copilot translations suggest that the peach is “fleeting” (a usual understanding of the character “夭,” as in “夭折” [lit. infant death]), which comes logically from the Chinese character “夭” in “夭桃.” However, in other interpretations of the term in Chinese, the peach (blossom) usually signifies “the bride’s beauty,” “the best wish for the bride to produce offspring” and “best hopes for the family destiny from the dense foliage of the peach tree,” which come from three quatrains of the above-mentioned poem from the *Book of Songs*^[23]. This example shows how different interpretations can be made of the same Chinese character, leading to a divergence in the direction of the translation.

Third, in terms of literary and cultural orientations, the phrase “檐前鸚鵡” is a literary reference to an elegy written by the male protagonist Jia Baoyu 賈寶玉 in Chapter 78 of *The Dream of the Red Chamber* 紅樓夢 (a.k.a. *The Story of the Stone*): “芳名未泯，檐前鸚鵡猶呼”^[24] (“Her sweet name is not extinguished, for the parrot in his cage under the eaves ceases not to repeat it”)^[25]. Here, it can be interpreted as referring to a parrot being a creature that loves to repeat uncritically what people say, triggering Baoyu’s fond memory of his maid (and implicitly directed toward the subsequent saddening death of Lin Daiyu [林黛玉], the female protagonist of *The Dream of the Red Chamber*). Metaphorizing Yu Xuanji in this play, her boudoir may have been filled with memories of her past love story, and the parrot could have been the one to witness and repeat it. This suggests that she is afraid that others will find out her secrets and thus avoids listening to the parrot’s chattering sounds, which evoke sadness and grief.

Post-editing by human translators familiar with the relevant classical literary texts would help tremendously with conveying the literary background and cultural allusions in this example. The main concerns of the translation of Cantonese opera are to make it comprehensible and, at the same time, to conform to the relevant literary tropes and to render the cultural nuances into a roughly equivalent form in the target language. It is always a difficult decision as to how to “tailor” the text to the way in which target readers are likely to perceive it. Despite the previous comment that “Text Tailoring” as advocated by Pym usually refers

to changing a large portion of the text to suit the purpose of the play^[14], the term can be extended to a translated text that is reformatted, restructured, and “molded” (“tailored”) into an acceptable form of read-only script from which general target readers can glean the basic meaning of the operatic lyrics without sacrificing the cultural undertones that indicate the comprehensive differences between Chinese and English. While artificial intelligence-based translation tools offer valuable assistance in generating preliminary translations of textual content, these initial outputs often necessitate substantial post-editing by human translators. This is particularly critical in contexts involving lyrical or poetic material, where nuanced elements such as rhyme, meter, and cadence must be carefully calibrated. Also, the syntactic arrangement of clauses and phrases, as well as the semantic coherence across layers of meaning and cultural references, typically require human intervention to ensure fidelity and resonance in the target language. In light of these considerations, the following excerpt illustrates a post-edited version of the passage previously rendered by Gen-AI tools:

[Singing in the *Gunhua* style]

At Dim Snow Tower, like rain the red petals scatter.
Who would have thought that I'd be impregnated?
Always silent and reserved, now I'd even fear
The parrot prattling beneath the eaves that I hear.

This version pays attention to several aspects, including the length of each line in the quatrain so that the quatrain resembles classical Chinese poetry, while relevant rhetorical features such as the retention of the original metaphors (“like rain the red petals scatter” in line 1), the extension of the original symbolism (as in “impregnated” in relation to the imagery of peach blossoms in the Chinese lyric in line 2), the addition of implied meaning to give a fuller indication of lyrical representations (the addition of “I'd even fear” in line 3 to collate with Xuanji's feelings on hearing the chattering of the parrot in line 4), and the use of rhyme to create a more poetic feel (as in “scatter,” “fear,” and “hear” in the first, third, and fourth lines of the revised quatrain). Certainly, some of these “revisions” might be deemed relatively unnecessary, and it would be quite impossible to pay attention to all of these high-level considerations when translating an entire libretto. However, the

revisions align with a large portion of the Chinese poetic tradition that contributes to the composition of Cantonese opera lyrics.

3.2. AI Translation of *Forty Years of Cherished Love* and Post-Editing Results

Forty Years of Cherished Love (hereafter *Cherished Love*) is an operatic piece based on the love story of the Song dynasty poets Lu You 陸游 (1125–1210) and Tang Wan 唐婉 (1128–1156). The synopsis of the story is as follows:

This Cantonese opera follows the heartbreaking love story between the Song dynasty poet Lu You and his wife Tang Wan. The old Lady Lu forces Tang to leave and become a nun upon her inability to conceive a child, prompting Lu to remarry. Tang, devastated, marries Zhao Shicheng [趙士程] to end Lu's lingering affection. Years later, they meet again in Shen Garden [沈園]. Lu, overwhelmed by emotion, pens the mournful poem “Phoenix Hairpin” [釵頭鳳] on a wall. Upon reading it, Tang falls ill from grief and eventually dies after composing her own sorrowful verse with the same title. Forty years later, Lu returns to Shen Garden, laments his regret and longing reflecting on his lost love and the fall of the country^[26].

There are many acts in the play worth discussing in the realm of translation, as the story itself contains many literature-related subtexts that refer to the historical background of and poems written by the poet couple. The following excerpt in **Table 2** was written by the playwright with reference to a verse written by Lu You (entitled “Phoenix Hairpin: Fair Fair Your Hand” [釵頭鳳：紅酥手])^[27]. Many of the words are the same as those in the poem, with slight alterations to align with standard musical notation (known as “*xiaoqu*” 小曲 [regional musical melody]):

Source-language text (from *Cherished Love*, Act V)

【沈園哀】

悲難成誦，鴛鴦夢已空。錦書難托，沈園枉重逢。
剩有淚痕，紅泣鮫綃透，鳳釵無語緊貼胸！
難忘重逢那日把黃滕酒捧，便想起書房伴讀，香茶獻
詩翁^[28]。

Table 2. Versions of the operatic text translated by various AI tools.

Translation (ChatGPT)	Translation (Copilot)	Translation (DeepSeek)
<p>[Lament at Shen Garden] Grief chokes the voice, words falter, The dream of mandarin ducks lies shattered, hollow. A brocade letter, undelivered, What use is this reunion at Shen Garden, so fleeting, so futile? Only tears remain, Staining the silken gauze, soaked through with crimson sorrow. The phoenix hairpin, silent, pressed tightly against my heart. How can I forget that day of reunion, When we raised the yellow vine wine in trembling hands? It brought back memories of the study chamber, Where I once accompanied you in reading, Offering fragrant tea to the poet I so revered.</p>	<p>[Lament at Shen Garden] Grief defies recitation— The mandarin ducks’ dream has faded to mist. Brocade letters, undelivered, This Shen Garden reunion—a fate squandered. Only tear stains remain— Crimson weeps through silken gauze; The silent phoenix hairpin presses to my heart. That day we met again—how could I forget? Raising the cup of yellow vine wine, It stirred memories of sharing verses With tea and poems in the study’s gentle light.</p>	<p>[Lament at Shen Garden] Grief too deep for verse, our love-birds’ dream now lies in vain. Letters undelivered, yet fate brings us to Shen Garden again. Tear-stains remain—crimson sorrow soaks through silken sleeves, While my phoenix hairpin, wordless, clings to my breast in grief. How could I forget that day we shared the golden wine, Or those study-side hours—serving tea as you whispered lines divine?</p>

With reference to the symbolic devices applied, several metonymical figures occur in the above excerpt, with a number of brief symbols signifying lament and melancholy over the loss of love by the heroine. “Mandarin duck dream” [“*yuanyang meng*” 鴛鴦夢 in Chinese] posed somewhat a problem for the Gen-AI translators, even though it would be considered by Chinese readers a rather clichéd expression. Furthermore, “紅泣鮫綃透” [literally, “red tears soaked through the silk kerchief] is a literary synecdoche implying crimson tears that soak the kerchief. The color of the tears is an allusion to “King Du Yu [杜宇] of Shu [蜀] [who] grieved so deeply at losing his life and kingdom that his soul was transformed into the cuckoo, which would weep tears until it wept blood,” as in the poetic line “Rouge skin drenched with tears/already turned to blood” (胭脂添淚/一向先成血)^[29]. In this context, the problem of cultural correspondence needs to be handled either in a way that is perfectly comprehensible by target readers or in a way that is simplified for conciseness and clarity.

In the **ChatGPT** translation, “鴛鴦夢” has been rendered as “the dream of mandarin ducks,” while the part about tears is given as “Staining the silken gauze, soaked through with crimson sorrow^[17].” In this case, the color crimson is merged with “sorrow,” which does not reflect the original meaning. The **Copilot** version translates it as “Crim-

son weeps through silken gauze,” creating ambiguity as to whether “crimson” is a subtextual symbol of tears or serves as a signifier of any substances or matters that follow in the line. Copilot offers the following note on its translation: “This rendition preserves the symbolic elegance of the original: the mandarin ducks for love, the brocade letters for separation, and Shen Garden as an emblem of regret and poetic history^[18].” The **DeepSeek** version responds to the cultural issues by noting that “the translation mirrors the lyrical density of Cantonese opera libretti, balancing readability with classical elegance (e.g., ‘love-birds’ dream’ for 鴛鴦夢, invoking the traditional symbol of marital devotion)^[19]; and that “‘crimson’ conveys the dual imagery of tears/blood (deep anguish), while ‘鮫綃’ (legendary mermaid silk) is rendered as ‘silken’ to convey fluidity^[19]. DeepSeek also provides a rendering with rhythm and flow: “the lines use iambic cadence to echo the musicality of the original, crucial for performative texts. Enjambment (e.g., ‘Shen Garden again / Tear-stains remain—’) mimics the libretto’s emotional pauses^[19].”

A significant portion of the limitations observed in Gen-AI-translated versions stems from the tools’ inability to grasp the layered complexity inherent in classical and/or cultural expressions that are considered dynamic and historical artifacts, essential for decoding idiomatic undertones, symbolic

references, and intertextual resonances. These expressions often carry subtextual meanings and are deeply embedded within specific cultural frameworks and should always be interpreted through study of the cultural objects and subtextual meaning. The feasibility and necessity of post-editing lie in that cultural correspondence may have a higher or lower level of relevance when a human translator exercises discernment to evaluate, retain, amplify, add, or omit culturally embedded elements, depending on their relevance to the intended audience and the communicative goals of the translation. Provided dual attention to cultural transference and literary fidelity discussed above, the following post-edited version was crafted through proactive human intervention, with an aim to recover and render the implicit cultural features of the original text while integrating the essential rhetorical devices—such as rhythm, metaphor, and tone—which contribute to its expressive power and stylistic integrity.

Tang Wan [Sings “Sorrow in Shen’s Garden”]

How sad that I could never recite the poem!

Over, over is our loving dream!

To send a letter is no longer fine,

Meeting at Shen’s Garden only brings pain!

What soak the kerchief are heartrending blood tear stains.

The phoenix hairpin’s resting speechlessly on my chest.

Meeting you recalls me bringing you the yellow-corded wine;

Accompanying you at the study, how can I forget

Me serving fragrant tea to my dear poet?

In terms of syntactic organization, the post-edited version rearranges the phrases to create an unusual order of clauses, which creates a special line segment that enhances the rhyming patterns and alerts the reader to a “bizarre” poetic elegance. This version was produced with reference to all three AI translations, shortening the longer lines in ChatGPT, fixing the mistranslations in Copilot, and adopting a few suggestions from DeepSeek pertaining to the rendition of some of the cultural renderings. At the same time, the post-edited version weighs the impact of meaning distortion by its rhyming patterns (e.g., “How could I forget that day we shared the golden **wine**/Or those study-side hours—serving tea as you whispered lines **divine**?”—the word “divine” is added to rhyme with “wine” in the previous line, although this is not actually implied in the original text). The post-edited version attends to the length, making them resemble

operatic lyrics by keeping them short; introduces irregular poetic rhymes (contrary to the typical Chinese-style neat rhyming of every other line) to prevent the meaning distortion, for example, “fine” (line 3) with “wine” (line 7); “pain” (line 4) with “stain[s]” (line 5); “forget” (line 8) with “poet” (line 9); clarifies the basic meaning of the piece more accessible; introduces a reasonable poetic structure (which could be considered as small-scale text tailoring from another perspective); and, most importantly, makes the appropriate association with cultural elements (“Cultural Correspondence”), such as the color “crimson” in relation to tears, a “Chinese-inspired convention referring to tears of passionate grief as ‘crimson tears’ or ‘tears of blood’”^[30]. With dual considerations of the expression of the red color and the more substantial element of “blood,” the human editor has made the reasonable decision to “tailor” the cultural item to a more explicit expression (“blood”), with the addition of the adjective “heartrending” to catch the reader’s attention (line 5).

For an overall assessment, the main post-editing task was to reformat the lyrics in a form closer to traditional Chinese verse and poetry, thereby revealing the original aura of the text. The struggle between achieving a more easily comprehensible rendition and keeping the cultural subtext will always exist, but the final decision should, as far as possible, combine the closest equivalent translation with an aesthetic focus that includes the rhyme (but not so that it distorts the original meaning), meter, and specific rhetorical features embedded in the original. There is, of course, never an ideal translated version for these genres, but as long as target readers are able to grasp the literary nature of the operatic text, the translation can be deemed successful and satisfactory.

On a broader level, these results could be compared with a similar approach adopted in computer-aided translation (CAT) techniques advocated by some prior research. The study combined CAT with thorough human post-editing to improve English translations of Cantonese opera terminology. By assessing terminological precision, cultural adequacy, and linguistic fluency, the research demonstrates that this hybrid approach significantly enhances translation quality, ensuring both linguistic accuracy and cultural authenticity^[31]. The present study shares methodological parallels with prior research in its utilization of computational tools to

evaluate the efficacy of translating Cantonese opera scripts. However, the article in comparison primarily engages with computer-assisted translation in a wider context, emphasizing human post-editing interventions. Building upon this foundation, the current article explores the application of contemporary Gen-AI technologies and their impact on the translation of culturally and stylistically nuanced literary texts, specifically Cantonese opera libretti and excerpts. The significance lies in the innovative deployment of advanced AI systems to render texts characterized by intricate poetic sensibilities and classical aesthetic forms. Despite growing public confidence in Gen-AI's ability to seamlessly translate diverse textual genres across languages, the process continues to pose considerable challenges for human translators. Crucially, the reliance on Gen-AI should not eclipse the necessity of bicultural competence, which remains indispensable for preserving the cultural and linguistic integrity of these refined literary works.

4. Conclusions

The above analysis demonstrates the feasibility of human post-editing of a first-pass AI translation, despite the seeming sensitivity already achieved by AI in rendering literary texts. The notions of “Cultural Correspondence” and small-scale “Text Tailoring” are selected to serve as vehicles to discuss the feasibility of post-editing. The examined examples indicate that AI-based translation technologies are capable of accurately conveying the intended meaning of source texts and, in certain cases, exhibit commendable poetic and aesthetic qualities: “AI translation systems can aid human translators by proposing culturally relevant counterparts and delivering contextually informed translations that appeal with intended audiences”^[32]. Nevertheless, notable discrepancies were observed among the outputs of different AI systems, despite the use of detailed and explicit prompts. In terms of general comprehension, Gen-AI tools performed effectively for the majority of readers within the domain. However, for specialists involved in the translation of operatic texts, translations that prioritize artistic dimensions—such as cultural symbolism, poetic structure, and aesthetic resonance—are still likely to take precedence over AI-generated outputs. Absent such considerations, AI-generated translations risk compromising the artistic integrity

of the original work.

The integration of Gen-AI tools as pre-translation aids is increasingly prevalent in contemporary translation practice, particularly due to their capacity to facilitate preliminary semantic interpretation of source texts. Nevertheless, reliance on machine-generated output may inadvertently constrain the interpretive autonomy of novice translators, thereby diminishing their ultimate capacity for creative and culturally sensitive decision-making. As previously discussed, the structured incorporation of “pre-translation,” “post-translation” and “post-editing” stages is indispensable for translators working with opera libretti, given the genre's intricate cultural subtexts and poetic nuances, and is essential for practitioners to identify and restore the literary overtones that may have been diluted or overlooked in initial drafts. Failure to engage with the aesthetic dimensions of the source material risks reducing translation to a mechanical transfer of lexical items, thereby eroding the artistic and cultural integrity of the original work. Such oversights not only compromise the fidelity of individual translations but also threaten the long-term vitality of the genre.

Despite the suggestions about human and AI collaboration, “even with, [and] especially because of the possibilities offered by generative AI, language professionals have a lot of power[, and they] are and will be creative *despite, with and because of* AI”^[33]. To enhance the efficacy of Gen-AI in this domain, the development of specialized tools tailored to the linguistic and stylistic particularities of Cantonese opera libretti is imperative. These innovations hold significant potential for expanding the global reach of the art form, particularly among overseas and diasporic communities.

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Data Availability Statement

The datasets used in this article are archived in the Cantonese Opera Libretti Translation Digital Archive, coordinated by Ina Ho Cantonese Opera Research Centre (IH-

CORC) and HKMU Library, Hong Kong Metropolitan University. The datasets and translations are available to be viewed partially by the public in the following link:

<https://repository.lib.hkmu.edu.hk/copera/>

Informed Consent Statement

Not applicable.

Data Availability Statement

The data used in this study are available from the corresponding author upon reasonable request.

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Conflicts of Interest

The author declares no conflict of interest.

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