

# A New Scenario of Machine Translation: Dynamic Contextual Effects with Diverse Paratextual Application

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**Abstract**—Not many people want to read an incomprehensible machine-created translation (MT) even when it is accessed for free on the web. Thus, pre-editing is done to improve the readability of the MT output. However, syntactic and lexical simplification of pre-editing does not explicate the implicit meanings of culture-specific words and messages. To compensate for the simplification-resulted flaw, this paper proposes the use of some paratexts such as notes and pictures to create a better contextual effect in the MT text. The pragmatic function of paratexts can be justified by framing it within the framework of Gutt's relevance-theoretic concepts. Breaking free from the unified contextual effect, this paper supports dynamic contextual effect and illustrates how weak, fair and strong contextual effects are created by comparing two sets of three English MT texts that consist of an MT without paratexts, an MT with added notes and an MT with added notes and pictures. The pragmatic significance of this research shows that paratexts play a useful role in MT-enabled communication and that the application of paratextual aids enhances MT audience's comprehension based on the dynamic contextual effect created in the new MT scenario.

**Index Terms**—paratexts, machine translation, dynamic contextual effect, relevance-theoretic perspective

## I. INTRODUCTION

No one likes to read a book without clear comprehension and no web audience wants to read an incomprehensible machine-created translation (MT) even when it is accessed for free. Thus, effective communication of messages is a key to grabbing the audience's attention and this holds true with MT application. Some scholars have agreed that the tailoring of source text may improve the comprehensibility of the MT output by simplifying the syntactic structure of sentences and using clear-meaning words (Aikawa, Schwarzl, King, Corsten-Oliver & Lozano, 2007; Cardey, Greenfield & Wu, 2004; Garcia, 2010; O'Brien, 2003; O'Brien & Roturier, 2007; Pym, 1990; Roturier, 2004). However, this remedial pre-editing method is only effective for the MT of technical documents, not for a text that contains many cultural items or presents some cultural information. The reason is that the simplified MT text does not explicate the meanings implicit in the socio-cultural messages and therefore the audience cannot relate them to their cognitive assumptions and cannot clearly make sense of them. The MT output cannot, if not faithfully, adequately represent "cultural otherness." Lack of adequate information to share with the source audience hinders the MT audience from clearly understanding the MT messages. To compensate for this inadequacy, in addition to the strategy of pre-editing, this paper proposes the use of some paratexts to supplement background information of the source culture. Thus, optimal contextual effects can be created and facilitate the international audience's easier understanding. Of today, research on MT-enabled communication has been focusing on pre-editing or post-editing, not on the paratextual application. This paper tries to justify the effectiveness of creating contextual effect by supplementing various types of paratexts in the MT text. The MT outputs of Taiwanese folktales will be used as the supportive examples.

This paper would explore why, what and how the paratexts of added notes and pictures that accompany the MT text help create effective contextual effect and therefore help the target audience easily understand the MT messages. Gutt's (1991, 1992, 2000) relevance-theoretic concepts and Genette's (1997) paratext theory will be used as the theoretical framework to frame the discussions. However, breaking free from the unified contextual effect, this paper supports dynamic contextual effect and illustrates how it would shift from the weak to fair and strong ones based on a change from the absence of paratexts to the incorporation of a paratext and two paratexts into the MT text. The twofold objectives of the present research include 1) the justification of paratextual use to boost the contextual effect for the audience's easier interpretation, and 2) the identification of varied levels of contextual effects resulting from the use of different types of paratexts. To achieve the purpose, two research questions (RQ) are raised to guide the investigation as follows.

RQ1: How can paratexts in the MT outputs of folktales boost the audience's interpretation by creating the optimal contextual effect?

RQ2: How can the MT audience have varied levels of MT comprehension in line with varied types of contextual effects generated by different paratextual aids?

It is hoped that the answer to the first question helps illustrate how paratextual aids may compensate for source cultural inadequacy due to the lack of explicit connotations of some culture-relevant information. The answer to the second question may distinguish the weak contextual effect from fair and strong ones by probing how the presence or absence of some paratexts make a difference in the contextual effect creation from Gutt's relevance-theoretic perspective.

## II. RELEVANCE THEORY AND CONTEXTUAL EFFECT

The relevance theory needs to be introduced because it will be used to support how paratexts help boost the communication effectiveness of MT. In their early proposal of the relevance theory, Sperber and Wilson (1986) employed a new way to define the term "context"; it refers to an individual's assumptions about the world in the pragmatic studies, not the preceding or following content in a text as described in the traditional linguistic studies. Later on, Ernest-August Gutt (1991, 1992) transports Sperber and Wilson's concept of "context" into translation studies, and proposes the notions of contextual effect and optimal relevance. From Gutt's (1991) point of view, a translation creates the contextual effect when the explicit and implicit meanings of words or expressions are shared by the translator and the target audience. The more information in a translation is shared by the audience, the stronger contextual effect is created and the more easily the audience can decipher and interpret the translation. In this sense, if the MT output provides more information shared by the global audience, it creates the better contextual effect and is more easily understood. To achieve the purpose, paratexts may be used to explicate the implicit meanings of some messages that are specific to source culture, and therefore creates an optimal contextual effect, engaging the MT audience in an easier referential and interpreting process for an easier understanding of MT messages.

However, in his discussion of contextual effect, Gutt does not mention the classification of varied types of contextual effects. In the real communication situation, a speaker or addressor often uses some types of communicative scaffolding to create different levels of contextual effects, and so the audience has varied degrees of comprehension. For example, when color and sound with words are presented to children learners, they will be more motivated and learn more things than when they are presented only words without sound and color. Similarly, when more paratextual aids are activated, the MT audience is surely able to collect more relevant background information and share more knowledge with the source culture audience. Contrary to this, if no or fewer paratextual aids are used, fewer communicative cues are provided and the audience cannot have a clear understanding. The input of various types of supplementary information will produce varied degrees of contextual effect and then causes the audience to have varied levels of interpreting and inference. That is to say, various paths of information import are assumed to send the audience to various zones of shared assumptions in their cognitive schema, thus creating varied degrees of contextual effect for the audience's varied degrees of comprehension.

With the hypothesis above, the present research explores the dynamic contextual effect that takes place through the application of various paratextual aids. For the easier identification, the contextual effect is roughly classified into three types, including weak contextual effect due to the absence of any paratexts, fair contextual effect resulting from the use of a single paratext and strong contextual effect based on the use of two paratexts. The three-scale contextual effect can be investigated by comparing three versions of English MTs of Taiwanese folktales with and without paratextual aids.

## III. PARATEXTS AND THEIR PRAGMATIC FUNCTION

Since this paper discusses the paratextual application, Genette's (1977) theory of paratexts can be used to support the pragmatic benefits of paratextual application. In his book entitled *Paratexts: Thresholds of Interpretation*, Genette (1977) proposed the use of paratexts to make a translated book more complete, more favorable and more approachable. For Genette, paratexts can be used to help the audience understand better the content of a translation by introducing various types of additional information. Genette (1997) maintains that paratexts play a role of threshold that offers "a possibility of either stepping inside or turning back" (p. 2). The paratexts lead the audience to step into the main text for a clear understanding and simultaneously guide them to step out of a translation for the acquisition of external information and therefore allow them to have a better understanding when they return to read the translation again. When applied to the MT context, paratexts fulfill the similar function, making the MT output more pragmatically communicative, more readable, more acceptable and more comprehensible. However, the use of paratexts to serve as the pragmatic aids to MT has been overlooked in contemporary MT research although its pragmatic function of maximizing the communication effectiveness of translation has been discussed in a lot of papers and theses (Kloppenborg 2013; Huang, 2013; Lin 2014; Lin 2015). This paper is therefore the first attempt to incorporate paratexts into the MT and explores how the paratextual aids help create varied degrees of cultural effect that change with their differ types of number.

According to Genette, all the paratextual materials may be divided into two types, "epitext and peritext" (Genette, 1997, p. xviii). The former located within the translated book refers to preface, notes, illustration and others, and the latter, outside the translated book, means authorial correspondence, diaries, interviews, critics and relevant others. The present research restricts paratextual aids to epitexts and chooses added notes and pictures, namely tow easiest-to-apply paratexts, as the target of investigation, not including comments or review on the MTs that are not found in the existing

literature.

The concept of paratexts also keeps in line with the concepts of communicative contextual effect and optimal relevance because all of them present a crucial pre-condition that facilitates the audience's maxim understanding of the translation. The paratext of added notes makes the audience able to know additional information about special culture-bound terms, and pictures provide iconic, visual codes to help create the real scene and sight of a verbal description. The paratexts, be they in visual or verbal forms, provide supplementary information to increase the target audience's source-culture knowledge and allow them to interpret easily the MT messages. In this sense, the paratexts bring additional information to the MT audience and relate the information to the audience's cognitive assumptions so they help the audience make clear sense of the MT message with effective communicative cues. The pragmatic benefits of paratexts are justified from the relevance-theoretic perspective because aids create the shared ground between source and target cultures, relate all the verbal presentations to the audience's assumptions and therefore optimize the audience's understanding.

#### IV. A DYNAMIC MODE OF ANALYSIS

The present research tries to illustrate the shared cultural ground and contextual relevance by using the paratextual aids to MT as examples. However, unlike the traditional unified mode of contextual effect analysis, this paper conducts a dynamic mode of analysis by analyzing three sets of MTs with and without using paratexts. Moving beyond the concept of unified, generalized contextual effect, dynamic contextual effect is examined in response to different paratexts that are added to the MT output. It is assumed that the audience's cognitive processing efforts will be progressively reduced when they receive an increasing amount of background information from more paratexts that are included in the MT text. Thus, the present paper explores how weak, fair and strong contextual effects are created by comparing two sets of three English MT texts that consist of an MT without paratexts, an MT with added notes and an MT with added notes and pictures.

The analytical source texts are three Taiwanese folktales, i.e., "The Kitchen God," "Banpingshen" and "Sister Lakes," which are retrieved from my project of controlled culture writing for MT application (Shih 2013). They are translated by Google Translate, a statistics-based MT system, into English. In order for the texts to produce the easy-to-understand MT outputs, they were adapted using controlled Chinese that modulates the original syntactic structures, cultural expressions and shortens the source sentences. Like the main text, added notes and the titles of pictures also need to be pre-edited in controlled Chinese by simplifying their syntactic structures and verbal presentations, so their MT outputs in English or other foreign languages can be equally readable and comprehensible; otherwise they cannot successfully achieve their pragmatic function.

#### V. FINDINGS AND DISCUSSIONS

##### A. Optimal Contextual Effect and Paratexts

In reply to RQ1 regarding how paratexts can optimize the contextual effect of the MT text and boost its audience's comprehension, the findings show that the paratexts of added notes and pictures serve as cultural scaffolding because they supplement cultural information about foods, historic figures, places, tools, objects, attire, folk practices, cultural concepts, socio-cultural norms and the like. Specifically, added notes explain special cultural concepts and norms, and pictures present the attire, tools, people, places and special deed. Table 1 shows how added notes are used as the paratext to explain some traditional cultural norms and typical cultural practices in early Taiwan. The English MTs are created by Google Translate in 2015.

TABLE 1  
EXAMPLE OF ADDED NOTES AND THEIR ENGLISH MTs

Added notes in controlled Chinese	English MTs of added notes
註 1：在中國古代社會，除了她的丈夫，已婚婦女不能見其他的男人獨自地。這意味著，她是不忠於她的丈夫。	Note 1: In ancient Chinese society, in addition to her husband, a married woman can not see the other man alone. This means that she is not faithful to her husband.
註 2：根據中國道教人們必須祭拜死者以表現出很尊敬死者。	Note 2: According to Chinese Taoism, one must worship the dead to show a lot of respect for the dead.
註 3：Banpingshan 意味著“該山丘有一個平坦的一面”。該 Banoinshan 故事被創建，根據它的形狀。	Note 3: Banpingshan means "The hill has a flat side." The Banoinsan story is created, according to its shape.
註 4：在中國古代社會，人們喜歡吃湯圓，尤其是上重要的節日。	Note 4: In ancient Chinese society, people like to eat glutinous rice balls, especially on important festivals.
註 5：在古代，為了取悅神靈，死者的頭是用來祭祀神靈。這是台灣原住民的習俗。	Note 5: In ancient times, in order to please the gods, the head of the deceased is used to worship the gods. This is Taiwan's aboriginal customs.




Note. Produced and compiled by the author

As shown above, the first note explains a cultural taboo for women in early Taiwan. This note allows the Western audience to easily infer the reason for Mr. Chang's self-sacrifice. Without the note, the Western audience might have assumed that Mr. Chang was a foolish man by burning himself alive. In the Western culture, no man would sacrifice his

life merely because of his guilty feeling arising from meeting his ex-wife alone. The cultural gap prevents the Western audience from understanding the genuine meaning of the message because no effective contextual effect is created. The second note indicates the Taoist ritual of honoring the dead people in early Taiwan. Such paratextual information enables the Western audience to easily understand the reason why Mr. Chang's ex-wife worshipped the stove where Mr. Chang killed himself. Without the added note, the audience might have inferred that Mr. Chang's ex-wife felt guilty about his ex-husband's death and thus she worshipped him every day. The third note illustrates how the hill is named and the Western audience can associate the name with the disguised God's deed in the story. The notes help create the contextual effect by relating the cultural practices and the name to the plot of the stories and make the audience easily understand the MT messages without much cognitive effort. The fourth note increases the audience's knowledge about the food, namely glutinous rice balls, and thus they can infer why the disguised God chose to sell the food, not others, to attract the passerby's interest. The final note illuminates Taiwan's aboriginal custom and helps the Western audience to know why the villagers were scared when hearing Mogulu's warning that God was angry and asked them to provide 50 heads to worship the God. Without the notes, no effective contextual effect can be produced because the cultural implications implicit in the messages cannot be clearly revealed and therefore the audience cannot have the right interpretation of them.

In addition to added notes, the paratext of pictures is recommended to create optimal contextual effect since they can make the audience clearly know the outlook of something. A visual aid is worth thousands of words. Table 2 shows how some pictures are used as the paratext to clearly present the physical properties of rice dumpling, the stove and the worshipping rite. Figures 2 and 3 are taken from my book, co-authored with Gu (2014), so their copyright has no problem. Figure 1 is retrieved from Google Graphics and is accessible to the public without copyright.

TABLE 2  
EXAMPLES OF PICTURES AND THEIR ENGLISH MTs  
Pictures and the English MTs of their titles

		
Fig.1: Rice Dumpling	Fig.2: Mr. Chang was in the stove. Fig.3: Mr. Chang's ex-wife worshipped him.	

Note. Compiled by the author from <http://www2.nkfust.edu.tw/~clshih/plan/>

When the Western audience reads the MT message that *One day, he went out to see his ex-wife, begging some food. His wife gave him some rice dumplings*, they might feel curious about what the food looks like. Additionally, when they read the MT message that *At that time, the woodcutter returned home. Mr. Zhang, hid himself in the stove inside*, they might be confused about the situation. The Western audience in the contemporary times does not know the difference between the ordinary stove and the old-style stove in early Taiwan, so they cannot understand why a person can hide himself in the stove. At this moment, when they see the pictures, they can immediately understand the situation. Additionally, the audience can be brought into the picturesque setting and acquire relevant information. When they come back to read the MT message again, they would have a clear understanding of the implicit meanings. This is the contextual effect of paratexts, supported by Genette's view that paratexts play a role of threshold leading the reader to step outside and then turn back for a better understanding. A picture justifies the old saying that "To see is to believe" allowing for the immediate semantic clarification of some messages.

Above all, we arrive at a finding that paratexts help create the contextual effect and facilitate the communication by demystifying cultural implications and explicating the hidden meanings of MT messages. Added notes introduce some socio-cultural background information and pictures provide materialistic structures and components of something to increase the audience's impression. Both of them can be treated as the useful scaffolding to boost the audience's easier interpretation of MT messages.

#### B. Dynamic Contextual Effect Due to the Use of Different Paratexts

In response to RQ2 regarding how varied degrees of contextual effect are created due to the use of different types of paratexts, the findings show that no use of surrounding texts makes the MT output unable to reveal the implicit meanings of some information and creates the weak contextual effect. In contrast, the use of either added notes or pictures as the co-texts of the MT output helps explicate the implications of some messages and creates the fair contextual effect. When both types of paratexts are simultaneously used, all the information implicit in the MT messages are completely recovered, and therefore the strong contextual effect is produced. The weak contextual effect enables the MT audience to understand only the general idea of the MT output without getting further insights, but fair contextual effect helps the audience easily decode the MT message with some understanding of source culture. Moving beyond the level, strong contextual effect expands the scope of the audience's cultural assumptions and facilitates their culture awareness, leading to their easier and clearer understanding of the MT messages. The three levels of contextual effects suggest varied degrees of contextual relevance to the audience's cognitive *schema* and therefore make the MT

audience have varied levels of comprehension. Table 3 shows varied degrees of contextual effects with a set of three English MTs (generated by Google Translate in 2015) of “The Kitchen God” with and without paratexts. The source text has been adapted by the author and can be accessed on Shih’s (2013) teaching website.

TABLE 3  
MTs OF “THE KITCHEN GOD” WITH AND WITHOUT PARATEXTS

English MTs with and without paratexts	
<b>MT1</b> <b>Weak CE</b> <b>(no</b> <b>paratexts)</b>	Mr. Zhang was addicted to gambling. He lost all the money. He sold his wife to a woodcutter. One day, he went out to see his ex-wife, begging some food. His wife gave him some rice dumplings (dumplings). Some coins were put into the rice dumplings. At that time, the woodcutter returned home. Mr. Zhang, hid himself in the stove inside. For a hot bath, the woodcutter use a stove to heat water. Mr. Zhang did not come out. His worry is that his ex-wife would be beaten to death. So, he was being burned to death. After this incident, his wife went to worship the stove every morning, at noon and in the evening. She told the people that is, the stove can help her cooking. So, she worshiped the stove, to express her gratitude. Many people began to imitate her. Jade Emperor learned of the matter. He gave Mr. Zhang, the "stove Lord" title.
<b>MT 2</b> <b>Fair CE</b> <b>(added</b> <b>footnotes)</b>	.... At that time, .... His worry is that his ex-wife would be beaten to death <u>(Note1)</u> . So, he was burned to death. After this incident, his wife went to worship the stove... <u>(Note 2)</u> . <u>Note 1: In ancient Chinese society, in addition to her husband, a married woman can not see the other man alone. This means that she is not faithful to her husband.</u> <u>Note 2: According to Chinese Taoism, people must worship the dead to show a lot of respect for the dead.</u>
<b>MT 3</b> <b>Strong CE</b> <b>(added</b> <b>footnotes &amp;</b> <b>pictures)</b>	Mr. Zhang was addicted to gambling. He lost all the money. He sold his wife to a woodcutter. One day, he went out to see his ex-wife, begging some food. His wife gave him some rice dumplings (dumplings). <u>[Figure 1]</u> Some coins were put into the rice dumplings <u>[Figure 2]</u> . At that time, the woodcutter returned home. Mr. Zhang, hid himself in the stove inside <u>[Figure 3]</u> . For a hot bath, the woodcutter use a stove to heat water. Mr. Zhang did not come out. His worry is that his ex-wife would be beaten to death <u>(Note 1)</u> . So, he was being burned to death. After this incident, his wife went to worship the stove.... <u>(Note 2)</u> <u>[Figure 4]</u> <u>Note 1: In ancient Chinese society, in addition to her husband, a married woman can not see the other man alone. This means that she is not faithful to her husband.</u> <u>Note 2: According to Chinese Taoism, people must worship the dead to show a lot of respect for the dead.</u>



Fig. 1 Mr. Chang’s ex-wife gave him rice dumplings.



Fig.2: Rice dumplings



Fig. 3: Mr. Chang was in the stove.



Fig. 4: Mr. Chang’s ex-wife worshipped him.

Note. Compiled by the author from <http://www2.nkfust.edu.tw/~clshih/plan/>

As presented above, MT1 is adequate for gisting although it has some grammatical errors. Since it has no supplementary information, the audience can only comprehend the surface meanings of the messages. However, after added notes are supplemented in MT2, the Western audience can learn some cultural concepts such as the importance of married women’s reputation and worshipping to show respect for dead people in ancient Chinese society. The two added notes explicate the implicit cultural meanings, create the weak contextual effect and strengthen the audience’s cross-cultural awareness. In addition to the added notes, some pictures are supplemented in MT3, and therefore the audience can know what rice dumpling is like, how Mr. Chang hides himself in the kitchen stove and how his ex-wife worships him after he dies. Thus, strong contextual effect is created when more shared contextual information and more communicative cues are provided to the audience. At this point, the audience can not only get the gist of the story but also get deeper insights into the source culture. A combination of added notes and pictures allows MT3 to be most easily understood without extra efforts, concurring with Gutt’s notion of optimal relevance.

One more example retrieved from the folktale of “Banpingshan” and its English MT output equally illuminates how varied levels of MT audience’s comprehension are attributed to various contextual effects that are created by incorporating various types of paratexts into the MT output. Table 4 presents a set of three English MTs of “Banpingshan” with and without paratexts.

TABLE 4  
MTS OF “BANPINGSHAN” WITH AND WITHOUT PARATEXTS

English MTs (created by Google Translate in 2015) and paratexts	
<b>MT1</b> <b>Weak CE</b> <b>(without</b> <b>Paratexts)</b>	Banpingshan is located in Zuoying Kaohsiung. In Chinese mythology, Zhongli Quan was one of the Eight Immortals. One day, Zhongli, played the role of a hawker. He sold the glutinous rice balls. He wants to use this opportunity to look for 1 apprentice. He waved his fan toward the mountain, gently. Soil and stones fell. They were transformed into many glutinous rice balls. He set up a booth to sell glutinous rice balls. He told the people that it took a coin to buy 1 glutinous rice ball. It took 2 coins to buy 2 glutinous rice balls. It took no money to buy three glutinous rice balls. People heard the news. Many people eat 3 glutinous rice balls. At that time some people are greedy. They even continued to eat, until they can no longer eat any more. One day, a young man just bought a glutinous rice ball. Zhongli was very curious. He asked the man why he did not buy three for free. The man said that Zhongli should earn some money for his efforts. Zhongli knew that he was the right person. Later, Zhongli led him to God's world. The greedy people have a stomach ache.
<b>MT 2</b> <b>Fair CE</b> <b>(with</b> <b>footnotes)</b>	Banpingshan (note 1) is located in Zuoying Kaohsiung. .... One day, Zhongli, played the role of a hawker. He sold the glutinous rice balls (Note 2)... <u>Note 1: Banpingshan means that “the hill has a flat side”. The Banoinshan story is created, according to its shape.</u> <u>Note 2: In ancient Chinese society, people like to eat glutinous rice balls, especially on important festivals.</u>
<b>MT 3</b> <b>Strong CE</b> <b>(added</b> <b>footnotes &amp;</b> <b>pictures)</b>	Banpingshan (Note 1) [Figure1] is located in Zuoying Kaohsiung. In Chinese mythology, Zhongli Quan [Figure 2] was one of the Eight Immortals. One day, Zhongli.... He sold the glutinous rice balls (Note 2)[Figure 3]. ....They even continued to eat, until they can no longer eat any more. ...Later, Zhongli led him to God's world. The greedy people have a stomach ache. <u>Note 1: the same as above. Note 2: the same as above.</u>



Fig. 1 Banpingshan



Fig. 2 Zhongli Quan



Fig. 3 Glutinous rice balls

Note. Compiled by the author from <http://www2.nkfust.edu.tw/~clshih/plan/>

As seen above, without added notes, the audience gets the gist but cannot obtain adequate information, so MT 1 creates the weak contextual effect. However, by adding notes, MT 2 allows the audience to get some cultural information about glutinous rice balls and the origin of the name of the hill. Added notes establish the optimal contextual relevance to the audience's cognitive schema, creating the fair contextual effect. A better way to enhance the communication effectiveness is to create strong contextual effect by adding notes and pictures together in the MT text. The pictures in MT3 allow the audience to clearly know the outlook of glutinous rice balls and the God, and how Banpingshan is named based on its flat side. The iconic, pictorial elements explicitly present the source cultural attributes and the materialistic components of the story setting, so the story is more impressive to the audience. Since a blend of pictorial signs and added notes expand the scope of the audience's cultural knowledge, the audience has a deeper comprehension of the MT text.

As indicated above, due to an increasing amount of information provided by more paratexts, the contextual effect generated in the MT text shifts from the weak, fair to strong degrees, and the audience's comprehension also moves from rough, fair to the optimal levels. Without additional co-texts, the audience can merely infer the meaning based on the simplified linguistic codes of the MT text. Viewed from Gutt's relevance-theoretic perspective, when the messages are contextually relevant to the audience's cognitive knowledge, the effective communication of messages is achieved. Better than this is a combination of added notes and pictures that provides more shared cultural knowledge and more communicative clues, so the strong contextual effect is created and the MT can be understood more easily and more clearly.

## VI. RESEARCH SIGNIFICANCE

This research has shed light on some pragmatic significance of paratextual application by using the English MTs of Taiwanese folktales as analytical samples. We can discuss two specific significances from the aspects of a useful role of paratexts in MT and the dynamic contextual effect as follows.

### A. A Useful Role of Paratexts in MT

Like their function in human translations, paratexts similarly play a useful role in the MT text because they boost the target audience's understanding of the MT text. Over the past several decades, the issue of effective communication of MT has been discussed from the linguistic perspective, not from the pragmatic functional perspective of paratexts. The pragmatic function of paratexts has been overlooked in the research on MT communication. Indeed, supplementary information of paratexts can help the MT audience acquire new cultural knowledge such as the names of foods, people, places, tools, and cultural practices, norms and traditions in the source culture. When the MT audience reconstructs their cognitive schema with new contextual knowledge, they can process MT information with less cognitive effort and increase their understanding, concurring with the concept of Gutt's optimal relevance. However, we should notice that

paratextual occurrence should not be too much or too little; only the right amount of added notes and pictures can optimize the contextual effect, and would not bother the audience's reading and interpreting process. In short, the paratexts compensate for cultural inadequacy and help improve the international audience's understanding of MT, supported by Gutt's relevance theoretical concepts.

### B. *Dynamic, Flexible Contextual Effect*

A probe into three sets of MTs has identified three types of contextual effects, suggesting the dynamic, changeable nature of contextual effect. Without being reduced to the unified, fixed cultural effect, this research shows that varied degrees of contextual effect can be created in answer to various types of paratexts supplemented to the MT text. When no paratexts are used, the contextual effect is weak. After a single paratext of added notes is used, the fair contextual effect is created, and when two paratexts are utilized, strong contextual effect is generated. A single paratextual aid allows the MT audience to retrieve some interpretative clues for the easier understanding of some cultural presentations, but it remains inadequate. Two paratexts double the load of culture-specific information input, so it doubles the audience's shared cultural knowledge with the source audience, and optimizes their understanding of MT messages. The use of two paratexts accords with Gutt's concept of optimal relevance that is successfully attained as the result of offering the audience adequate contextual knowledge in a translation.

In conclusion, this research has shown the significant co-relation among paratextual aids, dynamic contextual effects and the audience's varied levels of comprehension. Different types of paratexts in the MT text allow for the building-up of different amounts of contextual knowledge in the audience's mind, and provide different types of interpretative clues. With the help of various clues, the audience enters into different levels of information processing, and reaches different levels of MT comprehension. In reality, even human translation needs to use paratexts to improve the audience's understanding of difficult-to-render cultural messages, so the MT output that falls short in its readability and understandability more needs paratextual aids to effectively communicate all the MT messages to the international audience. Overall, the present research reveals its pragmatic significance that paratexts play a useful role in MT-enabled communication and that the application of various paratexts enhances MT audience's comprehension based on the dynamic contextual effect created in the new MT scenario.

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