

A Comparative Study on Human and Machine Interpreting Strategies for Culturally Loaded Words in Chinese Political Discourse

ZANG Jinglei

Dalian Maritime University, Dalian, China

The Premier's Press Conference serves as a vital window for China's international political communication, in which the interpretation of culture-loaded words—such as idioms, proverbs, and poetic allusions—directly affects the accuracy of information delivery and the construction of national image. Based on a self-built Chinese-English interpreting corpus of the 2023 Premier's Press Conference of the 14th National People's Congress, this study conducts a comparative analysis of the strategies employed by human interpreters and a machine interpreting system in handling culture-loaded words. Through detailed analysis of eight representative cases, the study finds that human interpreters predominantly adopt strategies of free translation, amplification, and shift to convey cultural connotations and achieve communicative effects, whereas machine interpreting tends to use literal translation, simplification, or omission, which often results in loss of cultural imagery and rhetorical nuances despite its advantages in speed and terminological consistency. The paper further explores the differences between the two interpreting agents in coping with cultural gaps, contextual dependency, and rhetorical functions, and proposes possible paths for human-machine collaboration in political interpreting based on the framework of eco-translatology and communicative translation theory.

Keywords: culture-loaded words, political discourse, interpreting strategies, human-machine comparison, Premier's Press Conference

Introduction

Political discourse interpretation is a crucial link in China's external communication, directly influencing the international community's understanding of China's policies, stances, and culture (Schäffner, 2004). The press conference of the Premier after the Two Sessions every year is not only the focus of domestic and international media, but also an important platform to showcase the characteristics of China's political discourse. On such occasions, leaders often use a large number of words carrying the connotations of Chinese culture, such as idioms, allusions, sayings, proverbs, famous poems, etc. These expressions, known as "culture-loaded words," not only condense policy concepts, but also add affinity and persuasion to the discourse. However, culture-loaded words often have profound cultural backgrounds and specific contextual meanings, posing great challenges to interpretation work (Liao, 2000). At the practical level of external publicity translation, the principle of "Three Proximities" put forward by Huang (2004), which is to "be close to China's development reality, close to the

needs of foreign audiences for information about China, and close to the thinking habits of foreign audiences,” and the “political equivalence” standard proposed by Yang (2008) for diplomatic discourse have become important references for guiding the translation of Chinese political terms.

In recent years, the rapid development of machine translation technology has enabled machine interpretation to gradually enter high-level conference scenarios. Existing studies have systematically analyzed the interpretation phenomena in political press conferences from the perspective of corpora. For example, Li and Hu (2013) investigated the application rules of modal verbs in Chinese-English interpretation at press conferences based on a parallel corpus. Zhang (2017; 2019) conducted multi-dimensional characterizations of interpretation strategies and norms based on the Chinese Interpreting Learners Corpus and the methodology of corpus-based interpreting studies. However, most existing studies focus on human interpretation, and there is little fine-grained comparison between human and machine consecutive interpretation systems in the handling of culture-loaded words. Based on this, this study takes the Chinese-English consecutive interpretation corpus of the 2023 Premier’s Press Conference for human-machine comparison as the research object. Eight typical examples of culture-loaded words are selected to systematically compare the similarities and differences between institutional interpreters and machine consecutive interpretation systems in handling these words from dimensions, such as strategy types, cultural transmission effects, and communicative functions, with the aim of providing references for political interpretation practice and human-machine collaboration.

Theoretical Framework and Research Methods

Definition and Classification of Culture-Loaded Words

Culture-loaded words refer to “Those words that are unique to a certain culture, carrying specific cultural information, customs, or historical allusions.” Their meanings often go beyond the literal level and rely on specific cultural backgrounds and cognitive schemas (Liao, 2000; Liu, 2003). This concept corresponds to “culture-specific items” (CSI) in Western translation studies. Aixelá (1996) defined CSIs as “language items that pose difficulties in representation during translation because the referents do not exist or have different textual statuses in the target readers’ cultural systems” and sorted out a continuous spectrum of strategies from retention to substitution. In the Chinese context, culture-loaded words often appear as idioms, four-character phrases, colloquialisms, quotations from poems, and mythological legends. This study classifies culture-loaded words into three categories according to their sources: (a) idioms and allusions (e.g., “devote oneself to a cause with all one’s heart” and “pioneer a way through difficulties”); (b) folk sayings (e.g., “blood is thicker than water” and “hidden talents are among the people”); and (c) famous quotes from poems (e.g., “ride the wind and break the waves”). These types are all typically presented in the self-built Chinese-English consecutive interpreting corpus for the 2023 Premier’s Press Conference, which is used for human-machine comparison.

Theoretical Perspectives

This study draws on the “three-dimensional transformation” theory of eco-translatology constructed by Hu (2003, 2004, 2013) to evaluate the effectiveness of interpretation strategies from three aspects: the linguistic dimension, the cultural dimension, and the communicative dimension: (a) The linguistic dimension focuses on the accuracy of lexical and syntactic transformations; (b) the cultural dimension focuses on whether the cultural connotations are conveyed; and (c) the communicative dimension focuses on whether the target text achieves the communicative intention of the source text. Meanwhile, in combination with Newmark’s (1988) theory of

communicative translation, it emphasizes that the target text should enable the target language readers to obtain an effect similar to that of the source language readers. These two sets of theories provide a multi-dimensional evaluation framework for the comparative analysis.

Corpus and Methods

The corpus is sourced from a self-built parallel corpus for human-machine comparison in consecutive interpreting of the 2023 Premier's Press Conference. The human translation is the on-site interpretation output of the interpreter, while the machine translation is the real-time machine translation text generated by researchers using DeepSeek based on the pre-constructed prompts. In this study, we first read through the corpus. Referring to the corpus-based interpretation annotation ideas of Li and Hu (2013) and Zhang (2017), we manually annotated all possible culture-loaded words. Then, we selected the eight most representative cases by type (Wang, 2006). The analysis method is qualitative comparison, where we describe the cultural connotations of the original text, the strategy choices of the human and machine translations one by one, and evaluate them based on the "Three-Dimensional Transformation" theory.

Case Analysis and Discussion

Idiom and Allusion Category

Case 1

ST: 廉洁奉公，鞠躬尽瘁，不辱使命。

HT: exert our utmost and live up to our mission.

MT: work with utter dedication and prove worthy of our mission.

The phrase “鞠躬尽瘁” is from Zhuge Liang's “Second Memorial to the Throne,” meaning to be respectful, cautious and exert all one's efforts, with a strong sense of loyalty and dedication. The institutional translators used “exert our utmost,” omitting the physical image of “鞠躬” through abridgment and focusing on the core meaning of “exerting efforts.” The machine translation is “work with utter dedication,” which also conveys the meaning of “dedication.” However, neither of them reproduces the unique Chinese ritual metaphor of “鞠躬.” From a cultural perspective, both translations are lacking. But in terms of communication, they can both enable English-speaking audiences to understand the meaning of “going all out,” which is in line with the orientation of communicative translation advocated by Newmark (1988) that “gives priority to the effect on readers.” The words chosen by institutional translators are more concise and powerful, while the machine-generated translation is more formal.

Case 2

ST: 中国经济的前景，我想用八个字来概括，叫做“长风破浪，未来可期。”

HT: the Chinese economy will break winds and waves and sail toward a brighter future.

MT: China's economic prospects can be captured in eight words: “Braving the wind and waves, a promising future awaits.”

This sentence adapts a line from Li Bai's poem: “Someday I shall ride the long wind to cleave the waves,” which conveys full confidence in the future. Institutional interpreters expand this into a complete metaphorical sentence by explicitly linking the imagery of “riding the wind and cutting through waves” to China's economy, thereby rendering the figurative meaning explicit. Machine translation, by contrast, retains the original eight-character structure through literal quotation yet fails to directly associate the metaphor with the economic subject, resulting in an awkward rendering.

From a communicative perspective, human translation conforms better to English idiomatic conventions and facilitates emotional resonance with target readers. While machine translation maintains formal faithfulness to the source text and preserves the wave-cleaving imagery at the cultural dimension, it fails to fully activate the inspirational connotation embedded within the original poetic expression.

Case 3

ST: 筚路蓝缕、披荆斩棘的创业精神。

HT: this kind of pioneering spirit of clearing obstacles and blazing new trails.

MT: that pioneering spirit.

The phrase “筚路蓝缕” is derived from *Zuo Zhuan*, depicting the act of driving a simple cart and wearing ragged clothes to blaze a trail, which metaphorically refers to the hardships of starting a business. “披荆斩棘,” on the other hand, means cutting through thorns, symbolizing the removal of obstacles. Professional translators in institutions translated these two idioms into “clearing obstacles” and “blazing new trails” respectively, retaining the dynamic imagery. Although details, such as “crude carts and carriages” were not fully reproduced, the overall meaning of arduous exploration was conveyed. In contrast, the machine translation simply reduced it to “that pioneering spirit,” completely discarding the specific imagery and only retaining an abstract generalization. This comparison precisely echoes Davies (2003) and Pedersen’s (2005) description of the continuum of strategies for dealing with culture-specific items: from “retention + expansion” to “complete omission,” different strategic choices can lead to significantly different cultural transmission effects. From a linguistic perspective, the machine translation is overly simplified, with almost a complete lack of cultural elements. Although it can convey the meaning at the communicative level, it weakens the rhetorical appeal.

Folk sayings

Case 4

ST: 我们常说，血浓于水，打断骨头连着筋。

HT: We share an unbreakable bond of blood and kinship.

MT: As we always say, blood is thicker than water, and even broken bones remain connected by sinews.

These two proverbs emphasize that the blood-related kinship is inseparable. The human-translated version discards specific images, such as “bones” and “sinews” and uses “unbreakable bond of blood and kinship” to comprehensively convey the deep-seated meaning, which is smooth and natural. The machine-translated version, on the other hand, translates word-for-word, retaining the metaphors of “broken bones” and “sinews.” However, the word “sinews” is rather obscure, and the phrase “broken bones remain connected” lacks corresponding cultural associations in English, which may lead to comprehension difficulties. This is a typical contrast between the two poles of “linguistic translation” and “autonomous creation” of culture-specific items discussed by Aixelá (1996): Human translation chooses to use the existing phrase “unbreakable bond” in the target language to carry the meaning of the source language, while machines adopt a strategy of maximizing the retention of the source-language literal meaning. Although the machine-translated version adds the metadiscourse marker “As we always say” to indicate the cultural source, overall, the readability and communicative effect of the machine-translated version are inferior to those of the human-translated version.

Case 5

ST: 中国地域辽阔，“十里不同风，百里不同俗”啊。

HT: China is a vast country, cultures and customs vary from village to village even though they may be just miles apart.

MT: Given China's vast territory with diverse local conditions as the saying goes "Customs change within ten miles."

The machine translation reads: "Given China's vast territory with diverse local conditions as the saying goes...." It is stated that this saying indicates significant differences in local customs. The human translation paraphrased it as "cultures and customs vary from village to village even though they may be just miles apart", using specific spatial distances (village, miles) to illustrate the relativity of "十里百里," which is easy to understand. The machine translation, on the other hand, directly translated it as "Customs change within ten miles" and retained the "saying" marker. However, "ten miles" in the imperial system may not trigger the same associations, and the scope of change is not explained, resulting in insufficient cultural dimension transmission. This case confirms the "dynamic equivalence" principle emphasized by Nida (1964)—The translation should evoke a similar response in the target—language readers as in the source-language readers. The "direct translation" proposed by Pedersen (2005) often leads to a gap in acceptance in the absence of background explanations. The human translation method outperforms in the communicative dimension.

Case 6

ST: 不能搞成“千村一色”，“千村一面”。

HT: ...avoid the situation where all villages look the same.

MT: ...avoiding identical or monotonous village development.

"All villages have the same look" and "All villages look alike" are idiomatic expressions with a critical connotation, referring to the lack of characteristics and uniformity. The human translation "all villages look the same" intuitively conveys the meaning of "sameness" in a concise way. The machine translation "identical or monotonous village development" abstracts "look" and "appearance" into "development." Although it is more formal, it loses the colloquial flavor and critical edge of the original sentence. In terms of the linguistic dimension, the human translation is closer to the negative metaphor of the original text. In the communicative dimension, the human translation makes it easier for the audience to perceive the critical tone, which is consistent with the requirement of "pragmatic equivalence" discussed by Baker (2011)—besides lexical equivalence, translators need to pay more attention to the conveyance of implicature.

Case 7

ST: 高手在民间。

HT: After all the brightest minds are among the people.

MT: True wisdom lies with the people.

This proverb indicates that there are capable people hidden among the common folks. The human translation uses "brightest minds" in contrast with "among the people," preserving the contrasting structure of "experts" and "the common people." The machine translation, however, generalizes with "true wisdom," weakening the specific meaning of "experts" referring to "people," and "lies with" is rather abstract. Both convey the main idea that "the people are wise," but the human translation is more vivid and closer to the characteristics of oral proverbs.

Collections of Poetry Allusions and Myths

Case 8

ST: 像我们这一代人小时候啊，听的最多的故事是大禹治水，愚公移山，精卫填海，夸父逐日等等。

HT: People of my generation are familiar with stories of heroes in Chinese legends like Dayu who tamed the flood, Yu Gong who moved the mountains, Jing Wei who carried stones to fill up the ocean, and Kua Fu who chased after the sun.

MT: Our generation grew up inspired by legends like Yu the Great taming floods and the Foolish Old Man moving mountains.

These four mythological allusions all embody the spirit of self-improvement and fearlessness in the face of difficulties. The human translation listed each hero's deeds one by one and briefly explained them (tamed the flood, moved the mountains, carried stones, and chased the sun), enabling listeners unfamiliar with Chinese mythology to understand their symbolic meanings. The machine translation only selected the first two (Dayu and The Foolish Old Man), omitting Jingwei and Kuafu. This might be due to recognition or processing capacity limitations, resulting in incomplete cultural information. In terms of the cultural and communicative dimensions, the human translation clearly retained the connotations of the allusions more comprehensively. The omissions in the machine translation weakened the appeal of parallelism and collective memory. This case bears striking parallels to the findings documented by Davies (2003) regarding the retention-plus-explication strategy adopted for rendering culture-specific items in the Chinese translation of the Harry Potter series. Specifically, where target readership lacks requisite cognitive background knowledge of source-cultural references, the hybrid approach combining transliteration with concise sentential explication constitutes the most pragmatically viable translational compromise.

Discussion

Strategic Characteristics of Institutional Interpreters

Based on the above cases, institutional interpreters demonstrate the following strategic tendencies when dealing with culture-loaded words.

First, institutional interpreters often prefer free translation over literal translation. For example, they translate “打断骨头连着筋” as “unbreakable bond” instead of a word-for-word translation, which is consistent with Newmark's (1988) communicative translation approach and Huang Youyi's (2004) principle of external publicity that emphasizes “adapting to the thinking habits of foreign audiences.”

Second, institutional interpreters use amplification to supplement context. For instance, they expand “长风破浪” into a complete sentence and specify the subject “China's economy” to help the audience establish associations. This phenomenon has been empirically supported in studies on Chinese-English simultaneous interpretation (Q. Zhang, 2011; W. Zhang, 2017).

Third, institutional interpreters moderately transform some cultural images. For example, they replace “披荆斩棘” with “clearing obstacles,” retaining the action metaphor while eliminating rare words, which aligns with the “absolute universalization” strategy in Aixelá's (1996) continuum.

Meanwhile, interpreters maintain rhetorical functions during interpretation. For example, they use the colloquial “look the same” to convey a critical tone for “千村一面,” reflecting the emphasis on “political equivalence” and pragmatic effects as highlighted by Yang (2008). These strategies prioritize communicative effects while transmitting cultural connotations as much as possible, meeting the balance requirements of the “three-dimensional transformation” in ecological translation studies (Hu, 2013).

Strategic Features of Machine Translations

The advantage of machines lies in the speed and accuracy of information capture during consecutive interpretation. However, at the same time, compared with the translations of institutional interpreters, there are still some problems in machine translations.

First, machines have an obvious tendency of literal translation. For example, the word-for-word correspondence of the Chinese phrase “打断骨头连着筋” results in an obscure translation. This phenomenon of “semantic accuracy but pragmatic imbalance” echoes the acceptance dilemma caused by the “alienation strategy” criticized by Venuti (1995) in the absence of cultural context.

Second, machines tend to simplify or omit. For instance, the phrase “筚路蓝缕，披荆斩棘” is abbreviated to “pioneering spirit”, or mythological figures like Jingwei and Kuafu are left untranslated.

Although machine translations are formally faithful, they lack context. For example, the phrase “长风破浪” retains the form of “eight Chinese characters” but fails to connect effectively in the context (Wang, 2006).

Finally, machines are unable to adjust the translation tone according to the specific context. Due to the lack of understanding of cultural backgrounds and implied meanings, machine translation often falls into the dilemma of “being faithful but not smooth” or “being concise but not rich.”

Koehn and Knowles (2017) systematically summarized six challenges faced by neural machine translation. Among them, “decline in performance on out-of-domain data” and “unstable processing of low-frequency words” exactly correspond to the high-frequency and low-data characteristics of culturally-loaded words in political interpretation, which constitute the technical root of the bottleneck in machine translation quality.

The Root Causes of Human-Machine Differences and the Prospects for Collaboration

Professional interpreters possess cultural schemata, contextual reasoning, and rhetorical perception abilities, enabling them to make dynamic adjustments based on the audience’s cognitive environment (Liu, 2003). Machine systems, relying on statistical or neural network models, can recognize the surface meaning of words but struggle to capture the generative mechanism and pragmatic functions of cultural metaphors. Nord’s (1997) functionalist translation theory posits that the translation purpose should govern the selection of specific strategies—A principle that is difficult to explicitly implement in the current end-to-end decoding framework of machine interpretation. In the future, in political interpretation, a collaborative model of “machine pre-processing + manual refinement” can be explored. That is, the machine provides rapid literal translations as references, and then human interpreters polish and supplement culturally—loaded words, which can improve efficiency and ensure the quality of cultural transmission (Hu, 2013; Koehn & Knowles, 2017).

Conclusion

This study reveals the differences in interpretation strategies between institutional interpreters and machine consecutive interpretation systems through a comparative analysis of eight instances of culture-loaded words in the self-built Chinese-English consecutive interpretation corpus for the 2023 Premier’s Press Conference. Institutional interpreters pay more attention to the transformation of cultural connotations and the achievement of communicative effects, and flexibly use strategies, such as free translation, amplification, and conversion to make the translation natural, fluent, and appealing. In contrast, machine translations tend to use literal translation, simplification, or omission. Although they have advantages in speed and consistency, they often result in the loss of cultural imagery or awkward expressions (Schäffner, 2004; Hu, 2013). This study indicates that institutional

interpreters still have irreplaceable advantages in political interpretation involving culture-loaded words, while machine translation can serve as an auxiliary tool. Future research can further expand the corpus and combine audience feedback to quantitatively evaluate the actual communication effects of different strategies, providing a more solid empirical basis for human-machine collaboration.

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