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Research on the Actual Sentence Partition and Translation of Chinese Cultural Landscape Discourses Based on Natural Language Processing Technology

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Abstract: - In recent years, ChatGPT has been extensively applied across various fields, with translation being one of them. The objective of this study is to investigate the influence of Natural Language Processing (NLP) technology on the translation process. The research method involved utilizing the concept of Actual Sentence Partition (ASP) within the framework of Function Sentence Perspective (FSP). ASP, introduced by V. Mathesius, the founder of the Prague School, divides sentences into the point of departure and the nucleus of an utterance, providing insights into their communicative and semantic characteristics. Conversely, Formal Sentence Division (FSD) solely focuses on marking grammatical elements without identifying the correct ASP, resulting in ambiguity and inaccuracy. In Chinese discourse, incomplete sentences are commonly observed, including the omission of known information and the use of multiple clauses. Consequently, when translating from Chinese to English, it is crucial to appropriately visualize the hidden information in Chinese and analyze Chinese discourse using ASP to reconstruct its equivalent in English. The findings of this study emphasize the significance of ASP in translation. By understanding the ASP, translators can better comprehend the intention and meaning behind Chinese discourse, ensuring a more accurate and faithful representation in English. Therefore, the application of ASP in translation serves as a valuable tool for bridging the linguistic and cultural gaps between languages. In conclusion, ASP, as a pivotal concept in FSP, offers a comprehensive framework for understanding and translating complex sentence structures in Chinese discourse. By utilizing ASP, translators can capture the communicative and semantic nuances of Chinese sentences, leading to more accurate and effective translation outcomes..

Keywords: Natural Lanuage Processing (NLP); Actual Sentence Partition (ASP); Formal Sentence Division (FSD); Theme and Rheme; Cultural Landscape Discourses; C-E Translation.

I. INTRODUCTION

The dispute between language and speech has a long history. According to the explanation in the Cihai (6th ed.), an encyclopedic dictionary of Chinese, language refers to "the unique tool of expressing meaning and exchanging thoughts possessed by humans, consisting of phonetics, vocabulary, and grammar, and having both oral and written forms". On the other hand, speech refers to "speech, discourse, expressions, oral language, as well as the chirping of insects and the calls of birds", encompassing both the form and manner of language expression, as well as the content and speaker of language, representing the internalization of language.

The founder of the Prague School, V. Mathesius, believed that language research should focus on the synchronicity of language and utilize a cross-sectional research approach to compare the dynamic development of different languages. Based on his study of Indo-European languages such as English and Czech, Mathesius proposed the concept of Actual Sentence Partition (ASP). ASP, also known as communicative division or semantic division of sentence, involves dividing sentences into semantic units based on the purpose of communication, with the basic elements of division being the starting point of the discourse and the core of the discourse. The divided objects include both literal content and implicit content. The literal content is the externalization of language expression, the visible part, while the implicit content is the internalization of language, the content understood psychologically, the invisible part.

Mathesius argued that the starting point of the discourse is the known information in a given context, including the topic, topic-related or obvious information. In fact, the starting point of the discourse is the psychological subject of the speaker, while the core of the discourse is the specific content of the narrative about the starting point, relatively unknown, and the psychological predicate of the speaker[1]. In his work "On the So-called Actual Division of Sentences", Mathesius mentioned that "the topic usually comes from the previous sentence". Some scholars mistakenly equate topic with theme, which is incorrect. According to the Chinese dictionary *Cihai*, "theme" refers to the central idea expressed in a work, the main body and core of the content, while "topic" refers to the central focus of conversation. Therefore, the theme is the semantic sum reflected by the combination of the starting point of the discourse and the core of the discourse. At the same time, it is also incorrect to equate the starting point of the discourse with "theme" and the core of the discourse with "rheme".

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According to the explanations of Mathesius and Halliday, the theme is the content located at the beginning of a sentence, which can be a single theme, a compound theme, or a sentence theme, and it can be a word, phrase, or sentence. The position of the theme and rheme is fixed, but in terms of ASP, the starting point of the discourse and the core of the discourse are psychologically known and unknown, respectively, so their positions should not be fixed. Whether the theme is known or unknown information, because some scholars equate the starting point of the discourse with the theme, initially it was considered that the theme is known information. However, in fact, "whether it is the theme or the rheme, their information is not fixed as known or unknown"[2]. From the speaker's perspective, the starting point of the discourse includes information that is considered known (including known context, logical knowledge, common knowledge, etc.), relevant or secondary. Although Mathesius did not agree to call the starting point of the discourse "psychological theme", it is indeed the speaker's "psychological starting point" for the discourse. The starting point of the discourse and the core of the discourse are the "connotation" of a sentence, the "meaning" of a sentence, while the theme and rheme are the "extension" of a sentence, the "form" of a sentence. Therefore, the starting point of the discourse may be the theme of a sentence or the rheme of a sentence, as long as the information is relatively known. Whether the speaker places the starting point of the discourse in the theme or the rheme depends on the speaker's intention, purpose of discourse, and discourse skills, and it is uncertain. The structural form of a sentence directly reflects the author's mode of thinking[3].

Grosz and Sidner also argue that discourse is intentional, as the author of a discourse starts writing with the purpose of expressing their own intentions. Therefore, the interpretation of discourse intentions should be included in the study of discourse structure, just like discourse content. Thus, intention structure can serve as the foundation of discourse structure. In the discourse structure they proposed, there are three aspects: linguistic structure, intention structure, and attention state. Among them, discourse purpose is decomposed and expressed by discourse segment purposes, indicating the hierarchical nature of discourse intentions [4].

Actual Sentence Partition (ASP) is different from Formal Sentence Division (FSD). FSD is based on the grammatical analysis of the sentence, which is the segmentation of sentence grammatical components and can be done within a single sentence. ASP is based on the context and is a semantic segmentation. The difficulty of Chinese semantic parsing is caused by a variety of elements, such as Chinese adverbs[5]. Attempting to mechanically segment sentences into direct components or analyze the structure of components in the sentence is bound to fail[6]. Firbas and Danes believe that the syntactic structure, namely the semantic structure of the sentence, reflects the "meaning" of the sentence, while the syntactic structure of the sentence is the "form". On the basis of Mathesius's ASP, Firbas proposed the theory of communicative dynamism, which considers independent communicative contents (including main clauses, subordinate clauses, phrases, etc.) as a communicative field (CD Fields). The grammatical components of the sentence are viewed as communicative units, and a communicative field is composed of one or more communicative units. Communicative units are the "form" of the communicative field and are objective. Any linguistic element can serve as a carrier of communicative dynamism (CD), including sentences, phrases, words, morphemes, and sub-morphemes[7], which represent the "meaning" of the sentence and are subjective. The theory of communicative dynamism objectively reveals the relationship between the various components of a sentence and helps the speaker to better organize the discourse structure to appropriately express communicative intentions[8]. The speaker's expression and intention can be manifested in any linguistic element, and the core aspect of the expression is the linguistic element with the highest dynamism value in the entire communicative field[9].

With the advancement of computer science, the concept of ASP and the aforementioned research findings have been implemented in mechanical translation (MT). Natural Language Processing (NLP), a subfield of Artificial Intelligence (AI), originated from mechanical translation in the 1950s and 1960s. It has garnered significant attention for its computer-based representation and assessment of human language[10]. The NLP process involves segregating the sentence into elements (words, phrases, etc.), which aligns with the results of ASP. The analysis of the relationship between these sentence elements encompasses syntactic analysis (including lexical analysis) and semantic analysis.

II. CULTURAL LANDSCAPE DISCOURSES AND ITS ASP

It is well known that, compared to Western languages like English, Chinese shows significant differences in various aspects such as discourse structure and the expression of informational intentions, as well as ways of event description and topic representation[11]. The semantic transformation at the syntactical level generally cannot be studied separately from the context. In lexical level, Chinese and English have different word

inventories, with Chinese featuring characters and English employing an alphabet. Chinese tends to have a larger number of characters, while English often relies on multiple-word expressions. Moreover, Chinese is more flexible in terms of word order due to its reliance on particles and context, whereas English generally follows a fixed word order. In syntactical level, Chinese has a Subject-Verb-Object (SVO) sentence structure, while English commonly follows an SVO structure as well but may exhibit greater verb inflection. What's more, English has a more complex tense system, including verb conjugation for indicating past, present, and future, while Chinese relies on context, markers, and auxiliary words to express time references. In discourse level, Chinese tends to prioritize context and coherence, with information presented more holistically. English discourse often employs explicit sign posting, logical connectors, and subject-prominent structures.

Taking Chinese cultural landscape discourse as an example, cultural landscape objectively reflects the geographical and cultural characteristics of a region[12]. In terms of content, cultural landscape refers to man-made landscapes, which are different from natural landscapes, and reflect the local historical changes and cultural characteristics. They mainly involve introductions to man-made architecture and reviews of historical deposits. Chinese cultural landscape discourse is rich in describing scenery or expressing feelings, with a tendency towards exquisite and ornate language, being abstract and generalized. English discourse, on the other hand, tends to be concise in style, with a rigorous and uncomplicated structure, and the use of words is concise and clear[13]. Chinese cultural landscape discourse resembles prose in form, with a relatively loose structure, and almost every sentence in comparison to the previous one is considered as the core expression, carrying a larger amount of information. Whether it is Chinese discourse or English discourse, the coherence of the discourse is reflected in the coherence of the sentences. Danes, a representative of the Prague School, further proposed the theory of thematic progression based on the research of sentence topic-comment structure by Mathesius and Halliday, and initially put forward three basic progression patterns: continuous thematic progression, linear thematic progression, and sub-thematic progression:

Continuous thematic progression: $T1+R1 \rightarrow T2(=T1)+R2 \ldots Tn(=T1)+Rn$

Linear thematic progression: $T1+R1 \rightarrow T2(=R1)+R2 \ldots Tn(=Rn-1)+Rn$

Sub-thematic progression: $T1+R1 \rightarrow T2(=T1a)+R2 \ldots Tn(=T1n)+Rn$

In continuous thematic progression, the topic of each sentence is the same; in linear thematic progression, the next sentence's topic is the previous sentence's comment; in sub-thematic progression, the topic of each sentence after the first one is derived from the topic of the first sentence. Danes' theory of thematic progression seemingly studies the "form" of the sentence, and many scholars have proposed five or seven progression patterns based on the three basic patterns. However, the author believes that due to the differences in language, genre, pragmatic purposes, and writing styles, it is almost impossible to fully classify the progression patterns of sentences based on their forms. However, Danes' thematic progression accurately reflects the progression of the sentence's "meaning" in the discourse, which has great enlightening significance for semantic segmentation of sentences. The reason why a discourse can become a whole lies in the relationship between each topic unit (TP) and the theme (Thm). When the topic unit (a sentence or several sentences that describe a topic) has the same topic (starting point of the expression), it can be seen as continuous thematic progression. When the topic of the next topic unit is the core of the previous topic unit's expression, it can be seen as linear progression. When the topic of the next topic unit is in a coordinating, hierarchical, or other relation with the previous topic unit's topic, it can be seen as derived thematic progression. Within the same topic unit, any progression pattern is possible.
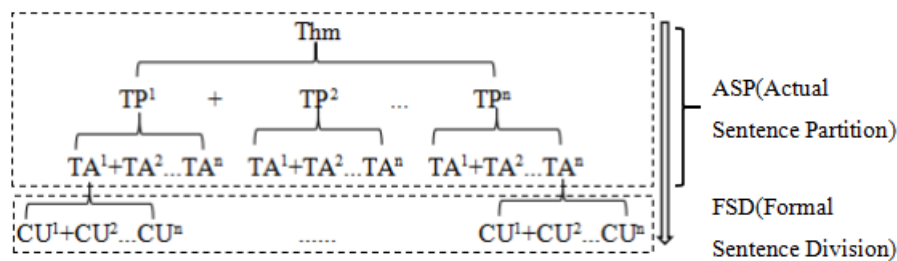
（Thm=Theme；TP=Topic；TA=Topic-Angle；CU=Communicative Unit）

Figure 1: Semantic Structure of a Discourse

As Figure 1 shows, the theme of a discourse usually consists of a series of topics, which is a closely related "topic chain". Fengfu Cao was the first to propose the concept of topic chain in Chinese discourse and conducted a detailed analysis of the role of topics in controlling the coherence of small clauses. The formation of topic chains mainly relies on various forms of anaphoric reference, including zero anaphora, pronoun anaphora, and

nominal anaphora[14]. And then, the expression of a topic (TP) can be developed from several topic angles (TA), and each topic angle is composed of specific descriptive content, which is reflected in individual words, phrases, clauses, or even punctuation marks in sentences, known as communicative units (CU) as Mathesius stated. The segmentation of discourse involves a transition from semantic segmentation to syntactic segmentation. It is unscientific to directly perform syntactic segmentation without semantic segmentation during language translation, and the translated text may not convey the intended meaning. In a discourse, the theme is the starting point of the speaker's expression, which is known to the speaker. For the listener, if the theme is straightforward, then the starting point of the speaker's expression is known. If the theme can only be understood through a summary of the entire discourse, then the starting point of the speaker's expression is unknown. Therefore, from a semantic perspective, the starting point of expression can be either visible or hidden. In addition, compared to the theme, the topic is the core of the speaker's expression, and compared to the topic, the topic angle is the core of the expression. Relative to the topic angle, one or several communicative units serve as the core of the expression. Within the same topic unit, the topic and topic angle are the starting points of the expression. Therefore, the starting point of expression, the core of expression, or known information and unknown information are all relative.

The position of the topic in a sentence is crucial for maintaining coherence in discourse, both in Chinese and English. In both languages, the semantic entity of the topic is used to achieve continuity in reference between preceding and subsequent sentences[15]. Taking the introduction to the Sai Kwan Mansion as an example, the discourse focuses on the "layout" of "interior between the halls" and "both sides" of the mansion. From the perspective of thematic progression, the "interior between the halls" and the "both sides" are derived subtopics of the "Sai Kwan Mansion" topic and belong to derived thematic progression. The chosen angles for the theme are the different scenic points. The cultural landscape discourse revolves around the scenic points while also considering the local culture. Each scenic point is a key expression, topic angle, or starting point for the following sentence. Together, these scenic points form a three-dimensional reflection of the entire landscape, reflecting the local cultural differences.

Furthermore, semantic segmentation is not based solely on the position of elements in the sentence. Discourse topic structure is the key to the cohesion of the discourse and reflects the essence of the text[16]. The starting point of expression is not necessarily at the beginning of the sentence, and the core expression does not necessarily come after the starting point of expression. Therefore, the starting point of expression is the starting point of intention, and considering it as the speaker's subjective perspective is also reasonable.

The progression of the sentence is driven by the progression of the "meaning or intention". The contention for thinking patterns and codes of conduct enables communicators under all-media environment to participate in information processing and knowledge production by adjusting more cognitive resources[17]. Semantic segmentation is beneficial for accurately understanding the composition of the passage and is based on the deconstruction of the source language. It helps clarify three aspects: the connection between the theme and the main topic or subtopic, the division of semantic levels to classify the semantics of the same level for the reconstruction in the target language, and the distinction between known information and unknown information.

Known information is defined by Mathesius as "at least known in a certain context", and Shengheng Xu divides known information into two categories: "information mentioned in the previous context" and "information determined by the context". Known information serves as the starting point of expression for the speaker, assuming that the listener already knows and understands it. Known information can further be classified into three categories: identical information (mentioned in the previous context), directly relevant information (or subtopic that has semantic relationships with the starting point of the expression, such as hypernymy, hyponymy, synonymy, antonymy, etc.), and indirectly relevant information (generated through intermediate media that is related to background knowledge or common sense).

In the process of sentence progression, the subsequent sentence, whether explicit or implicit, should have certain information that is known relative to the previous sentence or context as the starting point of expression for the sentence.

III. Translation Analysis Of Cultural Landscape Discourses

In 2011, Harbin Institute of Technology (HIT) and Beijing Language and Culture University (BLCU) jointly introduced the BH-SDP-v1 (BLCU and HIT SDP) semantic dependency relation system, defining 123 semantic relations and 20 syntactic relations. Later, they replaced semantic dependency tree analysis with semantic dependency graph analysis and introduced BH-SDP-v2. The prerequisite for "dependency" in this context is

"segmentation". Based on grammatical segmentation, grammar dependency is determined first by distinguishing modifying words from core words. Then, semantic segmentation is conducted to determine semantic dependency. This is the concrete application of ASP (or semantic segmentation) and FSD (or grammatical segmentation).

Subsequently, in 2013, the Google research team proposed the concept of word embedding using skip-gram and continuous bag-of-words (CBOW) models. Word embedding measures the mathematical embedding of words within a certain dimensional context using word vectors in sentences, representing the possibility of words' existence in sentences.

The research on semantic dependency relation systems and word vectors is based on the analysis of visible components in sentences, achieving functions such as grammatical analysis, semantic analysis, and sentiment analysis. Although the skip-gram model in word vector research can predict potential components based on existing sentence components, it is still not possible to fully implement it, as mentioned above. Hidden components are generally the starting point of sentence expression, known information that the speaker believes the listener should know or possess as knowledge reserve. Some of these hidden components are not yet "thinkable" by computers. The translator's task is to first uncover these hidden known information.

The process of discourse analysis should be a top-down process, and the starting point for semantic segmentation of the entire discourse is the description of the theme object, which is the basis for judging semantic roles. The higher the coincidence with the theme object, or the lower the dynamic value within a dynamic field, the more likely it is that the semantic role is the starting point of the sentence. BH-SDP-v2 divides semantic roles into more than 40 types in 10 categories, which mainly consist of nouns or other words that act as nouns. Known semantic roles or semantic relationships determine the topic angle, and several topic angles determine the topics that revolve around the theme object. Semantic role labeling (SRL) is a shallow semantic analysis whose purpose is to determine the corresponding semantic roles (SR) of the predicate, including core semantic roles such as agent and patient, and adjunct semantic roles such as time, place, manner, and reason[18].

Semantic role labeling relies on syntactic parsing and can be divided into phrase structure-based and dependency-based labeling[19]. The first semantic role of of a Chinese discourse is usually the starting point of the discourse, which belongs to known information. Chinese is described as a null subject language, in that the subject of a clause can be unexpressed (covert)[20]. In the following sentence, another relevant topic may be deduced from the previous topic in the first sentence, which is known from the context. And then, other relevant topics may appear in the third and following sentences. Known information at the beginning of the sentence is conducive to sentence advancement, and the further away the known information is from the beginning of the sentence, the less impact it has on sentence advancement.

Assuming that f(x) represents the effect of known information on the progression of the sentence, where x indicates the position of the known information in the sentence, with the first position marked as 1 and so on, the larger the value of x, the smaller the value of f(x). The value of f(x) tends to decrease with distance from the first position in the sentence, as shown in the Figure 2:
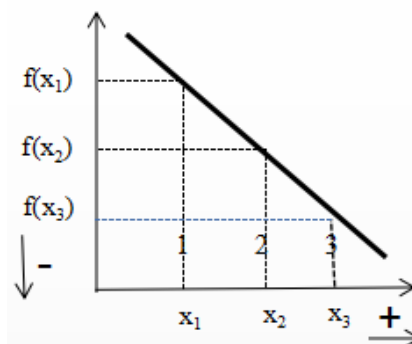

Figure 2: Effect of Known Information on Sentence Progression

When the speaker states the known information earlier in the sentence, it is more advantageous for the listener's understanding of the meaning of the sentence. This also indicates that there are primary and secondary semantic roles in the sentence. The semantic role containing the known information should be the primary semantic role, which is essential and the starting point of the sentence, having the lowest progression value in the sentence. Conversely, the semantic role containing the new information and its semantic relationships are

crucial for pushing the development of the sentence, serving as the core of the sentence and having a higher progression value in the sentence.

"Chineseness" of Chinese translation is a reflection of translational reality, not something to be deliberately designed or planned by translators or translation theorists[21]. The translation of cultural landscapes could be carried out in four steps. Firstly, mark the proper nouns and other nouns used in the sentence with their semantic roles. Secondly, mark the starting point of the sentence and determine its semantic relationships with the semantic roles in the previous context. If the starting point is hidden, mark the hidden information. Thirdly, mark the central meaning of the sentence and determine the grammatical structure of the target sentence. Lastly, determine the semantic relationships of the semantic roles, based on the research of Harbin Institute of Technology that "each semantic role is in a nested and inverse relationship". The first two steps belong to semantic segmentation, while the other two steps belong to grammatical segmentation. What's more, Chinese translation discourse should not be thought just to refer to what has happened in the past, but it should also cover what has been happening in the contemporary times, even though what has been happening now may not seem "characteristically Chinese" in the "traditionalist" sense[22].

Translation example 1:

Sai Kwan Mansion is a magnificent and luminous structure with spacious halls and a beautiful garden. It features elegant decorations and follows a basic layout of three bays and two corridors, which are symmetrically aligned with the main hall in the center. The halls are connected by patios that are covered by cabin roofs, allowing for proper ventilation and natural lighting through sliding clerestory windows and skylights. On either side of the mansion, there are corridors known as Qingyun Corridor. These corridors serve various purposes such as ventilation, fire prevention, drainage, lighting, drying, transportation, and greenery. (by the author)

Translation example 2:

South Tower is a five-story building that bears the marks of bullet holes on its exterior. This tower holds historical significance as it witnessed the heroic deeds of Sze-To's Seven Martyrs during their seven-day and seven-night battle against the Japanese invaders. This battle took place 25 days prior to the Japanese surrender in 1945. The South Tower stands as a testament to the unwavering patriotism and sacrifice of the overseas-Chinese people, who were willing to die for their country. Due to its historical importance, the South Tower now serves as a national education base for promoting patriotism in Kaiping. (by the author)

In the translation of example 1, the word "halls" was mentioned in the previous sentence, so it is known information. However, the terms "patios," "cabin roofs," "sliding clerestory windows," and "skylights" are not mentioned in the previous sentence, so they cannot be switched with the previous semantic role "halls". Therefore, it is inappropriate to say "the halls are connected by patios" because the "patios" are actually one of the attractions of the "mansion" and belong to a subordinate topic.

When translating between Chinese and English, there may be differences in grammatical segmentation, but semantic segmentation should be consistent with or centered around the Chinese text. The focus in English is reflected in the main clause, such as "Between the halls, there are patios." or "The halls are connected by patios." or "With patios in between, the halls are separated." These expressions all start with "halls" as the starting point. When breaking sentences, combining sentences, or adjusting word order, it is also important to ensure that the starting point of the expression is consistent. For example, in the first example, the first sentence is long, so it can be divided into two sentences in English, with "mansion" as the starting point.

Semantic roles that are not directly related to the previous text can be placed at the beginning of a sentence or after the starting point of the expression. For example, in the translation of example 2, the phrase "from this tower" can be placed after the time adverb according to the Chinese word order habit, or it can be placed at the beginning of the sentence. The meaning of the sentence remains the same because the "Sze-To's Seven Martyrs" and the "South Tower" are not directly connected and the relationship between them must be reflected through the starting point of the expression, which is "this (South Tower)".

In Chinese discourse, sentences often start with known information to develop the sentence further, meaning that the starting point of the expression is often placed at the beginning of the sentence. In English, the known information in a sentence can vary in position, and the starting point of the expression is often placed at the beginning or middle of the sentence in an overt way. This is related to the sentence structure habits of the two languages. In Chinese sentences, the position of semantic roles and modifiers that indicate semantic relationships is relatively fixed, and the concept of word class is relatively vague. In English sentences, the position of semantic roles and modifiers is more flexible, and word class boundaries are clearer. In terms of the expression of the starting point, Chinese sentences often hide the starting point or make the starting point of the

next sentence related to the previous sentence. English sentences, although less repetitive in language, still frequently repeat the core word of the starting point. The difference from Chinese discourse is that English sentences often use pronouns to replace the expression of the starting point.

IV. CONCLUSION

In conclusion, this study focused on the application of the Actual Sentence Partition (ASP) in analyzing and translating Chinese cultural landscape discourses. The analysis revealed that the known information in discourses tends to occupy the psychological theme of the speaker, serving as the starting point for discourse. However, due to the differences in expression between English and Chinese discourses, when translating from Chinese to English, it is crucial to identify the starting point, or the known information, through the utilization of ASP.

Additionally, the study explored the impact of the position of the starting point within the discourse on its interpretation and understanding. It proposed translation methods for cultural landscape discourses, taking into account the findings of the analysis.

In light of these research results, it is important to acknowledge the limitations of this study. While the application of ASP in translation proved to be valuable, there may be other factors and linguistic nuances that should be considered in future research.

Moving forward, it is recommended to further investigate and expand upon the findings of this study by conducting comparative analyses of discourses from different cultural background. This would help gain a more comprehensive understanding of the translation of cultural landscape discourses and provide practical insights for translators and researchers in the field.

Overall, this research sheds light on the significance of the Actual Sentence Partition theory in translating Chinese cultural landscape discourses. By considering the starting point and leveraging ASP in translation, a more accurate and faithful representation of the original discourse can be achieved.

V. DATA AVAILABILLITY

The datasets analyzed in this work were derived from the following public domain and bibliographic resources:

https://www.360doc.com/content/21/0410/03/5426525_971453961.shtml

Lingnan Cultural Art. Guangzhou: South China University of Technology Press. 2004

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REFERENCES

[1] V. Mathesius. A Functional Analysis of Present Day English on a General Linguistic Basis. The Hague, Paris: Mouton, 1975.

[2] Shengheng Xu. "More on Theme and Rheme". Beijing: Foreign Language Teaching and Research, Vol. 4, pp. 19-25, 1985.

[3] Shicong Liu, Yu Dong. "A Study on Using Theme/Rheme as Translation Units". Shanghai: Journal of Foreign Languages, Vol. 3, pp. 61-66, 2000.

[4] Grosz BJ, Sidner CL. "Attention, Intentions, and the Structure of Discourse". Computational Linguistics, Vol. 12 (3), pp. 175-204, 1986.

[5] Chunliu Wang, Xiao Zhang and Johan Bos. "Discourse Representation Structure Parsing for Chinese", 2023.

[6] Shao Hua. "A Discussion on the Actual Sentence Partition". Linguistic Materials, Vol. C1, pp. 17-27, 1965.

[7] J. Firbas. "Functional Sentence Perspective in Written and Spoken Communication". Language, Vol. 70 (2), pp. 350-353, 1994, doi: 10.2307/415834.

[8] Junhong Xiao. "Firbas' Communicative Dynamism and the Manifestation of Language". Heilongjiang: Foreign Language Research, Vol. 96 (2), pp. 7-13, 1999.

[9] Kristin Davidse, Wout Van Praet and Ngum Meyuhnsi. "Introduction:Communicative Dynamism". Acta Linguistica Hafniensia, Vol. 51, pp. 107-123, 2019, doi: 10.1080/03740463.2019.1695242.

[10] Anushka Gangal, Ayush Shrivastava, Nadia Mahmood Hussien et al. "Natural Language Processing: A Review". AIP Conference Proceedings, Vol. 2771 (1), pp. 1-7, 2023, doi: 10.1063/5.0153960

[11] Fang Kong, Hongling Wang and Guodong Zhou. "Survey on Chinese Discourse Understanding". Beijing: Journal of Software, Vol. 30 (7), pp. 2052-2072, 2019.

[12] Honglie Yang. A Perspective of Guangdong's Cultural Landscape. Beijing: Social Sciences Academic Press, 2013: 52.

[13] Xiuqiong Zhou, Zihui Zhai. "Discourse Difference and Translation Strategies of Chinese-English Texts on Tourism Landscape". Beijing: Education Modernization, Vol. 22, pp. 160-162, 2018.

[14] Fengfu Cao. Sentence and Clause Structure in Chinese: A Functional Perspective. Beijing: Beijing Language and Culture University Press, 2005.

[15] Saina Wuyun, Haihua Pan. "The Discoursal Accessibility of Semantic Entities in Chinese Discourse". Language and Linguistics, Vol. 22, pp. 440-474, 2021.

[16] Biao Fu, Yiqi Tong, Dawei Tian, Yidong Chen, Xiaodong Shi, et al. "CTRD: A Chinese Theme-Rheme Discourse Dataset". Natural Language Processing and Chinese Computing, Vol. 13028, pp. 65-76, 2021.

[17] Zhenqiang Zhao. "Cognitive Turn of International Communication Discourse of Chinese Culture in the Globalization Context". Open Journal of Social Sciences, Vol. 11 (2), pp. 112-123, 2023.

[18] Donghong Ji. "Several Frontier Tasks in Semantic Analysis". Wuhan: Yangtze River Academic, Vol. 2, pp. 99-114, 2020.

[19] Ao Zhu, Fucheng Wan, Ning Ma et al. "Multi-strategy Chinese Semantic Role Labeling Combined with Attention Mechanism". Xiamen: Journal of Xiamen University, Vol. 6, pp. 1019-1023, 2021.

[20] Shuangshuanga Chen. "The Distribution of Null Subjects in Chinese Discourse: A Centering Approach". Studies in Chinese Language and Discourse, Vol. 13, pp. 11-36, 2020.

[21] Zaixi Tan. "Chinese Discourse on Translation: Views and Issues". New Frontiers in Translation Studies, pp. 9-32, 2019, doi: 10.1007/978-981-13-7592-7_2.

[22] Zaixi Tan. "Chinese Translation Discourse -- Traditional and Contemporary Features of Development". New Frontiers in Translation Studies, pp. 1-27, 2020, doi: 10.1007/978-981-15-5865-8_1.