A Study on the Three-dimensional Transformation Strategy of Guide Interpretation of the Site of Haihunhou State in Han Dynasty in Nanchang City under the Background of Artificial Intelligence

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Abstract. With the further development of Artificial Intelligence technology, its influence in all walks of life has gradually increased. AI is playing an irreplaceable role in translation industry. Based on the theory of eco-translatology, this paper will analyze texts of the machine interpretation and human interpretation in Haihunhou Archeological Sites in Nanchang, and discuss how to use the three-dimensional transformation strategy to improve the interpretation quality in the specific interpretation environment.

1. Introduction
With the increasingly striking trend of globalization, the role of translation is becoming more and more prominent. The representative personages of the traditional translation field is the literary translators of the 20th century, but few of them have outstanding achievements. Now, translation has become a common phenomenon in all walks of life, including both professional translation and non-professional translation. In particular, the emergence of machine translation has greatly promoted the translation activities of non-professional translators. Among various translation activities, interpretation is one of the important forms. It is not only an important bridge and link in cultural exchange, but also a kind of linguistic art and aesthetic activity.

2. Artificial Intelligence and Guide Interpretation

2.1. Artificial Intelligence
Artificial intelligence (AI) is one of the important technologies in the new era. The research shows that the concrete content of AI translation is the entry point. Based on this, the practical application of relevant AI in language translation has been studied and adopted. Looking into the future, human translation and AI translation will be in a benign state of interaction.

The concept of Artificial Intelligence (AI) originated from the Darmouth Society in 1956. AI is a branch of computer science. The main application fields of AI are robot field, language recognition field, image recognition field and expert system.

2.2. Machine Translation
Machine translation, also known as automatic translation, is the process of using computers to convert
one natural language (source language) into another natural language (target language). It is a branch of computational linguistics and one of the ultimate goals of AI. At the same time, machine translation is of important practical value.

2.3. Guide Interpretation
Interpretation is a kind of translation activity. And among many translation activities, interpretation is an important form of expression. It is not only an important bridge and link in cultural exchange, but also a kind of linguistic art and aesthetic activity. As the name implies, it means that the interpreter converts the source language into the target language in the way of spoken language. Tour guide interpretation means that the tour guides accurately and quickly interpret the source language information of the tourist attractions into the target language, so as to attain the goal of transmitting and exchanging information.

As a special form of translation and communication, interpretation is an indispensable medium and means for those who do not know each other’s language to exchange ideas. Moreover, interpretation is an essential lever to ensure the quality, speed, effectiveness and even key points of communication.

2.4. Machine Interpretation
With the gradual maturity of artificial intelligence technology, machine interpretation that bases on speech recognition, text conversion and speech synthesis has become a new practice and novel topic in the field of language service research.

Machine interpretation, born in 1960s and 1970s, is a product of computational linguistics and AI technologies. Its ideal goal is to make computers act as interpreters among speakers from different languages’ background like human beings.

From the perspective of forms, machine interpretation takes machine as the main body and the machine completes the bilingual conversion process independently. And, from the point of view of process, machine interpretation is a linear process of speech input, signal recognition, code switching and signal synthesis. Meanwhile, in terms of social functions, machine interpretation is a beneficial supplement to human interpretation and a language service activity that transcends the limitation of time and space.

3. The Characteristics and Significance of Tour Guide Interpretation of the Site of Haihunhou State in Han Dynasty in Nanchang City
The site of Haihunhou State is the largest, best preserved, most complete and richest typical among all the capital settlement sites of Han Dynasty in China. It witnessed the prosperity of the Han Dynasty 2000 years ago, and more than 10000 rare cultural relics have been unearthed, leaving precious cultural heritage for China and the world, which is of extremely important historical, scientific, artistic and social cultural values.

3.1. The Characteristics of Tour Guide Interpretation of the Site of Haihunhou State in Han Dynasty in Nanchang City

3.1.1. Accuracy
One of the most fundamental requirements of guide interpretation is accuracy. Haihunhou cemetery involves a large number of place names, personal names, numbers and other elements that need accurate interpretation. Such as, when introducing Liu He's life experience, his father Liu Bo, King Changyi, Haihun and other names and places should be mentioned. All these need to be taken into account seriously by tour guide interpreters and any mistake may lead to misunderstandings by foreign tourists.

3.1.2. Complexity
The interpretation materials of the site of Haihunhou State cover the subject of history, geography, politics, humanity and other cultural knowledge. Such a wide variety of subjects determines that guide interpreters must firstly have a high level of English. Secondly, they should have a grasp of rich
historical and cultural knowledge. Finally, guide interpreters should use flexible and various strategies in practical interpretation to spread Haihunhou culture to foreign tourists.

3.1.3. Differences
There are great differences between English and Chinese in vocabulary, grammar and expression. At the same time, due to the differences in history, culture, values, religious beliefs and modes of thinking, Chinese and Western cultures are quite different. Many cultural relics unearthed from Haihunhou cemetery are unique by China in the world. It is a huge challenge on how to introduce the names, historical allusions, and functions of these cultural relics to foreign tourists.

3.2. The Significance of Tour Guide Interpretation of the Site of Haihunhou State in Han Dynasty in Nanchang City
Haihunhou State Relics from the Han Dynasty is a treasure left by ancestors, representing the splendid culture heritage of Jiangxi Province. The archaeological site park of Haihunhou State of Han Dynasty in Nanchang will be opened in 2020, and this is bound to become a landmark of Nanchang, thus playing a huge role in promoting the popularity of Nanchang, developing tourism industry and enriching people’s cultural life. How to fully and accurately display the unearthed results of Haihunhou State in Nanchang and the features of the site park becomes an urgent task for guide interpreters.

4. The Three-dimensional Transformation Translation Strategy of Tour Guide Interpretation of the Site of Haihunhou State in Han Dynasty in Nanchang City under the Background of Artificial Intelligence
According to ecological translation theory, the process of translation is a process in which translators adapt to the translation ecological environment and choose adaptively to transform source language information from the perspectives of "language dimension", "culture dimension" and "communication dimension". From the perspective of ecological translation theory, guide interpretation is a form of interpretation integrating language, culture and communication into a coherent whole. By comparing the similarities and differences between machine interpretation and human interpretation in the guide interpretation of the site of Haihunhou State in Han Dynasty in Nanchang City, we can summarize the corresponding three-dimensional transformation strategies.

4.1. Language Dimension Transformation Strategy
"Language dimension" adaptive selection and transformation is the interpreters’ adaptive selection and transformation of language forms in the process of translation. This adaptive selection and transformation of language dimension is carried out in different aspects and at different levels.

4.1.1. Literal Translation
Literal translation, which belongs to the category of alienation, refers to the method of completely retaining the referential meaning of source language words in the translation without violating the culture of the source language, so as to obtain the consistency between content and form.

When introducing the Wuzhu coins found in the cemetery of Haihunhou, Google Machine interprets it as follows:

A huge amount of five baht was found in the tomb of Haiyun Hou. A preliminary estimate was 2 million pieces. About 10 strings of complete five baht were unearthed in the tomb of Haiyun Hou. Each string is exactly 1,000 pieces. The currency unit of measure was pushed from the Northern Song Dynasty to the Western Han Dynasty.

And human interpreters interpret it as follows: Massive numbers of Wuzhu coins were uncovered from Haihunhou cemetery. The number was primarily estimated to be 2 million, including 10 complete strings of 1000 coins. History of “1000 coins on one string” is pushed forward from the Northern Song Dynasty to the Western Han Dynasty.

There isn’t much difference between machine interpretation and human interpretation, both of which are performed by literal translation. The literal translation method makes the interpretation...
basically consistent with the source language in terms of lexical meaning and syntactic structure. This similarity in language aspect conforms to the transformation of language dimension in ecological translation theory. The interpretation of “Wuzhu coins” and “1000 coins on one string” retains the expression characteristics of Chinese directly, and the sentence structure of English is similar to the source language. Meanwhile, foreign tourists can understand the meaning well, thus the transformation of the language dimension is fully implemented.

4.1.2. Amplification
In order to convey cultural information better and conform to the pragmatic habits of the target language, additional words and expressions should be added to the target language so as to make sentence components more complete and expressions more effective.

For example, when introducing Yue Chariot unearthed from the Tomb of Haihunhou, the Machine interprets it as follows: There are two unearthed cars, one is a “gold car” equipped with practical musical instruments—Yu Yu and Bronze, and one is a "drum car" with built drums. This kind of "Golden Car" and "Drum Car" collocation system of traveling in the Western Han Dynasty is the first time it has been discovered.

And human interpreters will interpret it as follows: There are two Yue chariots unearthed. One is a “gold chariot” equipped with chunyu (a practical musical instrument) and four pieces of bronze nao (round percussion instrument). The other is the first combination of gold chariot and drum chariot observed in Han royals’ procession system.

Chunyu and bronze nao are traditional Chinese musical instruments, and there is no equivalent translated words in Western languages and cultures. Here, human interpretation adopts the translation method of amplification to explain what it is, so that foreign tourists can better understand the information that they are seldom exposed to.

4.1.3. Omission
Some words and expressions in guide interpretation play a key role in the comprehension of texts, and such expressions must be interpreted directly and exactly. However, there are some small parts of words that may have no effect on the understanding of the whole sentence, but only meaningless lists or decorations, so these words can be appropriately omitted in interpretation. For example, a large number of traditional Chinese poems will appear in the introduction materials of museums or sites, and this kind of words can be omitted in interpretation if not affecting the overall meaning of the sentence.

When introducing the excavation site situation, the Machine interprets it as follows: At the excavation site of the ancient tomb, the archaeologists excavated little by little and cleaned up layer by layer until a huge tomb with a total area of 400 square meters was completely revealed, gradually revealing the true face of the main coffin.

Human interpreters will interpret it as follows: At the site, staff cleaned up every layer till a huge tomb in total size of roughly 40,000 square meters was exposed. Gradually, inside of the main coffin emerged.

In the interpreted texts, the human interpreters take the word “emerged” to substitute for the Chinese poetry “The true face of Lushan Mountain”. In this way, it not only shows the discovery of the tomb’s main coffin, but also saves the trouble of elaborating the poetry.

4.1.4. Equivalence
The materials of guide interpretation mainly cover local history and culture, and the source language often quotes poetry, the ancient Chinese prose and idioms. These special texts are rich and profound in implied meaning. Machine interpretation will try to find corresponding expressions in the target language for substitution, which is called the translation skill of equivalence.

When introducing Haihunhou tomb, the Machine interprets it as follows: The robbery and luck of Haiyunhou’s tomb.

Human interpreters will interpret it as follows: Weal and Woe of Haihunhou Cemetery.
In March 2011, the tomb robbery event in Xinjian district of Nanchang City triggered archaeological excavations, thus revealing the mystery of an ancient tomb that had lain dormant for more than 2,000 years. For Chinese archaeology, this is the best result of the great misfortune. And the human interpreted texts make good use of the rhyme "weal and woe" to replace the term "robbery and luckiness" of Haihunhou tomb. In this way, the profound charm of the source language has been exposed accurately both in meaning and structure.

### 4.2. Cultural Dimension Transformation Strategy

Adaptive selection and transformation of "cultural dimension" means that interpreters pay attention to the transmission and interpretation of bilingual cultural connotation in the process of translation. The adaptive selection and transformation of cultural dimension lie in paying attention to the differences between the culture of the source language and the culture of the target language in terms of nature and content to avoid the distortion of the original text which comes from the influence of the cultural perspective of the target language. Interpreters should be concerned at the whole cultural system to which the language belongs while interpreting the source language. Due to the particularity of the content of guide interpretation, machine interpretation should focus on making adaptive choices in cultural dimension, and effectively convey the historical background, social customs and cultural connotations of the source language to foreign tourists.

#### 4.2.1. Cultural Interpretation

In the bilingual transfers, the cultural interpretation method uses the target language to annotate the translatability "obstacle points" in the source language to help readers understand better.

In the introduction of Guo Dunshan tomb, the Machine interprets it as follows: The main tomb of Guo Dunshan's ancient tomb is in the shape of "A". Experts speculate on this that the ancient tomb of Guo Dunshan should belong to the "Lehou class".

But human interpreters will interpret it as follows: The main coffin on Guodun Mountain was in a shape of character “jia”. Hence, archaeologists presumed that this ancient tomb belonged to a marquis.

This is the interpreter's special elaboration to the rank of the tomb master of Haihunhou ancient tomb. But foreign visitors do not understand the hierarchy of Chinese nobility and the standard for setting up graveyards for officials of different ranks after their deaths, so they will be confused when listening to the interpreted texts. But depending on the layout of the tombs at the archaeological sites, it is possible to infer the different official ranks of the tomb owners. Therefore, interpreters can use the skill of cultural interpretation to further explain the background knowledge, which is difficult for machine interpretation to do.

"It is proved that the number of roads inside the tomb stand for the status of its occupant in ancient China. Ya-shaped tomb with 4 roads represents the highest class of king's tomb, followed by Zhong-shaped tomb with two roads for princes, and Jia-shaped tomb with one road for marquises."

#### 4.2.2. Transliteration Plus Free Translation

Guide interpretation, especially in interpreting museums or sites materials, will be required to interpret a large number of exhibit names. In most cases, the interpreting of exhibits names on display will be simply expressed in pinyin, thus failing to convey the functions and the hidden cultural connotations of the exhibits to foreign visitors. In some cases, although literal translation can be performed according to the literal meaning, the translation effect is not ideal, then the translation strategy of transliteration plus free translation can be adopted.

In the introduction of Bronze Tiliangyou in the Western Zhou Dynasty, the Machine interprets it as follows: Xiliang Tiliang

Human interpreters will interpret it as follows: Bronze Tiliangyou

Foreign visitors may be at a loss when they hear these words, but if the interpreter adds the following explanation, that is, Bronze Tiliangyou are bronze wine vessels in the late Shang Dynasty with long-tail phoenix patter on the surface, then visitors will grasp the meaning easily.
4.3. Communicative Dimension Transformation Strategy

The adaptive selection and transformation of communicative dimension refers to the interpreters' adaptive selection and transformation of bilingual communicative intention in the process of translation. This adaptive selection and transformation of communicative dimension requires interpreters to focus on the communicative level in addition to the conversion of linguistic information and the delivery of cultural connotation, and to pay attention to whether the communicative intention in the original text is implemented in the process of interpretation.

Such as, when introducing the source of Gold Ingots and Gold Kylin Hooves, the Machine interprets it as follows: In 95 BC, Emperor Wu of the Han Dynasty headed "Xideng Long, won Bai Lin to feed the clan, Wuwa water out of Tianma, Taishan saw gold, it is appropriate to change its name. Today, gold is the horse's hoof of Linzhi to Xie Ruiyan." Ordered the production of horseshoe-shaped gold and linte-shaped gold to Xie Xiangrui, namely horseshoe gold and lind gold.

But human interpreter interprets it as follows: In 95 BC, Emperor WU of Han “obtained the white qilin to award the nan'chang after crossing the accumulated water and encountering the holy horse (an auspicious in Chinese mythology). It is suggested that the name of gold should be changed to Gold Ingots and Gold Qilin Hooves.

For this text, the interpreter interprets it in a way that conforms to the thinking mode of the target language, so that foreign tourists can understand the origins and functions of Gold Ingots and Gold Kylin Hooves, and in this way, finally realize the communicative function of guide interpretation, and complete the transformation of communicative aspects in ecological translation.

To sum up, in the guide interpretation of the Site of Haihunhou State in Han Dynasty in Nanchang City, the machine interpretation mostly adopts the method of literal translation, which has strong processing ability for longer sentences but has some deficiencies in cultural interpretation. The interpretation materials of the Site of Haihunhou State involve a lot information in history, geography, poetry and so on. For the convenience of machine interpretation, corpus should be expanded by broadening colloquial words and daily expressions. Also, it is necessary to expand the corpus of four-character expressions and to focus more gradually on colloquial language, idioms, poetry and classical Chinese essays.

Both the machine interpretation and human interpretation of the Site of Haihunhou State make full use of three-dimensional transformation strategy, interpret the texts from the language dimension, culture dimension and communication dimension and by selecting appropriate translation strategies, convey the information of the Site of Haihunhou State to foreign tourists accurately and fully. Then, by taking the Site of Haihunhou State as the cultural bridge, more foreign tourists would show solicitude for the splendid culture of Jiangxi Province, which will help to realize the dream of promoting the culture of Jiangxi Province to spread widely in the world.

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