

# Research on the Translation of Chinese Complex Sentences With Large Language Model ChatGPT-4o —Taking English Translation of Chinese Flowing Sentences as an Example

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**Abstract**—Large language models (LLMs) have demonstrated outstanding performance in the field of machine translation. Many scholars have explored LLM-based translation from various perspectives, primarily focusing on the translation of routine, simple, and everyday texts. However, when it comes to the examination of specific sentence structures, especially complex sentences, the research is still somewhat insufficient. Therefore, this study attempts to investigate the translation of Chinese complex sentences by ChatGPT-4o, focusing on the translation of Chinese flowing sentences, a special sentence pattern in Chinese. The study examines how ChatGPT-4o handles the subject identification and translation of zero-subject sentence segments within Chinese flowing sentences, as well as the translation of the frozen sentence segments in Chinese flowing sentences. The research results indicate that: for the ten categories of subject identification in zero-subject sentence segments, ChatGPT-4o can generally identify them all, but occasionally makes ambiguous identification; ChatGPT-4o employs two translation strategies—one is to add subjects (mostly in the form of pronouns) to translate the zero-subject sentence segments into independent clauses, the other is to translate the zero-subject sentence segments into attributive structures; the accuracy of ChatGPT-4o's translation of frozen sentence segments is inconsistent; ChatGPT-4o may adopt the literal meaning or metaphorical meaning of the frozen sentence segment, determining the form of the frozen sentence segment based on the overall structure of the flowing sentence.

**Index Terms**—LLMs, ChatGPT-4o, Chinese flowing sentences, translation

## I. INTRODUCTION

Large language models (LLMs) are the deep learning models trained on massive amounts of text, which can accomplish various tasks, including the generation of relevant text, translation, answering questions, making conversations, doing the sentiment analysis, etc. LLMs have the powerful capabilities of understanding and generating language texts (Pavlick, 2022). The emergence of large-scale pre-trained language models such as ChatGPT has further promoted the development of machine translation. Translation, as a classic task in Natural Language Processing (NLP), has been a key focus in LLM research (Ma et al., 2023; Minaee et al., 2024; Santos & Khalil, 2024; Moorkens et al., 2025).

The translation mechanism of LLMs is different from that of human translation. The former relies on the application of algorithms and vast amounts of language data, while the latter relies on human translators' language and cultural knowledge as well as their creative abilities. For conventional, simple, and everyday texts, LLMs have demonstrated their powerful translation capabilities, but for unconventional and complex texts, the accuracy of translations produced by LLMs remains to be verified. Therefore, this study will examine the translation practice of LLMs on Chinese long and complex sentences, especially those containing multiple subordinate clauses, nested structures, and complex modifiers. The focus will be on whether LLMs can accurately analyze the logical structures and semantic relationships within sentences. This study examines the translation of Chinese flowing sentences with ChatGPT-4o.

## II. LITERATURE REVIEW

Recent researches have demonstrated the impressive translation capabilities of LLMs, especially the ChatGPT series developed by OpenAI. Scholars have been considering how to better utilize LLMs to improve translation processes.

Scholars affirmed the role of LLMs in post-editing. Raunak et al. (2023) confirmed the excellent ability of GPT-4 in translation and post-editing tasks for language pairs such as English and Chinese. Jiao et al. (2023) introduced an iterative feedback mechanism, leveraging ChatGPT's self-correction and optimization capabilities, significantly improving translation fluency and accuracy. Scholars investigated the impact of the prompts on translation practice. Nagi et al. (2024) proposed a new prompt methodology, which effectively improved the translation performance of ChatGPT in different language pairs and fields by designing more refined and targeted prompts. Lu et al. (2023) used "error-analysis prompts" to enable LLMs to generate quality assessment results that are close to those made by humans. To improve translation

quality, scholars have also proposed collaborative human-machine translation models. Chen et al. (2023) proposed an iterative translation optimization method. Through multiple rounds of interaction between human translators and LLMs, the quality of translations has been continuously improved and optimized. Kocmi and Federmann (2023) were the first to propose the idea of using LLMs for machine translation quality assessment, and confirmed that they could generate results highly consistent with human judgments. Scholars have examined the translation quality of LLMs, and Hendy et al. (2023) pointed out that GPT has approached or surpassed traditional neural machine translation models in terms of translation quality.

In summary, scholars have examined LLM-based translation from multiple perspectives. However, it must be pointed out that the present research on the effectiveness of LLM-based translation mostly focuses on an overall performance, with limited studies on specific sentence structures. Therefore, this study attempts to examine the translation of Chinese long and complex sentences by LLMs, focusing on the translation of Chinese flowing sentences.

As to the earlier studies on the translation of Chinese flowing sentences, many scholars explored the similarities and differences between Chinese flowing sentences and English compound sentences, thereby proposing translation strategies (Nida, 1983; Hu, 1999; Fang, 2003; Renkema, 2004; Quirk & Crystal, 2010; Sun, 2013; Xu, 2014; Zhao & Wang, 2023). In terms of the translation of Chinese flowing sentences by LLMs, there has been little research on it. Therefore, it is necessary to investigate the translation of Chinese flowing sentences by LLMs and find out whether LLMs are the useful tools in translating Chinese flowing sentences. In this research, Chinese flowing sentences are to be discussed with a particular emphasis on analyzing the subject identification of zero-subject sentence segments, the translation of zero-subject sentence segments, and the translation of frozen sentence segments. The zero-subject sentence segments and frozen sentence segments are critical elements in the translation of Chinese flowing sentences, as their translation requires a deep understanding of the structures and semantics of Chinese flowing sentences.

### III. METHODOLOGY

#### A. Research Questions

This study explores the following key questions:

1. Can ChatGPT-4o correctly identify the subjects of the zero-subject sentence segments in Chinese flowing sentences?
2. What translation strategies does ChatGPT-4o employ for the zero-subject sentence segments in Chinese flowing sentences?
3. Can ChatGPT-4o accurately translate the frozen sentence segments in Chinese flowing sentences?
4. What translation strategies does ChatGPT-4o employ for frozen sentence segments in Chinese flowing sentences?

#### B. Text Selection

Because ChatGPT-4o relies on the use of algorithms and massive language data, our research will eliminate the texts which have been translated and the translation of which can be accessed on the internet, to eliminate interference. The texts selected in this study, which have not been translated before, come from the Peking University CCL corpus. The selected texts are categorized into two types, zero-subject sentence segments and frozen sentence segments.

##### (a). Zero-Subject Sentence Segments

Chinese flowing sentence is a complex linguistic phenomenon. It is composed of multiple sentence segments. There are few or no explicit connectives between the sentence segments, and the sentence segments are related by means of implicit connections. The forms of sentence segments can be sentences, phrases, and the subject of each sentence segment can be implicit or explicit. In Chinese flowing sentences, zero-subject sentence segments often appear. The subject of such a sentence segment can be defaulted, and the identification of the subject is complicated. The zero-subject sentence segment cannot be simply defined as a sentence segment containing only the predicate component, but should be defined according to its relations with other sentence segments. Thus, the zero-subject sentence segment is defined as a sentence segment that contains only a predicate component and fails to form a complete and explicit subject-predicate relationship with the subject of the previous sentence segment. The routes of subject identifications of the zero-subject sentence segments can be divided into the following categories:

1. The subject of the zero-subject sentence segment identified as the subject in another sentence segment
2. The subject of the zero-subject sentence segment identified as the object in another sentence segment
3. The subject of the zero-subject sentence segment identified as the predicative in another sentence segment
4. The subject of the zero-subject sentence segment identified as the possessive modifier of the subject in another sentence segment
5. The subject of the zero-subject sentence segment identified as the possessive modifier of the object in another sentence segment
6. The subject of the zero-subject sentence segment identified as the subject connoted by the text
7. The subject of the zero-subject sentence segment identified as the subject in another sentence
8. The subject of the zero-subject sentence segment identified as the object in another sentence
9. The subject of the zero-subject sentence segment identified as the possessive modifier of the subject in another sentence

10. The subject of the zero-subject sentence segment identified as the possessive modifier of the object in another sentence

Based on the ten types of subject identification, the zero-subject sentence segments are divided into ten categories.

(b). *Frozen Sentence Segments*

The frozen sentence segments are composed of idiomatic expressions. Idiomatic expressions consist of proverbs, set phrases, allegorical sayings, aphorisms, maxims, slogans, and catchphrases. Idiomatic expressions are the living fossils of language. They witness changes in language and preserve cultural heritage. Idiomatic expressions appear in Chinese flowing sentences and become frozen sentence segments. They only need to be consistent with other sentence segments in semantics, not in form.

C. *Research Process*

The frozen sentence segments and the ten subcategories of zero-subject sentence segments are to be translated with ChatGPT-4o. The “prompt” is very important when using ChatGPT-4o to do the translation since different “prompts” will produce different results. Therefore, in order to avoid inconsistent translations during the test, we need to standardize the prompt to ensure the validity and reliability of the test results. The “prompt” of this study is standardized as: “please translate these words into English”.

#### IV. RESULTS AND DISCUSSION

By analyzing the translated texts of zero-subject sentence segments and frozen sentence segments in Chinese flowing sentences by ChatGPT-4o, four general findings have been acquired. In the following sections, they will be presented in detail.

A. *Accuracy of Subject Identification in the Translation of the Zero-Subject Sentence Segments by ChatGPT-4o*

Regarding Chinese flowing sentences, the identification of the subject in a zero-subject sentence segment is highly complex. In this research, ten types of subject identification have been categorized. ChatGPT-4o performed differently in terms of subject identification. In the following part, we will discuss them sequentially. Before proceeding with the discussion, one point needs to be clarified, that is, in the following example sentences, the zero-subject sentence segment and its translation are marked with an underline, while the subject identified as the subject of the zero-subject sentence segment and its translation are marked with a curved line. In this subsection, all example sentences follow this type of annotation, and it will not be reiterated thereafter.

(a). *The Subject of the Zero-Subject Sentence Segment Identified as the Subject in Another Sentence Segment*

For this type of subject identification, the subject of the zero-subject sentence segment is identified as the subject in another sentence segment. When translating this type of zero-subject sentence segment, ChatGPT-4o can identify the subject accurately, as shown in example (1). In this example, the subject of the zero-subject sentence segment “第二天居然驾鹤西归” refers to the subject “陶氏” (“Tao Shi”) in the preceding sentence segment “陶氏，本来病势就加重，听见这个信，自然是催命符” (“Tao Shi, whose illness had already worsened, naturally saw the news as a death sentence upon hearing it”), and ChatGPT-4o made an accurate subject identification by adding the subject “she” in the translated zero-subject sentence segment “she unexpectedly passed away”.

(1) 陶氏，本来病势就加重，听见这个信，自然是催命符，晚晌就发了一阵昏，仲纯跟翁氏也都到了，第二天居然驾鹤西归。

(蔡友梅 《新鲜滋味》)

Tao Shi, whose illness had already worsened, naturally saw the news as a death sentence upon hearing it. By the evening, she had a fainting spell. Zhongchun and Weng Shi both came as well, and the next day, she unexpectedly passed away.

(Cai Youmei, *A Fresh Taste*)

(b). *The Subject of the Zero-Subject Sentence Segment Identified as the Object in Another Sentence Segment*

The subject of the zero-subject sentence segment can also refer to the object in another sentence segment. When translating this type of zero-subject sentence segment, ChatGPT-4o made an ambiguous identification, as illustrated by the following two examples. In example (2), the subject of the zero-subject sentence segment “落在柏油路上，和初夏的热气混合成为使人晕眩的奇味” refers to the object “一股淡灰色的轻烟” (“a wisp of light gray smoke”) in the preceding sentence segment “放出一股淡灰色的轻烟” (“releasing a wisp of light gray smoke”). However, in the translated text, the subject of the zero-subject sentence segment is supplemented with “It”. The identification of the subject is ambiguous since “It” could refer to either “a wisp of light gray smoke” or “the car”. In example (3), the zero-subject sentence segment “听见嚷，就要脱衣裳下河里救去” refers to the object “小伙子” (“a young helper”) in the sentence segment “他船上有一个小伙计名叫王福子” (“On his boat, there was a young helper named Wang Fuzi”). However, in the translated text, the subject of the zero-subject sentence segment is supplemented with “he”. The identification of subject is ambiguous, as “he” could refer to “a young helper” or “he” from “On his boat”. ChatGPT-4o failed to erase this

ambiguity.

- (2) 汽车喘气着飞驰过去，哧，哧，放出一股淡灰色的轻烟，落在柏油路上，和初夏的热气混合成为使人晕眩的奇味。

(茅盾 《蚀》)

The car sped past, panting as it went, pop, pop, releasing a wisp of light gray smoke. It settled on the asphalt road, mixing with the early summer heat to create a dizzying, peculiar scent.

(Mao Dun, Erosion)

- (3) 他船上有一个小伙计名叫王福子，听见嚷，就要脱衣裳下河里救去。

(金国璞 《华言问答》)

On his boat, there was a young helper named Wang Fuzi. Hearing the commotion, he immediately prepared to take off his clothes and jump into the river to save someone.

(Jin Guopu, Questions and Answers in Chinese)

(c). *The Subject of the Zero-Subject Sentence Segment Identified as the Predicative in Another Sentence Segment*

The subject of the zero-subject sentence segment can also refer to the predicative in another sentence segment. For this type of subject identification, ChatGPT-4o can correctly identify it, as seen in example (4). In this example, the subject of the zero-subject sentence segment “走起路来两手或是微向前伸，或是倒背在身后，总是带着一副匆忙而又庄重的神情” is identified as the predicative “一个约摸六十岁的孤单老人” (“a solitary old man of about sixty years”) in the preceding sentence segment “这是一个约摸六十岁的孤单老人” (“This was a solitary old man of about sixty years”), ChatGPT-4o made an accurate identification by adding the subject “he” in the translated text of the zero-subject sentence segment “When he walked, his hands were either slightly extended forward or clasped behind his back, always carrying an expression of both urgency and solemnity”.

- (4) 这是一个约摸六十岁的孤单老人，个子不高不矮，背略有些驼，走起路来两手或是微向前伸，或是倒背在身后，总是带着一副匆忙而又庄重的神情。

(张贤亮 《邢老汉和狗的故事》)

This was a solitary old man of about sixty years, neither particularly tall nor short, with a slightly hunched back. When he walked, his hands were either slightly extended forward or clasped behind his back, always carrying an expression of both urgency and solemnity.

(The Story of Old Xing and the Dog by Zhang Xianliang)

(d). *The Subject of the Zero-Subject Sentence Segment Identified as the Possessive Modifier of the Subject in Another Sentence Segment*

For this type of subject identification, the subject of the zero-subject sentence segment is identified as the possessive modifier of the subject in another sentence segment. When translating this type of zero-subject sentence segment, ChatGPT-4o can identify the subject accurately, as shown in example (5). In this example, the subject of the zero-subject sentence segment “便领着僧众给人家去唸真经，不要报酬” refers to the possessive modifier of the subject “他的” (“his”) in the sentence segment “他的庙里不应佛事”(“In his temple, he did not perform Buddhist rituals on his own initiative”), and ChatGPT-4o made the correct identification by adding the subject “he” in the translated sentence segment “he would lead the monks to recite the sutras for others without asking for any compensation”.

- (5) 他的庙里不应佛事，赶到有人来请，便领着僧众给人家去唸真经，不要报酬。

(老舍 《宗月大师》)

In his temple, he did not perform Buddhist rituals on his own initiative. However, when someone came to request them, he would lead the monks to recite the sutras for others without asking for any compensation.

(Master Zong Yue by Lao She)

(e). *The Subject of the Zero-Subject Sentence Segment Identified as the Possessive Modifier of the Object in Another Sentence Segment*

The subject of the zero-subject sentence segment can also refer to the possessive modifier of the object in another sentence segment. For this type of subject identification, ChatGPT-4o can identify it correctly, as demonstrated in example (6). In this example, the subject of the zero-subject sentence segment “载过多少有势力的军人、阔佬，或名驰沅冰流域的妓女” is identified as the possessive modifier of the object “这只油船的” (“the oil boat”) in the sentence segment “遇有身分的客人搭船，喝了一酒后，便向客人一五一十叙述这只油船的历史”(“When distinguished guests boarded the boat, after having a drink, he would recount in detail the history of the oil boat”), and this kind of subject identification is dealt with by the ChatGPT-4o via adding the subject “it” in the translated text “how it had carried influential soldiers, wealthy magnates, or famous courtesans from the Yuan and Bing river regions”.

- (6) 遇有身分的客人搭船，喝了一酒后，便向客人一五一十叙述这只油船的历史，载过多少有势力的军人、阔佬，或名驰沅冰流域的妓女。

(沈从文 《常德的船》)

When distinguished guests boarded the boat, after having a drink, he would recount in detail the history of the oil boat—how it had carried influential soldiers, wealthy magnates, or famous courtesans from the Yuan and Bing river regions.

(The Boats of Changde by Shen Congwen)

(f). *The Subject of the Zero-Subject Sentence Segment Identified as the Subject Connoted by the Text*

In this type of zero-subject sentence segment, the subject is not to be found in the text, but is connoted by the text. Therefore, when translating it, the translator should clarify the subject according to the text. Our research shows that ChatGPT-4o is capable of clarifying the subject, as shown in example (7). In this example, the subject of the zero-subject sentence segment “必擂鼓敲锣，在船头烧纸烧香，煮白肉祭神，燃放千子头鞭炮” is not explicitly mentioned in the text but refers to “people in general” based on the context. Therefore, it is reasonable to add the subject “they” in the translated segment sentence “they would always beat drums and strike gongs, burn paper and incense at the bow, cook white pork as an offering to the gods, and set off strings of firecrackers”.

- (7) 拔锚开头时，必擂鼓敲锣，在船头烧纸烧香，煮白肉祭神，燃放千子头鞭炮，表示人神和乐，共同帮忙，一路福星。

(沈从文 《常德的船》)

When setting sail, they would always beat drums and strike gongs, burn paper and incense at the bow, cook white pork as an offering to the gods, and set off strings of firecrackers. This was meant to symbolize harmony between humans and deities, ensuring their assistance and blessings for a fortunate journey.

(The Boats of Changde by Shen Congwen)

(g). *The Subject of the Zero-Subject Sentence Segment Identified as the Subject in Another Sentence*

It is normal that the subject of the zero-subject sentence segment can be identified within the whole sentence, but still it can be identified beyond the sentence. It can refer to the subject in another sentence. As to this kind of subject identification, ChatGPT-4o can still successfully identify the subject, as seen in the example (8). In this example, the subject of the zero-subject sentence segment “留神一看，见路西有一座大门” refers to the subject “十几个人” (“A dozen or so people”) in the preceding sentence “十几个人，不管三七二十一，就大迈步，走进村里边来” (“A dozen or so people, without a second thought, took big strides and walked into the village”), and ChatGPT-4o made the accurate identification by adding subject “they” in the translated text “Looking closely, they saw a large gate to the west of the road”.

- (8) 十几个人，不管三七二十一，就大迈步，走进村里边来。留神一看，见路西有一座大门，门内高搭席棚，里面灯光明亮，老远听得刀杓齐响，遂紧走了几步，到了门前，见门口两旁，贴着一双红纸金喜字。

(亚铃 《何喜珠》)

A dozen or so people, without a second thought, took big strides and walked into the village. Looking closely, they saw a large gate to the west of the road. Inside the gate, a tall canopy made of matting was set up, brightly lit from within. From afar, the sound of synchronized clanging of ladles and spatulas could be heard. They quickened their pace and approached the gate. At the entrance, on either side of the doorway, were pasted a pair of red papers with golden “double happiness” characters.

(From Yaling’s He Xizhu)

(h). *The Subject of the Zero-Subject Sentence Segment Identified as the Object in Another Sentence*

The subject of the zero-subject sentence segment can also refer to the object in another sentence. For this kind of subject identification, ChatGPT-4o can still successfully identify the subject, as shown in the example (9). In this example, the subject of the zero-subject sentence segment “说话之间，已然到了庙里，来在跨院儿” refers to the object “二十几名捕快” (“over twenty constables”) in the preceding sentence, therefore, the subject “they” is added in the translated text “In no time, they arrived at the temple and entered the side courtyard” by ChatGPT-4o.

- (9) 不大的工夫儿，传出谕来，派了二十几名捕快，同着傅老头儿及村正副等，够奔顾家村而来。说话之间，已然到了庙里，来在跨院儿，看守的工人们，这才把门开开，随把张铁汉同甄醉仙提到院里，揭去头上的花布手巾，洗去脸上的锅烟子，两人全都露出本来的面目。

(自了生 《张铁汉》)

Before long, an imperial decree was issued, dispatching over twenty constables along with Old Man Fu and the village chief and deputies to rush to Gujia Village. In no time, they arrived at the temple and entered the side courtyard. The guards there finally opened the gate and brought Zhang Tiehan and Zhen Zuixian into the courtyard. They removed the colorful cloth headscarves from their heads and washed the soot from their faces, revealing their true appearances.

(Zhang Tiehan by Ziliaosheng)

(i). *The Subject of the Zero-Subject Sentence Segment Identified as the Possessive Modifier of the Subject in Another Sentence*

The subject of the zero-subject sentence segment may also refer to the possessive modifier of the subject in another sentence. In such cases, ChatGPT-4o can still successfully identify the subject, as shown in the example (10). In this example, the subject of the zero-subject sentence segment “穿生牛皮靴子，走路时踏得很重” refers to the possessive modifier of the subject “船主的” (“The boat owner’s”) in the preceding sentence. Consequently, the subject “he” is appropriately added in the translated text “He wore rawhide boots, walking with heavy steps”.

- (10) 船主的装束在船上时看不出什么特别处，上岸时穿长袍（下脚过膝罩三四寸），罩青羽绫马褂，戴呢帽或小缎帽，佩小牛皮抱肚，用粗大银链系定，内中塞满了银元。穿生牛皮靴子，走路时踏得很重，个子高高的，瘦瘦的。

(沈从文 《常德的船》)

The boat owner’s attire didn’t appear particularly remarkable while on the boat. However, upon coming ashore, he would wear a long robe (its hem reaching three or four inches below the knees), covered with a blue satin horse coat, and a felt hat or a small silk cap. He carried a small calfskin belly pouch secured with a thick silver chain, stuffed full of silver dollars. He wore rawhide boots, walking with heavy steps. He was tall and thin.

(Shen Congwen, The Boats of Changde)

(j). *The Subject of the Zero-Subject Sentence Segment Identified as the Possessive Modifier of the Object in Another Sentence*

The subject of the zero-subject sentence segment may also refer to the possessive modifier of the object in another sentence. For this kind of subject identification, ChatGPT-4o can still successfully identify the subject, as shown in the example (11). In this example, the subject of the zero-subject sentence segment “死前几天里呻吟辗转，浑身筋脉抽搐，似乎痛苦不堪” refers to the possessive modifier of the subject “临终人的” (“of someone nearing the end of their life”) in the preceding sentence. Therefore, the subject “they” is added in the translated text “In the days before death, they groan and toss about, their entire body convulsing with strained muscles and veins, seemingly overwhelmed by unbearable pain”.

- (11) 你瞧过临终人的情况没有？死前几天里呻吟辗转，浑身筋脉抽搐，似乎痛苦不堪。

(苏雪林 《当我老了的时候》)

Have you ever seen the condition of someone nearing the end of their life? In the days before death, they groan and toss about, their entire body convulsing with strained muscles and veins, seemingly overwhelmed by unbearable pain.

(When I Am Old by Su Xuelin)

Based on the above discussion, we can conclude that ChatGPT-4o can generally identify the nine categories of zero-subject sentence segments. However, when the subject of a zero-subject sentence segment corresponds to the object in another sentence segment, its recognition is sometimes ambiguous. Therefore, it is evident that ChatGPT-4o is not reliable in terms of the translation of the zero-subject sentence segment, making human post-editing unavoidable.

B. *ChatGPT-4o’s Translation Strategies for Zero-Subject Sentence Segments*

There are mainly two translation strategies for the zero-subject sentence segments in Chinese flowing sentences. One is to add subjects (always in the form of “pronoun”) and translate the zero-subject sentence segments into independent clauses, as in example (12). The other is to directly translate the zero-subject sentence segments into attributive structures, as seen in examples (13) and (14).

- (12) 宁生自王三走后，追思往事，不由一缕情丝，忽然绵绵絮絮，萦绕在心头之上，愈显愈大，愈解愈缠，把平日厌世主义的心肠，吹到爪哇国去了，心说人之一生，最难却者，就是一个情字。

(亚铃 《劫后再生缘》)

Since Wang San left, Ning Sheng had been reminiscing about the past. Unconsciously, a thread of emotion began to linger softly and persistently in his heart, growing larger and more entangled the more he tried to unravel it. It swept away his usual nihilistic outlook, as if it had been blown all the way to Java. He thought to himself that in a person’s life, the hardest thing to escape is the word “love”.

(Ya Ling, Rebirth After the Catastrophe)

- (13) 他在京里忽然交了三个新朋友，都是外乡人，盘桓了些日子，彼此都很投缘对劲。

(金国璞 《华言问答》)

In the capital, he suddenly made three new friends, all from other regions. They spent some time together and found themselves to be very compatible and like-minded.

(Jin Guopu, Questions and Answers in Chinese)

- (14) 见往来的尽是些下等男子，一个个擎着伞，携着衣，穿着高木屐，凄凄惶惶的跑，绝无一个女子。

(向恺然 《留东外史》)

He saw that all the passersby were low-class men, each holding an umbrella, carrying clothes, and wearing tall wooden clogs, running about in a pitiful and frantic manner. There wasn’t a single woman among them.

(Xiang Kairan, The Tale of Studying Abroad in the East)

### C. The Accuracy of the Translation of Frozen Sentence Segments by ChatGPT-4o

By examining ChatGPT-4o's translation of frozen sentence segments, we found that the accuracy of ChatGPT-4o is inconsistent. A deep discussion is to be carried out in the following part. Before proceeding with the discussion, one point needs to be clarified, that is, in the following example sentences, the frozen sentence segment and its translation are marked with an underline. In this subsection, all example sentences follow this type of annotation, and it will not be reiterated thereafter.

As to the frozen sentence segment, its meaning and form are fixed, and usually it has the literal meaning and metaphorical meaning. To elaborate its meaning, one has to get to know its origin and acquire the related knowledge and culture behind it, and also has to consider the context where it is used. Therefore, the translation of the frozen sentence segment is a big challenge for ChatGPT-4o. And by summarizing and probing into the translations of the frozen sentence segments, we find that the accuracy of the translation by ChatGPT-4o is inconsistent. In the following examples (15) and (16), its translations of frozen sentence segments are not correct.

In example (15), the frozen sentence segment “上梁不正下梁歪” originates from a construction-related idiom. From an architectural perspective, beams are crucial load-bearing components. If the upper beam (the main load-bearing beam) is not properly and stably placed, the lower beams (secondary load-bearing beams) will also be affected, resulting in instability in the entire structure. This physical phenomenon has a practical basis in architecture, highlighting the interdependence between different parts of a building. “上梁不正下梁歪” is more commonly used as a metaphor for social phenomena and interpersonal relationships. Here, “上梁” typically refers to superiors, leaders, or elders, while “下梁” refers to subordinates, followers, or juniors. The meaning of this idiom is that if superiors or elders behave improperly or immorally, their subordinates or juniors are likely to be negatively influenced and follow suit. In example (15), ChatGPT-4o translated the literal meaning of the idiom but inaccurately rendered “上梁不正下梁歪” as “If the upper beam is not straight, the lower beam will be crooked.” A more proper translation should be, “If the upper beam is not placed well, the lower ones will go askant.” Similarly, in example (16), the frozen sentence segment “天要下雨娘要嫁” means that, just as rain is inevitable, a widow's determination to remarry cannot be stopped. It is often used to refer to situations where someone is resolute in their decision and difficult to dissuade. ChatGPT-4o translated it as “just as rain will fall and daughters will marry”, failing to convey the meaning of “娘” (widow) in the context.

(15) 王振才听了, 觉得儿子话有道理, 上梁不正下梁歪。

《人民日报》

Wang Zhencai listened and felt that his son's words made sense: “If the upper beam is not straight, the lower beam will be crooked.”

(From People's Daily)

(16) 不用担心你接触不到人脉和资源, 你把更多的时间用到自己的事业中, 人脉和资源会主动靠近你; 不用担心没有你的参与这个世界就会怎么样, 天要下雨娘要嫁人, 谁也主宰不了谁。

(微信公众号)

Don't worry about not having access to connections and resources; if you dedicate more time to your own work, connections and resources will naturally come to you. Don't worry about how the world will manage without your involvement; just as rain will fall and daughters will marry, no one can dictate anyone else's destiny.

(From a WeChat public account).

In summary, the accuracy of ChatGPT-4o's translation of frozen sentence segment is inconsistent. Therefore, when utilizing ChatGPT-4o for translating frozen sentence segments, manual verification should be employed as a supplement.

### D. ChatGPT-4o's Translation Strategies for Frozen Sentence Segments

ChatGPT-4o translates frozen sentence segments either by adopting the literal meaning or by interpreting the metaphorical meaning. For example, in example (17), the frozen sentence segment “八仙过海, 各显神通” is translated by elaborating on its literal meaning, while frozen sentence segment “一举两得” is translated by elaborating on its metaphorical meaning. Additionally, when the structure of a frozen sentence segment cannot align with other parts of the sentence, ChatGPT-4o often handles it as independent sentence. For instance, in example (18), the frozen sentence segment “一言既出, 驷马难追” is translated as a sentence. It shows that ChatGPT-4o determines the form of a frozen sentence segment by considering the overall structure of the flowing sentence.

(17) 联合起来, 你出力, 我出设备, 你出原料, 我搞加工, 八仙过海, 各显神通, 将是一松百活, 一举多得。《人民日报》

Unite together: you contribute labor, I provide equipment; you supply raw materials, I handle processing. Like the saying “The Eight Immortals crossing the sea, each showing their own prowess,” this approach will invigorate everything at once and achieve multiple benefits with a single effort.

(From People's Daily)

(18) 到了玉成在高等工科毕业的前一年, 侯七奶奶发现, 自己的儿子到了成家的年龄了, 发挥自己的所长, 侯七奶奶在适龄的女青年中一找, 给自己的亲生儿子找到了一位美貌的才女, 她没和玉成商量, 一言既出, 驷马难追, 侯七奶奶就给她的亲生儿子把亲事说定了。

## 《作家文摘》

When Yu Cheng was in his final year of advanced engineering studies, Grandma Hou Qi realized that her son had reached the age for marriage. Using her skills, Grandma Hou Qi searched among young women of suitable age and found a beautiful and talented young woman for her son. Without consulting Yu Cheng, she made the decision on her own. Once her words were spoken, there was no taking them back. Grandma Hou Qi arranged the marriage for her biological son.

(From Writer's Digest).

## V. CONCLUSION

This study examines how ChatGPT-4o handles the translation of Chinese flowing sentences, with a focus on zero-subject sentence segments and frozen sentence segments.

The findings reveal that ChatGPT-4o employs two translation strategies for zero-subject sentence segments: one involves adding a subject (mostly in the form of pronoun), translating the zero-subject sentence segment into an independent clause; the other directly translates the zero-subject sentence segment into the attributive structure. Based on the types of subject identification, there are ten types of zero-subject sentence segments, and ChatGPT-4o can generally identify nine of them, except for the type in which the subject is identified as the object in another sentence segment. In this case, the other sentence segment may have both subject and object, which may lead to the ambiguity in identification. Furthermore, if ChatGPT-4o simply adds a subject in the form of pronoun, which is the common practice of ChatGPT-4o, such ambiguity is just reinforced. Therefore, ChatGPT-4o is not reliable in translating zero-subject sentence segments, and human post-editing is necessary.

As for frozen sentence segments, ChatGPT-4o may translate the literal meaning or adopt a metaphorical interpretation, and ChatGPT-4o determines the form of a frozen sentence segment by considering the overall structure of the flowing sentence. The accuracy of ChatGPT-4o's translation of frozen sentence segments is still inconsistent.

Based on these findings, we conclude that while LLMs like ChatGPT-4o demonstrate impressive translation capabilities, they are not always reliable. Therefore, when dealing with complex sentences like Chinese flowing sentences, manual proofreading remains necessary.

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